

Studies at the Crossroads of Management & Economics

SAMET EVCI
ANSHUMAN SHARMA

STUDIES AT THE CROSSROADS OF MANAGEMENT & ECONOMICS

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INTRODUCTION

Business and economics, which are among the disciplines of social science, examine and discuss many issues affecting human life from various perspectives. In this context, prominent subjects in business and economics are examined by authors with different disciplines and approaches in this book. The book consists of three parts: economic theory and policy, finance and accounting, strategic management and marketing.

The first part includes studies on economic policy and theory. The studies in this section examine economic issues such as unemployment, economic growth, foreign trade, globalization both theoretically and empirically from a national and international perspective.

The second part includes studies on finance and accounting. In this chapter, while the banking sector is examined various aspects, on the other hand the development of Islamic financial institutions in Turkey and other countries are investigated as a comparative basis. Besides, this chapter also includes studies examining the stock market in terms of behavioral finance and market volatility. Bitcoin market and bitcoin price volatility, which are closely followed by investors today, are discussed in this chapter. The studies on accounting and auditing are examined the relationship between municipalities' revenues and expenditures empirically, is given information about the scope of Islamic Finance Auditing Standards by comparing with International Standards On Auditing and are discussed costing methods important for companies.

In the last part, there are studies including strategic management and marketing. In these studies, the effectiveness of social marketing advertising is discussed theoretically, the relationship between servant leadership and organizational identification is examined empirically and the effect of holistic marketing practices on repurchase intention is investigated.

This book, which covers studies from different fields of business and economy, is expected to contribute to the literature. It is also believed that the book will be beneficial to business managers, investors and researchers.

March 2020
Samet EVCİ

SECTION **I**

**ECONOMIC THEORY AND
ECONOMIC POLICY**

1

THE LABOR THEORY OF VALUE BEFORE MARX¹

Cumali BOZPINAR²

It very well may be said that the labor theory of value before K. Marx was discussed mainly within the framework of A. Smith, T. Malthus, and D. Ricardo's opinions.

SMITH'S LABOR THEORY OF VALUE

The labor theory of value can be described as follows: The value of a commodity is determined by the amount of labor required for its production. Classical economists' explanations on value are based on this theory. However, these economists made explanations on the value issue within the framework of the price mechanism. It is seen that the first evaluations on the subject were made by Smith³.

It is stated that Smith had first put forward on the subject that commodities' relative prices generally depend on the relative amounts of labor required for their production (Foley, 1999: 19). Whereas he first proposed that "*the value of the commodities is determined by the amount of labor required for the production of each*" (Savran, 1997: 18). It is actually seen that Smith's answers are confused about the values of commodities (Savran, 1997: 18). Before going to any other descriptions being inconsistent with the theory caused by this confusion, his first

1 This work was produced from the author's master thesis. The imprint information of the thesis is as follows: Bozpinar, C. (2010). *Relationship between unemployment and economical growth: Turkish labour market* (Unpublished post-graduate thesis). Gazi University Institute of Social Sciences, Ankara.

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3 The issue also exists before Smith. In the pre-Smith period, the valid view on the issue was "just price". The representatives of this view were Plato and Aristotle, respectively. In this context, it can be stated that Smith inherited the use value and the exchange value from Aristotle. See for details: Sewall (1901). Actually there have been several arguments about the precursors of Smith's analysis in the history of economic thought. For some of these studies see: Johnson (1937), Rothbard (1995), Aspromourgos (1996), Redman (1997), Steiner (2003), Murphy (2009), Eren (2010), Eren (2011), and Bilir (2019).

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explanations of proposition “the value of the commodities is determined by the amount of labor required for the production of each” will be discussed.

Smith stated first that product quantities to be given during product exchange are the amount of labor time spent in settled agricultural or hunter societies (Foley, 1999: 19). In his book *The Wealth of Nations*⁴, he (2007: 41) states:

“In that early and rude state of society which precedes both the accumulation of stock and the appropriation of land, the proportion between the quantities of labour necessary for acquiring different objects seems to be the only circumstance which can afford any rule for exchanging them for one another. If among a nation of hunters, for example, it usually costs twice the labour to kill a beaver which it does to kill a deer, one beaver should naturally exchange for or be worth two deer. It is natural that what is naturally the produce of two days’ or two hours’ labour, should be worth double of what is usually the produce of one day’s or one hour’s labour.”

But the fact that labor is the only factor determining the value of exchange is not applied to the capitalist economy by Smith (Kazgan, 2000: 75).

Returning to Smith’s statements of an inconsistent nature with the labor theory of value, these discrepancies can be summed up under two headings:1) In addition to his original proposition, which constitutes the theory, he makes a second definition in the form of labor ordered by the commodity, but uses the two definitions as if they were synonyms. 2) He states that after the accumulation of capital and the acquisition of land property, these definitions have ceased to be valid. At this stage, he agrees that because profit and rent enter into the business, the value is generated by a “natural price” which is achieved by collecting the costs necessary for the production of the commodity. We call it “the adding-up theory of price” (Savran, 1997: 18).

Foley says that “Smith left the labor theory of value in the middle of his argument without explaining why, and switched to another theory: The adding-up theory of value.” (Foley, 1999: 19). Before we move on to this theory, let us state an important point. According to Savran, Smith has defined the institutional field of political economy through two basic elements. The first is the production of

4 Smith investigated the causes of the national wealth, forces of economic growth and policies that promote economic growth in his magnum opus *the Wealth of Nations* and provided a comprehensive and integrated view of the economic process (Bilir, 2018: 85).

commodities, that is, the production is done for the purpose of exchange, and the second is the accumulation of capital in certain hands and the acquisition of property of land. Under these conditions society consists of three distinct classes-capitalists, workers and landowners. As a result of their social product division, three basic income categories emerge: Profit, wage, and rent (Savran, 1997: 16). We can now state the explanations in the source, namely *the Wealth of Nations*, in relation to the adding-up theory of price:

*“As soon as stock has accumulated in the hands of particular persons, **some of them**⁵ will naturally employ it in setting to work industrious people, whom they will supply with materials and subsistence, in order to make a profit by the sale of their work, or by what their labour adds to the value of the materials. In exchanging the complete manufacture either for money, for labour, or for other goods, over and above what may be sufficient to pay the price of the materials, and the wages of the workmen, something must be given for the profits of the undertaker of the work who hazards his stock in this adventure. The value which the workmen add to the materials, therefore, resolves itself in this ease into two parts, of which the one pays their wages, the other the profits of their employer upon the whole stock of materials and wages which he advanced.”* (Smith, 2007: 41-2).

After explaining the profit in this way, Smith doesn't bother to explain the emergence of private ownership in the land and offers the rent directly to the reader like an ordered meal: *“...the landlords, like all the other men, love to reap where they never sowed, and demand a rent even for its natural produce.”* (Smith, 2007: 43). Moreover, like the host who does not like guests, he fends off the subject with the following statements: *“Labour measures the value not only of that part of price which resolve itself into labour, but of that which resolves itself into rent, and of that which resolves itself into profit.”* (Smith, 2007: 43). However, by counting like this, he departs from the view that labor is the only variable that determines the exchange value (Kazgan, 2000: 76). Indeed, as noted above, his lack of any explanation that the rent was born out of labor also confirms this. As for the fact that profit is based on labor, he says:

“The profits of stock, it may perhaps be thought are only a different name for the wages of a particular sort of labour, the labour of inspection and direction. They, however, altogether different, are regulated by quite different principles, and bear no proportion

5 The highlights belong to me.

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to the quantity, the hardship, or the ingenuity of this supposed labour of inspection and direction. They are regulated altogether by the value of the stock employed, and are greater or smaller in proportion to the extent of this stock...” (Smith, 2007: 42).

Smith himself didn't in any way resolve the rent issue and might not even have been aware of this. Moreover, “*he abandoned the labor theory of value in the middle of his argument without explaining why, and shifted over to another theory, the **adding-up theory of value***”. This theory explains how the cost of any item can be settled into wages, profits and rent (Foley, 1999: 19-20). In this case, he has not explained both how the transition to capitalist society is and how and why the rent in capitalist society is based on labor, thus abandoning the labor theory of value.

Smith has assessed population growth as both the cause and consequence of economic development. In the early stages of development, where the population is low, the yield of the soil is high and the profits of the entrepreneurs are very good. With population growth, demand revives and as a result investments increase, technological progress is achieved. Increasing the welfare of workers will also drive up population growth. But with introduction of the *law of diminishing returns* after a while, with return per workforce falling and profits declining, investments will fall, a pause remains to be seen. The decline in the standard of living will reduce population growth and economic growth will plunge into stagnation. Smith leaves the subject ambivalent, not bringing up the rest after saying these things (Yumuşak, 1998: 168).

Malthus developed Smith's thoughts on overpopulation.

MALTHUS'S CONTRIBUTION TO THE ISSUE

In Malthus's population theory, the issue that Smith left erratically is addressed in detail (Yumuşak, 1998: 167).

According to Malthus's population theory, continuous control over the population should be applied because these two powers are not equalized as food items increase arithmetic and population geometrically. Malthus's argument is based on two basic propositions. The first is that food is essential to human existence. The second is that it is inevitable that men and women desire each other, and that will not change in the future. The result of these propositions is that the rate of

population growth is infinitely greater than the power of land to obtain sustenance for humans. If not controlled, the population increases at a geometric rate. The increase in subsistence foodstuffs occurs at an arithmetic rate. A rough calculation would reveal that the first power is enormously greater than the second power. Based on these assumptions, Malthus concludes that there will be a constant war between humans and food items (Yumuşak, 1998: 167). The population model of Malthus is based on the following logic: *“That a rise in the standard of living resulting from an increase in real wages will sharply lower mortality rates, especially infant mortality, and therefore lead rapidly to an increases in population and labor supply, thus pushing the real wage back down.”* (Foley, 1999: 5). Within this view, the decline in real wage works in reverse through symmetric mechanisms. *“Since Malthus considered that food production be relatively inflexible, he predicted a situation in which human population is maintained in equilibrium at a low standard of living with chronic food shortages and high mortality rates. Though this model has proved to be incapable of predicting the **demographic transition** of modern industrial economies, in which a fall in mortality is matched by a fall in fertility rates, and population stabilizes with a long lifespan and low mortality and fertility, it still influences popular conceptions of world population problems and is the analytical foundation of the modern science of demographics.”* Moreover, *“Malthus’s analysis of food production has proved similarly to be far off the mark, but the reasons for the failure of his theory give us important insights into the dynamics of population and agricultural technological change.”* (Foley, 1999: 5).

RICARDO’S DILEMMA

The basis of Ricardo’s leaning method is to follow what is right in Smith’s thoughts and to weed out what is wrong with him in this direction. In a way, Ricardo accepted the elements of Smith’s classical economic policy approach as the basis, and therefore criticized and rejected the propositions of his master that could be a source in vulgar economics; that is, he defended the classical Smith against the vulgar economist Smith. This is what makes Ricardo the most consistent representative of classical political economy (Savran, 1997: 8, 17-8). When his book *“Principles of Political Economy and Taxation”* is examined, the following are seen:

- a) He agrees with Smith on all matters except “theory of value” and distribution,
- b) He begins by criticizing *“the adding-up theory of value”* and develops a healthier and stronger version of the labor theory of value (Foley, 1999: 6, 58). Ricardo’s starting point, according to Savran, is Smith’s inability to explain the relationship

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between growth and distribution. As the title of his book makes clear, Smith explored how to increase general wealth in capitalist society, *i.e.*, how to achieve growth in modern-day words. For Ricardo, too, it is the main goal of political economy to explore the relationship between distribution and growth (wealth accumulation). However, according to him, Smith came to the wrong conclusion about the other aspect of this relationship, growth and distribution. Here this problem defines Ricardo's basic research program: Distribution in accumulation process or accumulation through distribution. Indeed, he makes this clear in the preface of his book (Savran, 1997: 17):

"...in different stages of society, the proportions of the whole produce of the earth which will be allotted to each of these classes, under the names of rent, profit, and wages, will be essentially different..."

To determine the laws which regulate this distribution, is the principal problem in Political Economy..." (Ricardo, 1997: 23).

Regarding Ricardo's view of value theory, which he disagrees with Smith, may refer to: Perhaps the most important aspect of Ricardo's work is about the theory of value, and his architecture is the product of his concern to make consistent the legacy that we refer to above as Smith's "ambivalence". In other words, Ricardo's approach to value theory and the architecture of his work are determined precisely by his effort to get rid of Smith's inconsistencies. Ricardo takes Smith's proposition "The amount of labor required for the production of a commodity is determined by the value of the commodity", which forms his basis of the labor theory of value, as a postulate, and later criticizes and rejects both the theory of labor ordered by the commodity and the adding-up theory of value. More important here is the latter, because Ricardo's whole purpose is to prove that the labor theory of value is also valid under the conditions of capitalism. In order to do this, he first has to put forward that the theory does not contradict the rent and profit (Savran, 1997: 18). Moreover, because of this necessity, according to Savran (1997: 18-9), Ricardo included rent in the second chapter -immediately after the value- of his book because he wanted to prove that the category of rent does not contradict the labor theory of value, but rather is the result of the workings of this theory, and thus he established the labor theory of value on a solid footing by protecting the classic Smith from vulgar economist Smith. We disagree. We'll make the necessary explanations in the following pages. Now let's address Foley's remarks on the matter.

According to Ricardo, Smith's adding-up theory of value is devious, especially when the rent is also involved in the work. He deals with determinants of the values of commodities produced routinely for all time, such as cereals (corn) and textiles (Foley, 1999: 6, 58). *"In Ricardo's theory wages, profits and rents divide the net product of an economy according to laws distribution derived from competition"*. Ricardo adopts Malthus' analysis of population and wages in a one-sector corn model, arguing that the dynamics of mortality and fertility determine an equilibrium level of the corn wage at which the population will be stable and treats rent and profit as the residual shares of the net output of corn (Foley, 1999: 6, 63). *"In Ricardo's vision, workers and landlords consume their incomes, while capitalists largely accumulate. This **class analysis** of the dynamics of capitalist production still offers important insights into a world divided sharply between rich and poor. The expansion of capital through accumulation allows for population growth in Ricardo's theory, but this increase in population presses against limited land resources and raises rents at the expense of profits. Eventually profits and the profit rate fall to zero, and the economy stagnates in a stationary state. Ricardo's analysis of **diminishing returns** to capital and labor inputs to production is the foundation of neoclassical equilibrium theory, and prefigures contemporary concerns about environmental consequences of unbridled economic growth and **the limits to growth**."* (Foley, 1999: 6).

Apart from these, *"despite difficulties in extending this theory to the case where there are many different commodities produced, this framework allows Ricardo to arrive at very powerful conclusions about the dynamics of capital accumulation."* (Foley, 1999: 6). Ricardo sought a commodity, which he called *"the invariable standard of value"*. *"Unfortunately, Ricardo never found a commodity that could reliably serve as his invariable standard. When he died, an unfinished essay headed 'The Invariable Standard of Value' was on his desk."* (Foley, 1999: 62). To summarize, Ricardo is not clear in his search for an invariable measure of value; this commodity he did not find was named "invariable standard of value" near his death. He made unrealistic assumptions in order to reconcile the acceptance that "the net product of an economy is to be distributed according to laws derived from competition, and as wages, profits and rents" with his argument that labor determines the exchange value. First, labor must be homogeneous, or if there are differences between them, this should be able to be converted into quantity. But he says nothing but that supply and demand determine the exchange value of different types of labor. Second, it must be acknowledged that capital does not play a role in determining the exchange value. Since he did not consider capital to be inefficient, he assumed

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the capital/labor ratio constant in all branches of production. Upon criticism of this assumption by Malthus, he acknowledged its inadequacy. Because if capital and labor are not combined at the same rate at the margin of production, this means that only labor will not exist within the exchange value. This, on the other hand, shakes up his own labor theory of value from the ground up. Finally, with his own theory of rent, he excludes the land, hence the rent, from the exchange value (Kazgan, 2000: 77). We can clearly say that the rent arises from the ownership of the land. Therefore, he left the rent out of his analysis because he could not explain it with labor. After he fends off the rent in this way, it's time to explain the profit. For the rest, the following quote from Kazgan would be appropriate (Kazgan, 2000: 78):

"Behind both Smith's and Ricardo's theory lies the theory of property of natural law philosophy. Accordingly, the natural source of property is labor expended for commodity. It is the natural right of a person to own the product of his own labour. The system of natural property, in which everyone possesses the product of his own labour, requires full freedom, hence laissez-faire⁶. ... Because Ricardo considers labor as the 'first source and basis of value', capital as efficient and profit as the equivalent of this yield, in analytic terms, the labor theory of value did not serve his purpose he sought. ... His efforts to explain the cost⁷, with a 'real' factor and reconcile it with laissez-faire, rather than explaining it with changing factors, which are cash and temporary, led Ricardo to various contradictions in value theory.

There is also an aspect of the labour theory of value that is incompatible with laissez-faire: This is the birth of ownership that cannot be explained by labour as a result of capital interest eliminating the direct link between work and property..."

In fact, both ownership of land and accumulation of capital can be explained by labor. This means that if a hunter community is to live in a settled life, it requires labor to clean trees, shrubs, stones, and rocks and other processes to make the land on which they will live habitable; ownership of the resulting habitable land is the equivalent of the labor they has spent.

Again, in any community, some people can accumulate products that they produce more than they need and exchange some of them for business materials, meaning

6 Let them do it.

7 The equivalent of cost is the exchange value in Marx's terminology.

they can own capital. However, the share of both land and capital in the product can be explained by ownership rather than labor.

Other comments on Ricardo include: In the framework of his writings, the relative values of commodities according to the labor time required for their production are also shaped in the long term, the same logic applies in monetary prices, every single explicit type of labor can be reduced to a standard unit of labor, there is a commodity independent of wages, and similar comments can be made. These interpretations clearly show that Ricardo confused price, wage, value, labor, and labor time. Yet he must be given his due, for he knew he was confused!

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2

DOES ECONOMIC POLICY WORK IN TURKEY?

Bilgin BARI¹

INTRODUCTION

Turkish economy experienced two economic crises in November 2000 and February 2001. These crises went down as the most severe ones ever in the country's history. The main reason for these crises was the IMF-supported anti-inflation program, designed in 1999 and launched in 2000. This program had a framework that planned to lower inflation based on the fixed exchange rate. Many economic problems living in the 90s in Turkish economy had been the leading underlying problems of inflation. To this end, inflation was planned to be reduced with controlled increase in the exchange rate. However, the program first lost its functionality due to implementation difficulties in November 2000 and was entirely out of circulation after a political crisis in February 2001. As a result of the pressure on the exchange rate, the fixed exchange rate regime was abandoned, and the floating exchange rate regime was introduced. The rapid increase in the exchange rate after the regime switching also caused severe balance sheet losses and bankruptcies in the banking sector. The transfer of debts from the sinking banks to the Treasury led to an increase in public debt. Interest rates had reached high levels due to the liquidity shortage. There was nothing left in the name of monetary policy.

FASCINATING TIMES FOR ECONOMIC POLICY

A new economic policy framework was introduced in April 2001 under the name of the Transition to the Strong Economy Program to repair the massive damage caused by the crises in the economy. This framework also meant a severe paradigm shift in the implementation of economic policy. The new economic policy was based on three main pillars: a monetary policy, whose inflation was prioritized, a

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fiscal policy aimed at ensuring tight fiscal discipline, and a banking sector with a strong capital structure. Within the framework of this policy, where monetary policy is the leading policy, the Central Bank gained also independency. The primary purpose of the independent central bank was to determine and carry out monetary policy in order to ensure price stability. Fiscal policy, on the other hand, would contribute to both suppressing demand and decreasing interest rates by providing a tight fiscal discipline. Strengthening the capital structure of the banking sector would have contributed to both steady growth and the functioning of the monetary transmission mechanism. The design of economic policy in this way also meant preparation for monetary policy back to the inflation targeting regime. Despite the many advantages of inflation targeting, there are some difficulties in the design and implementation of the inflation targeting regime in developing countries. Calvo and Mishkin (2003) argue that developing countries are faced problems with (i) weak financial institutions, (ii) weak financial institutions and undeveloped financial markets, (iii) insufficient central bank reputation, (iv) liability dollarization and (v) vulnerability to sudden capital outflows. Although it is not possible to say that developed countries are completely free of these elements, the existence of these problems in developing countries is much more severe and complicates the design of the inflation targeting regime.

A large part of the necessary preconditions for successful inflation targeting regime is not met because of the uncertainty prevailing in the post-crisis in Turkish economy. Policy makers had decided to move gradually to an inflation-targeting regime which is called “implicit inflation targeting regime” and an intermediate regime was implemented between years of 2002-2005. In this framework, annual CPI inflation was targeted to decrease below the levels of 35%, 20%, 12%, and 8% for the end of 2002, 2003, 2004, and 2005, respectively. Over the past period, inflation rates fell below expectations, dropping from 68 percent in 2001 to 7.7 percent by the end of 2005.

The most crucial reason for monetary policy to be successful in this period was fiscal discipline. As a result of monetary and fiscal policy work in coordination, a period in which economic policy was highly effective was experienced. Nevertheless, as a result of the fiscal policy implemented to ensure a tight fiscal discipline, primary surplus targets, which are considered to be quite high according to international standards, had been met, public debt stock had decreased to reasonable levels over time, and consequently, concerns about the transformation of the debt burden

moderated. Thus, the importance of financial dominance, which had been seen as one of the most important obstacles to the effectiveness of monetary policy for many years, gradually decreased. The most important result of achieving inflation targets and ensuring fiscal discipline was the increasing confidence of the economic agents in economic policies and the monetary policy gaining a rapid reputation. As a result, the difference between inflation expectations and targets (credibility gap) converged significantly.

In the 2002-2005 period, Turkey's economy grew by an annual average of around 7 percent, and production volatility has decreased significantly. In addition, volatility in exchange rates and financial markets decreased, and a decrease in risk premium was observed. In addition, the studies revealed that the economy's compliance with the floating exchange rate regime increased in this period, and the pass-through from the exchange rate to prices decreased compared to the period before 2001. As a result, nominal and real interest rates declined significantly, and borrowing maturities extended, with the effect of the fluctuation in inflation. Moreover, due to the relative stability environment provided in the economy, confidence for the Turkish lira had increased, and the process of decreasing the dollarization started. Finally, in the implicit inflation targeting regime, pricing behavior was changed, and the rate of the dollarization decreased. (Kara, 2008)

Table 1. Macroeconomic Indicators in Turkish Economy for 2001-2005

	2001	2002	2003	2004	2005
Inflation	68.5	29.7	18.4	9.4	7.7
Growth	-6.0	6.4	5.6	9.6	9.0
Increase in private investment	-32.9	16.9	23.7	36.1	16.2
Risk Premium (EMBI, base point)	889	761	628	354	273
CBRT policy rate		44	26	18	13.5
Benchmark interest rate	70.1	55.7	25.5	20.3	13.8
Total external debt / GDP	56.5	54.8	45.9	40.0	34.2
Government debt / GDP	72.5	67.5	60.5	54.9	49.3
Budget deficit / GDP	-11.6	-11.2	-8.6	-5.0	-1.0

Source: Özatay, F. (2019)

The period in which economic policy did well in every respect is summarized in Table 1. In the period of the implicit inflation targeting regime, a reliable infrastructure economic policy in many respects was developed. The explicit inflation targeting regime has been implemented since 2006. But inflation targets have couldn't met for many years. Annual inflation is far from the level of price stability, which is considered to be 2%. There are different reasons for this. This study examines these causes. It focuses on the functioning of economic policy, with an emphasis on these reasons. Firstly, we consider monetary policy and examine the effectiveness of monetary policy over inflation targets and realizations. We focus on the structural problems of the Turkish economy to explain the relationship between the rising trend in the inflation and structural reasons. Thus, we will talk about two reasons that determine the effectiveness of the economic policy. These are institutional problems related to the implementation of economic policy and structural problems related to the production structure of the economy.

We briefly summarized the reasons for the success of the economic policy for the 2002-2005 period. These reasons also explain why the economic policy was not successful in the following years. However, the global financial crisis, as well as on other emerging economies, was also a negative impact on Turkish economy. We will mention this in the following sections.

INFLATION AND MONETARY POLICY

We analyze what monetary policy does to measure the effectiveness of the economic policy. The central bank, the executive of monetary policy, has independency. The primary purpose of the central bank has been determined to ensure price stability. What is meant by price stability here is to provide annual inflation of around 2% and make it sustainable. In this sense, this goal has not been achieved yet. The extent to which the announced inflation targets are achieved is an essential indicator in terms of evaluating the success of the monetary policy. Figure 1 presents that inflation targets have not been met since 2006, the year when open inflation targeting started.

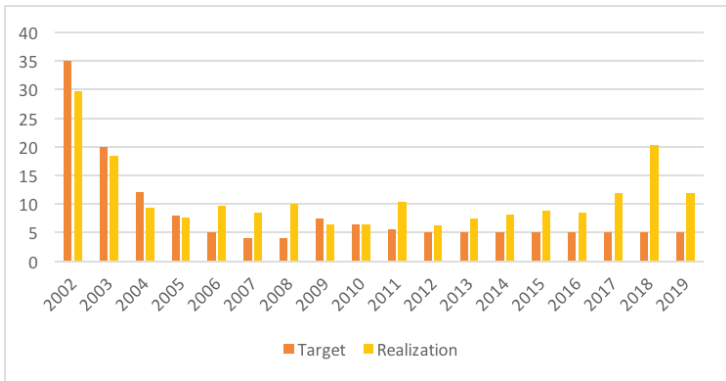


Figure 1. Inflation Targets and Realizations

We can explain the inflation phenomenon in Turkey's economy using the modern Phillips curve equation and can talk about economic policy in general. We can write the modern Phillips curve equation as follows:

$$\pi = \pi^e + \alpha(Y - Y_p) + \eta$$

According to the equation above, current period inflation (π); depending on inflation expectations (π^e), output gap ($Y - Y_p$), and price shocks (η). Inflation expectations affect inflation in two different ways, both ahead and forward. Situations where the output gap is positive occur when the current output exceeds the potential output. In this case, inflation is expected to increase due to price and wage increases. Price shocks, on the other hand, show the effects of increases in exchange rates and input costs on inflation. In this theoretical approach to explaining Turkey's economy, studies are showing that it runs through inflation expectations and price shocks. Interestingly, there is no inflationary effect in times when the output gap is positive, ie, when the economy is growing. Özatay (2019) states that the relationship between inflation and growth between 1999-2019 was different from theoretical expectations. He uses the graphic below to confirm this thesis.

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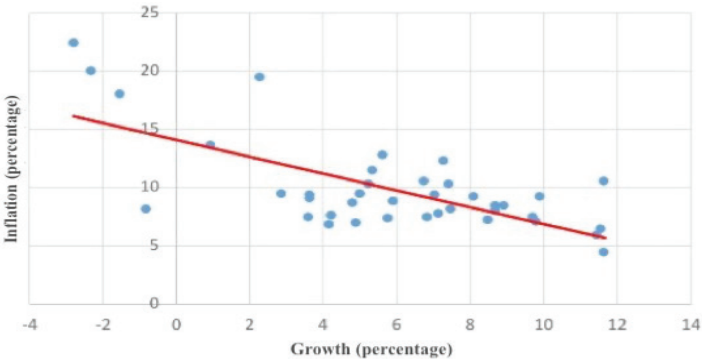


Figure 2. *The relationship between Inflation and Economic Growth (1999:Q1-2019Q3) (Ozatay,2019)*

In order to see the effect of inflation expectations, we can look at Figure 3. In the period from 2006 to the end of the last year, inflation expectations have been above the inflation targets. It is seen that this difference has increased in recent years. There are two main reasons why inflation expectations are above target levels. The first is that the previous period inflation had an impact on pricing decisions. This shows the existence of inertia in inflation. The second is that increases and fluctuations in the exchange rate affect the pricing decisions upwards.

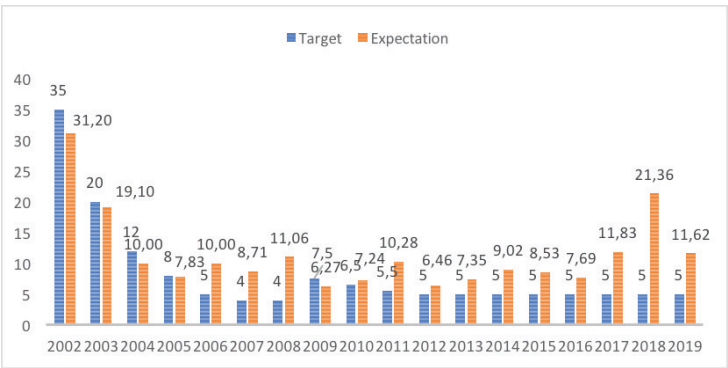


Figure 3. *Inflation Targets and Expectations*

The parameter expressing price shocks in the modern Phillips curve equation can be used to explain the effects of changes in exchange rates, energy prices, and agricultural product prices on inflation. The presence of this parameter, in particular, Turkish economy, also explains the structural problems in determining inflation. These structural problems are:

- The exchange rate is sensitive to economic policies and political uncertainties,
- Current transactions or savings deficits are high,
- The use of imported intermediate goods is high in production,
- High dependence on foreign energy,
- Decreasing the production of the agricultural sector and becoming foreign dependent.

Fluctuations and increases caused by the exchange rate's response to uncertainties put pressure on inflation. Regardless of the price changes of imported intermediate goods and inputs, increases in the exchange rate cause an increase in production costs. The increase in production costs cause an increase in the producer prices index and then the consumer prices index. However, the exchange has a direct impact on consumer prices (over imported final goods prices).

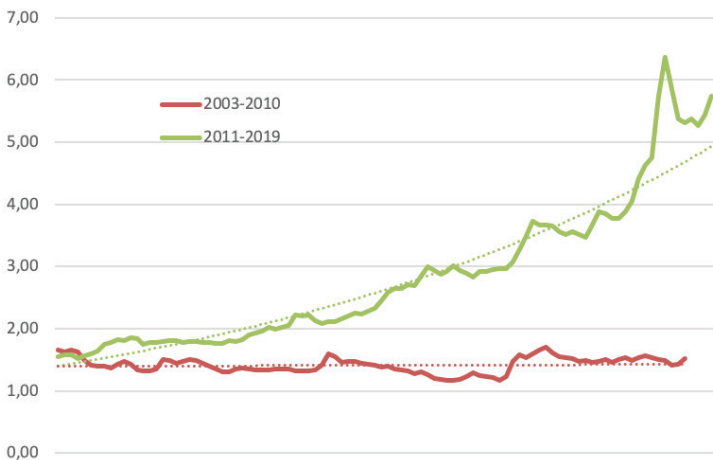


Figure 4. Exchange Rate Dynamics in Turkish Economy

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Apart from the above effects of the exchange rate, it has an essential effect on pricing decisions. This effect occurs, especially during the fluctuations and rising periods in the exchange rate. The increase in the fluctuation in the exchange rate also increases the uncertainties. In this case, pricing behaviors are performed by taking the highest exchange rate data reached by the fluctuation. The steady upward trend in the exchange rate also affects pricing decisions. In both cases, price increase decisions are high due to the indexing effect.

It needs to focus on structural factors to explain the dynamics of the exchange rate in Turkey's economy. In periods of uncertainty and risk perception, fluctuations and rises occur in exchange rates. Behind this effect arising from capital movements, the current account, and the foreign currency or savings deficit that we can follow from the capital account play an important role. Here again, there is a structural problem. However, as we can see from Figure 4 above, we can say that the main reason for the movements in the exchange rate is uncertainties stemming from economic policy.

Sahinoz and Cosar (2018) developed an index to measure uncertainties in economic policies. The six main news created by scanning the newspapers in Turkey and economical, also compelling on the global and political volatility in this index, which measures the uncertainty created by the development of exchange rates and market interest rates. When we examine the index in Figure 5, we see that economic policy uncertainties are quite high, and in some periods, there are severe increases in the index.



Figure 5. *Economic Policy Uncertainty Index for Turkey (Sahinoz ve Cosar,2018)*

Jirasavetakul and Spilimbergo (2018) indicates that there is a close relationship between uncertainty regarding economic policy in Turkey's economy and CDS spreads. In their study, a different economic policy uncertainty index for Turkey developed.

The central bank controls on aggregate demand using short-term interest rates, which are monetary policy instruments. The aim is to suppress future inflationary effects. The responses of the policy rate to the inflation gap and the output gap may differ in the monetary economics literature. Since the real interest rate is useful in the decisions of the economic units, the Taylor rule can also be expressed in real terms:

$$r = r_s + \phi_{\pi}(\pi - \pi_T) + \phi_Y(Y - Y_P)$$

The coefficients in front of the inflation gap and the output gap help us understand what the priority of monetary policy is. The central bank uses the policy rate as an indicator in terms of interest rates by ensuring that it is formed in the interbank money market. The policy rate signals the market regarding the stance of the monetary policy. The overnight interest rate was used as the policy rate until November 2010. After this date, it has been changed to the one-week repo rate. This also meant that policy interest and market interest diverged. Here we have another interest rate to choose from in order to achieve the monetary policy response function. Alp et al. (2010) show that the one-week TRlibor interest rate can be used to follow the monetary policy stance. Gürkaynak et al. (2015) states that the one-week TRlibor interest rate is higher than the policy rate for sensitivity to inflation. They also estimates three different monetary policy rules for different periods. According to the authors, there is a structural break in all monetary policy rules in 2009. Therefore, they make separate predictions for the two sub-periods. For the three different monetary policies, it is emphasized that the interest rate response to inflation was more severe in the 2003-2009 period. The results show that the post-crisis monetary policy (interest rates) is used to stimulate the economy. This is also one of the reasons for inflation to move away from the target after. Acemoglu and Üçer (2015) state that after 2006, Turkey's economy experienced a structural break. This period shows a disruption in the monetary policy side of economic policy.

A new goal was added to the monetary policy in the last months of 2010: financial stability. For this purpose, the importance of increased financial stability, especially

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after the global crisis, became apparent. Özatay (2012) reorganizes a well-known corporate model developed for the inflation targeting regime that was widely applied before the global crisis, taking macro-financial stability into account. Kara (2010) summarizes the causes, implementation, and results of the new monetary policy framework. Üçer (2011) examines the changing framework and the effects of monetary policy. In his paper, he states that the policy framework, guiding Turkey's economy without compromising the medium-term inflation expectations to a balanced growth path, emphasizes that it is quite useful.

CONCLUSION

Economic policy in Turkey is built on three main sub-policies. The purpose of the monetary policy is to ensure price stability. In practice, the level meant by price stability is the annual inflation rate to be around 2%. The monetary policy carried out under the inflation targeting regime cannot meet the inflation targets set above the mentioned level. The most important factor causing the increase in inflation is the fluctuations and increase in the exchange rate. Therefore, Turkey stands out as the structural problems of the economy. The high level of imported intermediate inputs used in production and the presence of savings (foreign exchange) deficit are the two main reasons. In periods when uncertainties regarding economic policy are high, volatility and uptrend are emerging in the exchange rate. This affects both producer prices and direct consumer prices. Problems related to production in food prices, another determinant of inflation, cause price increases. As a result of the decrease in agricultural production, domestic food prices are increasing. Meeting the decreasing production with imports also causes price shocks caused by the exchange rate.

The fiscal policy facilitates the operation of monetary policy by providing fiscal discipline and contributes to reducing inflation. Macroprudential policies ensure that the financial system has a stable functioning. In this way, achieving sustainable growth is also facilitated. The coordination problems that arise in the implementation of these sub-policies increase the uncertainties regarding the economic policy and cause the policy effectiveness to decrease. Nevertheless, the most crucial factor that determines the effectiveness of economic policy is the structural problems of the economy. Therefore, it is vital to implement structural reforms and strengthen the structure of the economy.

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3

ECOLOGICAL FOOTPRINT OF GLOBALIZATION IN TURKEY

Zerrin KILIÇARSLAN¹, Yasemin DUMRUL²

INTRODUCTION

Globalization plays a positive and important role in ensuring sustainable development by keeping the environment and by adapting green technologies (Alam, 2010: 110). Global environmental concerns were born with the awareness that ecological processes do not always respect national borders and environmental problems have effects beyond borders (Najam et. al., 2007: 1). Globalization can provide beneficial tools to manage economic sustainability and the environment (Ghita et. al., 2018:3). The rapid growth of the economic globalization, as well as the world population, increases resource consumption and fossil fuel emissions unprecedentedly (Wackernagel, 2010: 3). As a result of seeing nature as an unlimited resource and leaving the wastes generated as a result of consumption to the nature, the uncertainty of how long people can continue their lives in nature has been effective in the emergence of the concept of ecological footprint (Erden Özsoy and Dinç, 2016: 43).

Starting from the concept of “suitable carrying capacity” in Rees and Wackernagel (1992), the first researches on the concept of ecological footprint started. Over time, many studies have been conducted that analyse the ecological footprint, determination methods and components by emphasizing on sustainability (Ghita et. al., 2018: 3). As a result of these studies, Wackernagel and Rees (1996) developed the concept of “Ecological Footprint”, expressed as a measure of the demand directed to the biosphere through human activity. More specifically, it is defined as the biologically fertile land and water area needed to produce all the resources consumed by an individual, population or activity, and absorb waste, with current technology and resource management (Toderiou, 2010, 218; WWF, 2012: 6). Human demands change ecosystems by creating various pressures on

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ecology such as deforestation, overfishing, increased waste and pollution emissions, climate change, loss of biodiversity (Rudolph and Figge, 2017: 348). On the other hand, the resources that nature offers to humanity are not fixed and change over time due to inventions, technological developments, resource management, changes in land use and accumulated effects from the past. In other words, the biological capacity expressed as the capacity of a geographic region to produce renewable natural resources is changing. The fact that people's demand for nature does not exceed the biological capacity of the world is important for ensuring global sustainability (Erden Özsoy and Dinç, 2016: 42).

The concept of ecological footprint ensures the determination of the world's capacity and the resources that can be used. Thus, solutions that can prevent the continuous consumption of nature can be produced (Erden Özsoy and Dinç, 2016: 43). Ecological footprint is important in terms of balancing consumption and biological capacity, creating ecological awareness by quantifying how ecological deficits countries have, ensuring sustainability, revealing the quantity of the pressure on natural resources and what causes this (Akıllı et. al. 2008: 22; Ruževičius, 2010: 711). Globalization, expressed as the process of interaction and integration between people corporates and governments of various nationalities, is guided by international trade and investments and supported by information technology (Herrmann and Hauschild, 2009: 13). There has been an rise in environmental problems with the increase in globalization in recent years. Globalization has an important role in increasing ecological footprint and narrowing of biological capacity.

There are many studies on the effects of environmental pollution on various macroeconomic variables in the economic literature. The various approaches related to the effects of environmental pollution on macroeconomic variables have been taken into consideration in these studies. One of these approaches is the *Environmental Kuznets Curve*, which examines the impact of environmental pollution on economic growth and suggests that the level of environmental pollution increases and then decreases in the process of economic growth and explains this with scale, composition and technical effects. Another approach examines the effects of foreign direct investment on environmental pollution. This approach is called the *Pollution Halo Hypothesis* and the *Pollution Haven Hypothesis*, depending on whether the resulting effect is positive or negative. According to the Pollution Halo Hypothesis, foreign direct investments will reduce carbon emissions through greener technology transfer to host countries. Pollution Haven Hypothesis,

suggests that the increase in foreign direct investments to benefit from the weak environmental arrangements in host countries will increase carbon emissions (Hoffmann et.al., 2005: 311). Besides these a link with environmental pollution can be established within the framework of the *Factor Endowment Theory*. Indeed, according to the Factor Endowment Theory, the country with abundant capital exports capital-intensive goods and the increase in capital-intensive production increases pollution in the country where the capital is abundant (Copeland and Taylor 2004). Within the framework of these approaches, in the studies related to environmental pollution, carbon dioxide emission is taken into account as the variable that mostly causes environmental pollution. However, studies that directly examine the impact of globalization on ecological footprint are quite limited. This study differs from other studies in the literature on the environment since it deals with the impact of globalization on the ecological footprint using the KOF globalization index.

The aim of this study, for the 1970-2014 period in Turkey is to analyze the effect on the ecological footprint of globalization. The plan for the rest of the study is as follows. In the second section, the relationship between globalization and ecological footprint will be presented theoretically. In the third section, empirical literature will be included. In the fourth section, the data and methodology used in econometric analysis will be explained. In the fifth section, analysis results will be presented. In the last section, results and suggestions will be included.

THEORETICAL FRAMEWORK

There is a long-term relationship between the globalization of international markets and environmental degradation. There are two views on the effects of globalization on the environment. According to the first view, the globalization of the markets brings about the globalization of environmental problems. Globalization can lead to environmental degradation through technological, economic, demographic and cultural mechanisms. The technological change that emerged with the Industrial Revolution led to the use of natural resources more as an input in production. Therefore, the increase in production resulting from technological innovations has caused an increase in environmental problems. The increase in industrial activities and in income per capita, which arise due to economic growth, leads to an increase in industrial activities leading to environmental deterioration. The new cultural values brought by the industrial revolution and spread all over the

world through free markets are effective in seeing nature as a way of meeting human needs. On the other hand, the increase in the world population causes an increase in environmental degradation. (Borghesi and Vercelli, 2003: 82). However, international trade can also increase consumption, leading to an increase in ecological footprint and a reduction in the biodiversity of another country (Ghita et. al., 2018: 4).

According to the second view, globalization is an effective factor in the improvement of environmental conditions. As the level of development of the countries increases, economic growth and the resulting increase in income will increase the demand for improving the quality of the environment (Stern, 2004: 1421).

In Rudolph and Figge (2017), how the economic (intensification hypothesis, markets for the global environment hypothesis), political (global environmental governance failure hypothesis, global environmental governance hypothesis) and social (living in denial hypothesis, global environmental awareness hypothesis) dimensions of globalization can affect human ecological demands are explained in six hypotheses as follows (Rudolph and Figge, 2017: 349-350).

Intensification hypothesis: In addition to the inadequacy of globally binding environmental regulations, economic globalization intensifies human ecological demands due to the influence of developed countries on agricultural production, energy use and a race to the bottom.

Markets for the global environment hypothesis: Economic globalization reduces the environmental impact of human demands, for example, by transfer of clean technology through foreign direct investment (FDI).

Global environmental governance failure hypothesis: The absence of an effective institution that manages global ecological problems intensifies human demands. In other words, global governance appears to be inadequate to manage the negative environmental impacts of economic development. Global governance exposes nations and people to institutions and structures lacking democracy, accountability and transparency. Therefore, this leads to power abuse and ecologically negative consequences.

Global environmental governance hypothesis: Increasing the capacity and effectiveness of governance institutions reduces human ecological demands.

Living in denial hypothesis: Social globalization increases human ecological demands, as the global mobility of people diverts individuals physically and mentally from both the environmental and social adverse effects of the global economy.

Global environmental awareness hypothesis: People and nations are exposed to global information and information flows as a result of social globalization. As people become aware of the negative side effects of consumption and production, and as demand for “clean” products increases, environmental awareness also increases. Therefore, social globalization reduces human ecological demands.

EMPIRICAL LITERATURE

In the economic literature, although there are studies analyzing the effects of environmental pollution on different economic variables, empirical studies on globalization and ecological footprint are very limited. In this part of the study, a summary of previous empirical studies addressing the relationship between globalization and ecological footprint is provided.

Dreher et al. (2008) analyzed the effects of globalization on various ecological indicators for the 1970-2000 period and OECD countries. According to the results obtained, the overall KOF globalization index has no effect on carbon dioxide and wood production, but it has been observed that it reduces sulfur dioxide emissions and water pollution. Also, in their study, it was found that economic globalization had a small and positive effect on wood production and social globalization on carbon dioxide emissions, and political globalization had a negative effect on water pollution.

Herrmann and Hauschild (2009) used environmental input-output analysis to calculate the carbon footprint of Britain and Denmark's trade with China in the period 1992-2004. The result of the study shows that the differences between the European and Chinese production systems can lead to significant increases in the carbon footprint of the products sold.

Tausch (2015) analyzed the relationship between globalization and ecological performance for 12 Arab countries using multiple OLS regression models using 26 variables. As a result of the study, it was concluded that foreign savings are the driving force of ecological footprint.

Figge et al. (2017) examined the relationship between globalization and ecological footprint. In this study Pearson correlation analysis and regression analysis were conducted for 171 countries. In the study, the impact of globalization and its different dimensions on ecological footprint and / or how it contributes to ecologically sustainable development is revealed. According to the results of the study, the general globalization index significantly increases the ecological footprint of consumption, exports and imports. However, this study reveals that all dimensions of globalization direct human pressures and demands on the environment.

Rudolph and Figge (2017) analyzed that the ecological results of globalization by using the KOF index with the panel data method for 146 countries in the period 1981-2009. Findings obtained in the study show that economic globalization affects the ecological footprint of consumption, production, import and export. Social globalization affects the ecological footprint of imports and exports positively and the ecological footprint of consumption and production negatively. For political globalization, no impact has been found. Overall globalization is positively associated with the ecological footprint of imports and exports.

Ulucak and Koçak (2018) investigated that the validity of the Environmental Kuznets Curve hypothesis with panel data method for the period 1970-2014 and 29 OECD countries. As a control variable, biocapacity and globalization variables are included in the model. In the study, the claim that the pollution will decrease could not be confirmed after the income level has exceeded a certain threshold value. In addition, it was concluded that as the per capita income and globalization level increases, the ecological footprint increases and as the biocapacity increases, the ecological footprint decreases.

Considering the current studies in the literature, it is seen that globalization increases the ecological footprint in general, but when it is evaluated in terms of the sub-components (economic, social and political) of globalization, it has different effects on the ecological footprint.

ECONOMETRIC ANALYSIS

Data and Econometric Method

This study has been used annual data while examining the relationship between globalization and ecological footprint in Turkey for the 1970-2014 period. The ecological footprint data (Ecological Footprint, Biocapacity, gha) was obtained from the Global Footprint Network, and the globalization data was obtained from the KOF Swiss Economic Institute. In the study, economic, social and political globalization distinction, which are the sub-components of overall globalization, were taken into consideration. In addition, the effects of “KOF de facto” and “KOF de jure” globalization indexes and their sub-indices on ecological footprint were analyzed. The KOF de facto index contains variables that represent flows and activities. The KOF de jure index includes variables that represent policies that enable or facilitate flows and activities (Gygli, 2019: 544).

Finally, by comparing the findings obtained from different globalization criteria, the effects of each globalization criterion on the ecological footprint were tried to be revealed. The logarithm of all the variables used in the study was taken. The three models analyzed are given below.

$$\text{Model I: } LEF = a_0 + b_1LECO_t + b_2LSOS_t + b_3LPOL_t + e_t$$

$$\text{Model II: } LEF = a_0 + b_1LDFECO_t + b_2LDFSOS_t + b_3LDFPOL_t + e_t$$

$$\text{Model III: } LEF = a_0 + b_1LDJECO_t + b_2LDJSOS_t + b_3LDJPOL_t + e_t$$

Ecological footprint (LEF) was used as dependent variable in all three models. In Model I, economic (LECO), social (LSOS) and political (LPOL) globalization data, which are the sub-components of the KOF overall globalization index, were used as independent variables. Economic (LDFECO), social (LDFSOS) and political (LDFPOL) globalization data, which are the sub-components of the KOF de facto globalization index, were used as independent variables in Model II. The independent variables used in Model III are economic (LDJECO), social (LDJSOS) and political (LDJPOL) globalization, which are the sub-components of the KOF de jure globalization index. β_1 , β_2 , and β_3 are the coefficients of the variables in the estimated model. α_0 denotes the constant term and the final term in the models is the error term, ε_t .

Accordingly, firstly Augmented Dickey Fuller (ADF) and Phillips Perron (P-P) unit root tests were performed to determine the degree of integration of the series. In the ADF test developed by Dickey-Fuller (1981), the lagged values of the variables are used to prevent autocorrelation problems (Enders, 1995: 225-226). The P-P test developed by Phillips-Perron (1988) is valid even if the error terms have varying variance and it offers stronger results even for series with heterogeneous distribution due to its nonparametric nature. Phillips and Perron (1988: 335-338). Then, the Johansen co-integration test was used to determine the long-term relationship between the variables. In the Johansen (1988) cointegration analysis based on the VAR model, a maximum likelihood procedure is used and the co-integration relationship between non-stationary series is estimated. If a long-term relationship is determined between cointegration tests and variables, the long-term coefficients of these variables must be estimated (Küçükaksoy et. al., 2015: 705; Nazlıoğlu, 2010: 97). Therefore, single equation cointegration methods such as the Fully Modified Ordinary Least Squares Method (FMOLS), Dynamic Ordinary Least Squares Method (DOLS) and Canonical Cointegrating Regression (CCR) were used to determine the direction and magnitude of the impact of globalization on the ecological footprint.

The FMOLS estimator uses a semi-parametric correction method that takes into account the internality problem between the independent variables and the error term and the problem of autocorrelation between the error terms to avoid the estimation problems caused by the long-term correlation between co-integrated equation and stochastic shocks (Berke, 2012: 251). The DOLS estimator, which is effective in removing the deviations arising from the problem of internality between the independent variables and the error term, adds the leads and the lag of the independent variable to the cointegration equation (Nazlıoğlu, 2010: 99; Berke, 2012: 251). The CCR method, an estimator used to eliminate deviations from the traditional least squares method, uses stationary transformations of the data (Park, 1992).

Econometric Analysis Results

In order to apply econometric methods, the degree of integration of each series included in the study must be determined. In this study, ADF and P-P unit root tests were applied to determine the degree of integration of variables. The results of ADF and P-P unit root tests are presented in Table 1.

Table 1. ADF and P-P unit root test results

Variables			Level	First Difference	Level	First Difference
Model I	<i>Dependent variable</i>	LEF	-0.90348 (0.7777)	-10.3263 (0.0000)	-1.3198 (0.6121)	-14.091 (0.0000)
	<i>Independent variable</i>	LECO	-1.19936 (0.6665)	-7.17129 (0.0000)	-1.2081 (0.6627)	-7.1583 (0.0000)
		LSOS	1.150723 (0.9973)	-4.89714 (0.0002)	0.95862 (0.9954)	-4.8557 (0.0003)
		LPOL	-0.93444 (0.7678)	-7.77755 (0.0000)	-0.9343 (0.7678)	-7.6662 (0.0000)
Model II	<i>Independent variable</i>	LDFECO	-2.00632 (0.2832)	-7.20412 (0.0000)	-2.0716 (0.2567)	-7.2041 (0.0000)
		LDFSOS	0.128830 (0.9645)	-5.15638 (0.0001)	0.00030 (0.9534)	-5.0348 (0.0002)
		LDFPOL	-0.91422 (0.7744)	-6.65306 (0.0000)	-0.8489 (0.7949)	-6.7386 (0.0000)
Model III	<i>Independent variable</i>	LDJECO	-1.08211 (0.7146)	-5.97390 (0.0000)	-0.9883 (0.7493)	-5.9505 (0.0000)
		LDJSOS	0.672990 (0.9902)	-5.27235 (0.0001)	0.67299 (0.9902)	-5.2723 (0.0001)
		LDJPOL	-1.11787 (0.7005)	-5.00034 (0.0002)	-1.1492 (0.6877)	-4.8653 (0.0003)

Note: Values in parentheses indicate prob. values.

As can be seen from Table 1, in all three models, the series are not stationary at the level according to both unit root tests. For this, the first difference of the series was taken and it is concluded that the related series is stationary at first difference.

After unit root tests were performed, Johansen (1988) cointegration test was applied to determine the long-term relationship between variables. The lag-length used in the models is determined as 1 according to the LR, FPE, SC and HQ information criteria in Model I and according to the LR, FPE, AIC, SC and HQ information criteria in Model II and Model III. Cointegration test results are shown in Table 2.

Table 2. *Johansen cointegration test results*

Dependent Variable: LEF							
H ₀ Hypothesis	Eigenvalue	Trace Test		Max Eigen-value Test			
		Trace Statistic	Critical Value (5%)	Prob Value	Max Eigen Statistic	Critical Value (5%)	Prob Value
Model I Independent variable: KOF Overall Index							
$r = 0$	0.6620	88.0867	47.856	0.000	43.3931	27.584	0.000
$r \leq 1$	0.5621	44.6937	29.797	0.001	33.0333	21.132	0.001
$r \leq 2$	0.2527	11.6604	15.495	0.174	11.6503	14.265	0.125
$r \leq 3$	0.0003	0.01013	3.8415	0.920	0.01013	3.8415	0.920
Model II Independent variable: KOF de facto Index							
$r = 0$	0.5455	68.4744	47.856	0.000	31.5427	27.584	0.015
$r \leq 1$	0.4048	36.9317	29.797	0.006	20.7524	21.132	0.056
$r \leq 2$	0.2943	16.1794	15.495	0.039	13.9424	14.265	0.056
$r \leq 3$	0.0544	2.23693	3.8415	0.135	2.23693	3.8415	0.135
Model III Independent variable: KOF de jure Index							
$r = 0$	0.4874	56.6587	47.856	0.006	26.7279	27.584	0.064
$r \leq 1$	0.3609	29.9309	29.797	0.048	17.9107	21.132	0.133
$r \leq 2$	0.2439	12.0202	15.495	0.156	11.1838	14.265	0.145
$r \leq 3$	0.0206	0.83633	3.8414	0.360	0.83633	3.8414	0.360

According to the Johansen Cointegration test results in Table 2, there is at least 2 cointegrated vectors among the variables in Model I at 5% significance level. In Model II, there is at least 1 co-integrated vector among the variables at 5% significance level. According to Model III, there is at least one co-integrated vector between variables at a level of 10% significance. As a result, in all three models, the H_0 hypothesis, which is expressed as the absence of co-integration relationship between the series, is rejected, and the alternative hypothesis is accepted. In other words, for all three models in the analysis period, there is a long-term co-integration relationship between the LEF and both globalization and the subcomponents of globalization. Therefore, FMOLS, DOLS and CCR co-integration tests were used

to reveal how much and in what direction globalization variables affect LEF in the models discussed. The results of the tests are presented in Table 3.

Table 3. *Determination of long term coefficients*

Dependent Variable: LEF						
FMOLS			DOLS		CCR	
Variable	Coefficient	Probability Value	Coefficient	Probability Value	Coefficient	Probability Value
Model I Independent Variable: KOF Overall Index						
LECO	0.75597	0.0003	0.73533	0.0048	0.76311	0.0004
LSOS	1.01002	0.0000	1.00505	0.0001	1.02034	0.0001
LPOL	0.09600	0.8339	0.08160	0.8766	0.07452	0.8771
C	11.6613	0.0000	11.8305	0.0000	11.6891	0.0000
Model II Independent Variable: KOF de facto Index						
LDFECO	0.34610	0.0008	0.28435	0.0121	0.35214	0.0004
LDFSOS	1.29908	0.0003	1.36090	0.0027	1.32066	0.0005
LDFPOL	0.07338	0.8674	0.21751	0.6891	0.03855	0.9345
C	12.4022	0.0000	11.7428	0.0000	12.4531	0.0000
Model III Independent Variable: KOF de jure Index						
LDJECO	1.05317	0.0001	1.24804	0.0014	1.05388	0.0001
LDJSOS	0.72568	0.0001	0.79524	0.0007	0.72366	0.0001
LDJPOL	0.56095	0.0910	0.26271	0.6004	0.56260	0.0963
C	9.28739	0.0000	9.56209	0.0000	9.28474	0.0000

As can be seen from Table 3, 1% increase in economic globalization in Model I increases LEF by 0.75% according to FMOLS test result, 0.73% according to DOLS test result and 0.76% according to CCR test result. Similarly, a 1% increase in social globalization increases the LEF by 1.01% according to the FMOLS test result, 1% according to the DOLS test result and 1.02% according to the CCR test result. The coefficient of political globalization is positive according to FMOLS, DOLS and CCR test results, but it is not statistically significant.

In Model II, 1% increase in economic globalization causes an increase in LEF by 0.34% according to FMOLS test result, 0.28% according to DOLS test result

and 0.35% according to CCR test result. 1% increase in social globalization causes 1.29% increase in LEF according to FMOLS test result, 1.36% according to DOLS test result and 1.32% according to CCR test result. As in Model I, the coefficient of political globalization in Model II is positive and statistically insignificant according to all three test results.

According to the findings in Model III, 1% increase in economic globalization causes 1.05% increase in LEF according to FMOLS test result, 1.24% according to DOLS test result and 1.05% according to CCR test result. 1% increase in social globalization causes an increase in LEF by 0.72% according to FMOLS test result, 0.79% according to DOLS test result and 0.72% according to CCR test result. As in the other two models, the coefficient of political globalization in Model III is positive, but it is not statistically significant for all three test results.

As a result, the coefficient of political globalization in all models is positive but statistically insignificant. However, economic and social globalization affects LEF positively in all three models. In other words, the increase in economic and social globalization leads to an increase in LEF. Moreover, the results obtained in FMOLS, DOLS and CCR cointegration tests are close to each other, which means that these three tests support each other.

CONCLUSION AND DISCUSSION

Globalization, expressed as the process of interaction and integration between people, corporates and governments, has various effects on countries, including economic, political and social. Globalization also has various effects on the environment. In empirical studies in the literature, it is seen that globalization has a role in increasing ecological footprint. In this study for the period 1970-2014 in Turkey, the impact on the ecological footprint of globalization were analyzed using Johansen, FMOLS, CCR DOLS and CCR co-integration tests and the results are given in comparatively. In those analysis, economic, social and political globalization distinction, which are the sub-components of general globalization, and the distinction of “KOF overall globalization”, “KOF de facto” and “KOF de jure” for each sub-component were taken into consideration. Economic and social globalization increases ecological footprint according to the results of the analysis on the models created by distinguishing “KOF overall globalization”, “KOF de facto” and “KOF de jure”.

However, the results of political globalization were found statistically insignificant in all models. As a result of FMOLS, DOLS and CCR cointegration tests, findings supporting each other were obtained. However, in the models created by taking into account the “KOF overall index” and “KOF de facto index”, the effect of social globalization on the ecological footprint appears to be greater than the impact of economic globalization. In the model created based on the “KOF de jure” index, it is noteworthy that the impact of economic globalization is greater than social globalization.

The impact of the economic globalization indicator on the “KOF de jure” index is greater than the effect of the economic globalization indicator on the “KOF overall” and “KOF de facto” indexes. This may be due to the “KOF de jure” index includes actual flows (trade, foreign direct investment, portfolio investment etc.) and variables that represent policies, resources or institutions that enable or facilitate activities. Policy makers should adopt policies aimed at creating ecological awareness in society, which will reduce the negative impact of economic and social globalization on ecological footprint. On the other hand, in this study, the effect of many variables on the ecological footprint as a whole was analyzed by using the comprehensive indicator KOF globalization variable. Therefore, in future studies, the effects of other variables (such as trade, tariffs, trade restrictions, foreign direct investments, portfolio investments) included in the KOF globalization variable on the ecological footprint can be analyzed separately.

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4

REGARDING THE WELFARE STATE THROUGH INSTITUTIONAL ECONOMICS

Zehra DOĞAN ÇALIŞKAN¹

The administrative mentality of welfare state emerged in the end of 18th century with the measures in the social security. Then, it evolved into a mentality that advocates the necessity of state intervention into economy for forming a more fair society. In short, it is an administrative mentality that paves the way for the intervention, regulation and redistribution of income-wealth. Institutional economics, on the other hand, advocates the view that the social norms and rules formed the authority and individuals, and further, these norms and rules affected the individuals and the state with mutual interaction. In this regard, the institutional economics shaped with the institutional structure, the interventions in the welfare state and the laws that can be changed with the alteration of intrinsic motivators and behaviors. In this sense, by evaluating the views of welfare state towards economic problems with the point of view of institutional economics, a comparison will be made.

INTRODUCTION AND LITERATURE

The welfare state emerged in the end of 18th century in Germany as a result of measures in the field of social security. Welfare state is the effort to bring prosperity by the state intervention into the economy in order to establish a more fair social order. According to another definition of welfare state, it is a state that intervenes, regulates and redistributes income-wealth. In the welfare state, existing social and economic problems are considered as the violation of the egalitarian and fair social mentality, social justice and union, and the right of leading a life that is suitable with human dignity and the mentality of welfare state centered upon these problems under the field of social policies (Güler 2005: 131).

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By emerging as a proposal of an alternative concept and model to classical liberalism, the welfare state was debated in a rather large audience and found itself a wide execution areas in the beginning of 20th century (Spicker 2002: 24). Fundamentally, the welfare states expresses a state that is concerned with all the parts of a life of an individual, provides an equal environment for the individuals to access economic and social facilities and promises to provide minimum standards of living (Eser, Memişoğlu and Özdamar 2011: 204). In this sense, it is possible to define the welfare state as the model that intervenes socio-economic processes through policies and executions. Basically, the welfare states expresses a supra-class state that improves the life standards of all the society, and plays an active role in overcoming the problems with production procedures and economic crises in the capitalist society that emerged as the reflection of liberalism. Although the welfare state considers the social benefits and interests of society significant, it is also the state that was built upon the market dynamics. (Durdu 2009: 42).

The basic determinant of welfare state is the civil service positions that provide the most basic functions of daily lives of people such as health, employment, education and housing. However, it is wrong to perceive or evaluate the welfare state like a socialist state. Welfare state expresses a state system that is established upon the principles of market mechanisms and private property. The public resources are actively used in the welfare state in order to provide the social needs of society. In some cases, the state provides the aforementioned social services first-hand with the institutions that state itself founded (Eser, Memişoğlu and Özdamar 2011: 206).

Welfare state is neither a state to aspire after the annihilation of poverty nor is designed for the poor. The main purpose of it is to provide social protections for every fraction of society, on condition that the poor will be privileged (Spicker 2002: 16). Welfare state is developed with reference to the idea that the state should be involved against the problems that emerged with the industrialization in capitalist economies, increased inequality and insecurity, and further, state should interfere and intervene into these problems as well. Welfare state is a state that guarantees minimum income to individuals and families, protects them against the social dangers, provides the chance of social security and standardizes the social services such as health, education and housing for all of the citizens in all the classes (Durdu 2009: 41).

The questions upon whether the welfare can be achieved in the capitalist society and the resources of the emergence of a welfare-based state are long-termed debates in the literature. Although economic schools gave different answers for these questions, basic research areas of all of them are related with market and state. In the work of Esping Andersen, "The Three Worlds of Welfare Capitalism, the starting points of welfare state and its definitions: in liberal sense, welfare states supports poor financially but these state aids are not universal and questions the wealth. Corporatist welfare state creates more funds for the aids than a liberal state. By excluding some parts of the population, this aid introduces social insurance program for rest of the people who are not excluded. Social democratic welfare state, on the other hand, introduces universal programs to its citizens, provides the aids and provides services for poors, laborers and the people who cannot work at the market (Esping Andersen 1990: 26-28). In the historical process, the welfare state that Andersen stated transformed with its approach towards social benefits and impoverishment. In this regard, the thought that the market could not provide the welfare in the economy became crucial since the beginning of 20th century and further, it was emphasized that the state should be involved with the problems that market could not solve. The idea of liability of state for the issues, such as living, housing, solution to poverty, diseases and unemployment, had been a frequently discussed and widely accepted topic during the periods of World War I, Inter-War and World War II. Later, this idea economically influenced especially from the view of Keynes about capitalism and market after World War II. Then, this idea was concluded with the notions such as the necessity of providing social welfare by the public resources, the increase of social expenditures and aids, and the expansion of the sphere of influence of state and the incident of the crisis of welfare state.

THE FOUNDATIONS OF WELFARE STATE AND WORLD WARS

First and Second World Wars developed due to the capitalist states that would try to solve their economic problems by expanding their boundaries and they left ill, orphan, widowed and poor masses of people behind with several economic problems as well (Herman, 2011:393). During and after the war, the intervention of state into economic and social lives increased in the capitalist countries. The circumstances that the wars caused paved the way for such a state intervention and after, the offers for the social problems to the people that survived the war but

left behind with the wreckage eventually became the responsibility of the state. In all the participant countries of the war, the view that the payment of war debts, improving the conditions after the devastation due to the war and the problems of survivors such as housing, legislation, diseases and poverty could not be solved through the market became widespread (Metin 2012: 124).

World Wars and social incidents after the war consolidated the view that the state should play a more active role for the aids and social policies. Besides, 1929 Economic Crisis and the idea that market economy could not solve the economic and social problems when it dominated the economy (without any intervention) paved the way for the empowerment of the idea of welfare state. The thoughts of J. M. Keynes paved the way for the survival of capitalist economy without the destruction of its capitalist characteristics, in other words, how the economy can be managed without altering any relations of production. This process was stated as the Keynesian Revolution and this process was shaped upon economic activities, individual freedom and social justice. Keynes claimed that by affecting investment and consumption, state can resolve the economic problems with public policies and further, state can provide full employment especially with the executions of public policies. Moreover, he transformed the state intervention into a strong and grounded economic thought through his statements.

The bad effects of World War II forced people to select the governments that would provide a safe environment and social benefits. Therefore, a political contract based on national and social solidarity emerged. The mechanisms that provide the social rights of citizens were provided especially with taxes, transfer expenditures and various legal regulations and, social and economic factors that will provide the full employment eventually became clear. (Gökbunar, Özdemir and Uğur 2008: 162). In accordance with the ideas and approaches that the wars brought, new social, political and economic order after the war based on Keynesian economic policies, less or more acceptance of institutional welfare state in accordance with the concentration on market economy, and the basis of market economy and welfare state between labor and capital for the harmonization of these fractions of society in order to provide full employment and economic growth in national soil (Aktan and Özkıvrak 2003: 38-9).

The state intervention after World War II shaped and altered the socio-economic conditions of post-war societies with new dimensions and characteristics. By restricting

the sphere of activities of private sector, public sector took the place in those sphere of activities. According to this approach, state will be closely involved upon all the production, financial and human resources of the country and state will utilize these resources for the welfare of society and economic development in most rational way. One of the most challenging approaches for the thought of social state was stated by one of the pioneers of institutional economics in USA, J.K. Galbraith. In his work, *Affluent Society*, which was published in 1958, Galbraith tried to explain the obligation of state intervention into economy with “social balance” theory. According to Galbraith, although the society has an abundant capacity of production for the required goods of production and it gives an impression of an “affluent society” in terms of produced and sold goods, public services are so inadequate. Therefore, state must play an active role in such fields that market is usually not successful. In this regard, Galbraith proposed to eliminate these type of “social imbalances” due to the produced goods and services in the market or various reasons with the increase of public services. In the light of all of these developments, the debates about the existence of a welfare state were abandoned and the development and expansion of the welfare state were debated (Galbraith 1999: citing from 186–209; Alp 2009: 168).

Due to the circumstances of the period, state embraced an interventionist approach hitherto ever seen during the years of 1945-1970. Thanks to the suitable conditions of international area after the war, the aims of countries for economic growth and providing employment realized. Social expenditures increased, policies in healthcare produced under the guidance of the state and social benefits administered for undesired conditions such as poverty, disease and unemployment. In essence, welfare state experienced its golden age during the years of 1945-1970 (the most expanded period of this type of government) with the executions to provide social security and social justice (Tasgin 2010: 36 and Özdemir 2007: 54-5). Welfare state demonstrated itself mostly with sphere of influence and executions of social policies in this period. The state intervention had displayed itself rather early in countries such as England and Germany, which were first capitalized countries, and then, this method of intervention was used in developing or lately capitalized countries for both providing social justice and social security and using this type of government as a driving force for development and economic growth. In the studies about welfare state, it was concluded that the reason of stagflation crisis in 1970s was the interventionist approach of this type of government. However, it might be better to indicate that the skeptical approach of liberal discourse

continued when the social benefits and interventions were administered even before the stagflation crisis. Yet, since general economic and social view is that state should play a more active role for social benefits and social policies, liberal ideas remained passive. In 1960s, the view that state is the most suitable driving force for all of the social issues and businesses became a doctrine in almost all of the Western countries (Buğra 2011: 43).

Since 1960s, it is possible to argue that welfare state and its executions were criticized. Although welfare state was considered as a third way between laborer and capitalist and it helped to harmonize these two groups, it was criticized by both sides in different perspectives. Moreover, when the stagflation crisis of 1970 was explained with the view that the crisis occurred due to the executions and policies of welfare state by economists such as Friedman and Lucas, the welfare state began to disintegrate. 20th century experienced a huge shift for the responsibilities and sphere of influence of state especially after World War II. This process initiated with the last quarter of 19th century and continued until 1980s. The birth of a new class due to the Industrial Revolution and the conflict of interest between this class and capitalist producers caused a set of problems in society. Although these problems occurred in different time periods, the rapid expansion of capitalism in world countries caused these problems to emerge. In this regard, poverty and distribution of income have become a universal issue. The tasks to solve poverty, work accidents, diseases and unemployment, decrease the pain that the war had brought and the problems that the markets could not solve entrusted into the state. The implemented policies during the era of welfare states and the impact of welfare state on providing social security and fair legal system introduced the field of social policy and it emphasized that the social rights of citizens should be secured. Although the welfare state might not solve all the problems and pushed the limits of the state financially, this period of welfare states express a process that harbored considerably significant developments in terms of new points of view and experiences to the concepts of social rights and social security that the welfare states brought into the political thought.

Stagflation crisis overshadowed the executions and policies of welfare state. The over state intervention into economy, inoperative conditions of free market and the increased expenditures of social aids demonstrated as the reasons of this economic crisis. In this regard, the point of view towards the economic policies transformed into the view that advocated to return to the liberal policies, make

the market operable and cut budgets of social expenditures. Furthermore, it was set forth that welfare state and measures of social policies could not be realized the expected results. The critiques especially emphasized at these points: although the shares of social expenditures peaked among the national incomes of countries, the problems of poverty, unemployment and precarity could not be overcome in terms of all the individuals. Moreover, both the equality could not be provided and it caused state to become a dysfunctional public bureaucracy that intervenes into the lives of individuals in various ways. In other respects, it was also highlighted that the high costs of welfare states expenditures reached into unsustainable levels and proper activity with the expenditures could not be provided as well (Alp 2009: 269). Until the second half of 1970s, economic policies were defined under the direction of neo-liberal values. According to this mentality, the idea that all different kind of regulations should not be avoided in order for the market to work automatically again gained wide currency, the liberalization of commerce, abolishing the obstacles towards the capital movements and the expenditure dampening policies towards the public expenses came into prominence (Eser, Memisoglu and Özdamar 2011: 207).

Neo-liberalism had aims to create alternatives towards the Keynesian economic policies in the end of 1970s and in the beginning of 1980s. However, this approach is not so different from the classical liberalism fundamentally. By opposing the executions of welfare state, it became the main topic of economic thinkers with the theses such as downsizing the state, privatization, the protection of human rights and the developments of democracy and liberties. In terms of such thoughts towards the management of economy, the increased expenditures and social executions of welfare state contradicted with neo-liberalism. In 1980s, it is possible to observe that the executions of welfare states disfavored and later, this became observable in global sense as well with the emphasized liberal policies of Reagan and Thatcher governments in USA and UK.

CONCLUSION AND EVALUATION

Generally during the interwar period between the world wars, it is observed that the state is undecided about socio-economic issues, and even if the state decided to take action, it behaved hesitant and contradictory, and could not adapt to the changing conditions. The state lagged behind to follow socio-economic developments: however, it had to take an action to regulate working conditions,

prices and revenues, tax the bigger incomes and find jobs to unemployed persons during the emergencies that requires direct intervention. During this period, it is observed that the approach of “social aid” state was embraced and became widespread. In social aid state, the measures that could prevent the problems were not taken and further, the measures that were taken later were not curative and extinctive but they were towards to ease the negative results and eliminate the exterior symptoms. During this period, the interventions of state were not deliberate and comprehensive towards social and economic life but it had a unique characteristic: when the conducted interventions did not result in a way that was expected, new and different interventions were conducted (Aktan and Özkıvrak 2003: 36). From this point of view, it will be better to indicate that the welfare state has a characteristic of policy-maker and implementer of these policies. In other words, the execution areas of welfare state were upon producing quick and instant solutions to the problems. In the mentality of welfare state, since the role of institutions were limited with making decisions and implementing them, the effects of these policies were not prolonged. Since the welfare state was not grounded on the behaviors, tendencies and instincts of individuals, the solution proposals of welfare state became inadequate in time. In other words, the welfare state could be considered as an intermediate period in the process of the emergence of modern liberal state. The jurisdictions and policies of welfare state aimed to make the society livable, wealthy and affluent for the individuals. However, in the approach of institutional economics, the protection of the fractions of society will not be achieved with legislations but through the social transformations. In other words, while the welfare and social serenity are given to the people by the state in welfare state approach, the tendencies, behaviors, instincts and thoughts are shaping the state in the approach of institutional economics.

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5

INVESTIGATION OF THE TWIN DEFICIT HYPOTHESIS FOR TURKEY WITH FOURIER APPROACH

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INTRODUCTION

The relationship between a country's budget deficit (BD) and current deficit (CD) is explained by the twin deficit hypothesis. This concept started to take place in the literature in the 1980s when BD caused CD in the United States. After the 1980s, many researchers conducted studies examining the causal relationship between BD and CD. In some of these studies, BD was the reason for CD, while in some, CD was found as the reason for BD. In addition to the studies on mutual causality findings between the two deficits in the literature, there are also studies indicating that there is no causal relationship between CD and BD.

The twin deficit hypothesis basically involves two different approaches as Traditional Keynesian approach (TKA) and Ricardian equivalence hypothesis (REH). While TKA states that BD are the cause of CD; REH states that there is no relationship between these variables. Assessing the economic structures of countries in terms of twin deficits will provide a source for policy suggestions to be made, and this will provide consistent forecasts in the future. In this paper, the relationship between the BD and CD in Turkey has been analyzed by Fourier Toda Yamamoto causality test. The Fourier Toda Yamamoto test was introduced to the literature with the article of Nazlıoğlu, Görmüş and Soytas (2016), who suggested that the Toda Yamamoto (1995) test and the Fourier functions be used together. Examination of the hypothesis with causality analysis that takes into account structural changes in Turkey can be specified as a contribution to the literature of the study.

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In the second part of the study, the twin deficit hypothesis will be explained. The third section is the literature review section; the fourth section is the section where the methodology is explained. The study continues with the section where data structure and research findings are presented.

THE TWIN DEFICIT HYPOTHESIS

Economically, the twin deficit hypothesis is examined with two approaches. The first one is TKA; the other one is REH. It is stated in TKA that BD are the cause of CD. According to this theory, increasing BD raises the borrowing level and interest rates required for financing this deficit. The increase in interest rates decreases the foreign exchange rate by increasing the foreign capital inflow to the country; this causes the national currency to appreciate. While the appreciation of the national currency increased imports; causes a decrease in the export level and thus an increase in CD. (Saraç, 2019: p.78). It is also stated in TKA that the expansionary fiscal policy (tax reductions, increase in public expenditures etc.) has an effect. The expansionary fiscal policy has a positive effect on national income, leading to an increase in demand for imported goods. Increasing demand for imported goods will also increase CD (İyidoğan and Erkam, 2013: p.40).

The REH argues that there is no relationship between the BD and CD. According to this approach, it is stated that individuals who behave with the prediction that the government will increase the tax rates or impose additional taxes for financing BD will save money and not increase their consumption during tax reduction periods. Consequently, consumption will not change much as individuals will use their current savings in tax increases that can be applied during financing BD. Thus, the BD will not affect CD.

Equation explaining the relationship between the BD and CD can be obtained from the total income-total expenditure relationship created by using the following equation:

$$Y = C + I + G + (X - M) \quad (1)$$

In equation 1; Y, C, I, G, X and M show national income, consumption, investment, government expenditures, export and import respectively. The amount to be obtained after the taxes are deducted from the national income will either be consumed or saved:

$$Y-T = C + S \quad (2)$$

By making use of the equations 1 and 2, the following equation is achieved:

$$C + I + G + (X-M) - T = C + S \quad (3)$$

When equation number 3 is edited, the following equation is reached:

$$(X-M) = (S-I) + (T-G) \quad (4)$$

In equation 4, (X-M) is the foreign trade balance while (T-G) indicates the public sector balance. (S-I) shows the savings-investment balance. With this equation, while the balance of savings is not changing; it can be said that changing of the public finance balance in the budget, affects the foreign trade balance and thus the current balance. (Oktar and Yüksel, 2016: p.48, 49).

LITERATURE REVIEW

While some studies in literature support TKA, others support REH. In some studies, different results were obtained from these two approaches. Zengin (2000) analyzed the relationship between the BD and CD with the VAR model using the 1987-1999 period data. For this purpose, an 8-variable VAR model has been estimated and it has been determined to have a causal relationship from BD to trade deficits. Utkulu (2003) examined the twin deficit hypothesis with cointegration, error correction and causality analysis by using the data of 1950-2000 period. Results of the study support TKA. Yanık (2006) investigated the validity of the hypothesis with Granger causality analysis by using the data of 1988-2005. Findings show that the hypothesis was not valid in the relevant period. Tunçsiper and Sürekçi (2011) investigated the validity of the hypothesis with VAR analysis by using the data of 1987: 01-2007: 03. In the study, it was stated that the hypothesis was not supported. Bolat, Belke and Aras (2011) examined the hypothesis with a bound test. For this purpose, 1998: 01-2010: 04 period data were used. Findings show that TKA is supported in the short term, but the REH is valid in the long term. Kılavuz and Dumrul (2012) analyzed the hypothesis by using monthly data of the period of 2006-2010 with bound test, VAR and causality analysis. While there is no relationship between the variables in the long term as a result of the bound test; in the short term, bidirectional relationship was found with VAR analysis. Azgün (2012) tested the hypothesis by using data from the 1980-2009 period with

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Granger causality test. The findings show that the hypothesis is valid. Bayrak and Esen (2012) applied a cointegration analysis by using the data from the 1975-2010 period and found that the TKA is valid. İyidoğan and Erkam (2013) examined the validity of the hypothesis by using the data from the 1987-2005 period, and investigated the direction of the relationship between the variables with Granger analysis. They decided that the hypothesis was not valid in the relevant period and there was a causal relationship from CD to BD. Altunöz (2014), in his study, investigated the validity of the hypothesis using data from 1998: 01-2012: 03; no relationship was found between the variables in the long term. Azapoğlu and Direkçi (2015) examined the validity of the hypothesis for the period 1998-2013 with cointegration and causality analysis; they decided that the BD did not affect CD. Şahin (2015) examined the validity of the hypothesis in the period of 1995: 01-2013: 01 by VAR analysis; it was found that the hypothesis was not valid in the relevant period. Taş and Yılmaz (2015) examined the validity of the hypothesis by using the data from the 1975-2013 periods. It has been stated that there is a relationship in the long term from the public sector borrowing requirement (PSBR) to CD and in the short term from CD to PSBR. It is stated that the hypothesis is valid in the long term. Dineri and Taş (2016) examined the hypothesis for the period 1980-2015, and found that there is unidirectional causality from CD to the BD with cointegration and causality analysis. Bakır Yiğitbaş (2017) analyzed the validity of the hypothesis with cointegration and causality analysis, using quarterly data from 2002-2014. The findings show that CD has an effect on BD and therefore it is stated that the hypothesis is not valid. Tuğral (2018) examined the validity of the hypothesis with Granger causality analysis using the data of the period 1985-2017; findings supporting the TKA were obtained. Aydın and Afsal (2018) analyzed the hypothesis using the data of the 1975-2015 periods with the Toda Yamamoto(1995) test, and found bidirectional causal relationship between the series. Akıncı (2019) analyzed the validity of the hypothesis with the cointegration, VAR and causality analyzes by using quarterly data in the period 2006-2018, and reached the findings regarding the validity of the hypothesis in the relevant period.

When the studies in the literature are analyzed, it can be seen that although the periods and methods performed differ, many of them support the twin deficit hypothesis. However, there are studies in the literature that contradict the hypothesis and show that the theory is not valid. In this study, the validity of hypothesis in Turkey will be examined by the causality analysis model with Fourier approach

involving structural change. Since there is no study examining the hypothesis with this method, it is thought that this study will contribute to the literature.

METHODOLOGY

The Fourier Toda Yamamoto test was brought to the literature with Nazlıoğlu, Görmüş and Soytaş (2016). This test has been described in the form of Fourier approximation, which allows structural changes to be included in Toda Yamamoto (1995) test. This test examines the causality in the vector autoregressive model (VAR) structure in length $(p + d)$ regardless of whether there is a cointegration between series. The VAR $(p + d)$ model is defined as follows:

$$Y_t = \alpha + \beta_1 Y_{t-1} + \dots + \beta_{p+d} Y_{t-(p+d)} + \varepsilon_t \quad (5)$$

In the model, p is the length of the lag and d is the maximum degree of integration of the series. Y_t is the vector of variables. With Toda Yamamoto (1995) test, the causality is investigated by putting zero constraint in the first p parameter. Enders and Jones (2015) stated that ignoring structural change in causality analysis caused to the bias. For this purpose, the Fourier Toda Yamamoto test was developed by Nazlıoğlu et al. (2016) by combining the Fourier approach, which adds the effect of structural change to the model, with the VAR $(p + d)$ model structure in the Toda Yamamoto (1995) causality test.

In the Fourier approach, the structural changes are included in the model in the form of smooth transitions, taking into account trigonometric terms and frequency numbers, regardless of the number of structural break. In this way, the power loss that may occur, especially when the effect of more than one structural break is added to the model with many dummy variables, can be prevented. The model to be estimated for this test is given below:

$$Y_t = \alpha(t) + \beta_1 Y_{t-1} + \dots + \beta_{p+d} Y_{t-(p+d)} + \varepsilon_t \quad (6)$$

The $\alpha(t)$ in the model are the Fourier components in which the structural change is defined taking into account the frequencies and it is obtained as follows:

$$\alpha(t) = \theta_0 + \theta_1 \sin\left(\frac{2\pi k t}{T}\right) + \theta_2 \cos\left(\frac{2\pi k t}{T}\right) \quad (7)$$

When $\alpha(t)$ is substituted in the 6th equation, the test equation to be used for analysis is reached:

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$$Y_t = \theta_0 + \theta_1 \sin\left(\frac{2\pi kt}{T}\right) + \theta_2 \cos\left(\frac{2\pi kt}{T}\right) + \beta_1 Y_{t-1} + \dots + \beta_{p+d} Y_{t-(p+d)} + \varepsilon_t \quad (8)$$

To estimate the causality in this model, by using the Bootstrap critical values, the test statistic is calculated and the equality of β coefficient to zero is tested for p lag. (Nazlıoğlu et al. 2016, p.172.).

DATA AND EMPIRICAL RESULTS

In this study, the validity of the twin deficit hypothesis for Turkey has been examined by using CD and PSBR for the period of 1975-2018. Data were obtained from the Central Bank of the Republic of Turkey and World Bank database.

Table 1. Variables definition

Variables	Definition	Source
Current deficit (CD)	% (CD/GDP)	Worldbank
Public sector borrowing requirement (PSBR)	% (PSBR/GDP)	The Central Bank of the Republic of Turkey (CBRT)

In the conventional causality tests, structural changes in series are not included in the model, so there may be deviations in the test results. While the Fourier Toda Yamamoto causality approach adds the effect of structural change to the model, it allows causality to be investigated regardless of whether there is a cointegration relationship between the series. The investigation of the hypothesis with the Fourier Toda Yamamoto approach, which allows the Fourier function and Toda Yamamoto test to be examined together, is the contribution of this study to the literature. The time series graphs of CD and PSBR series used in the analysis are given below:

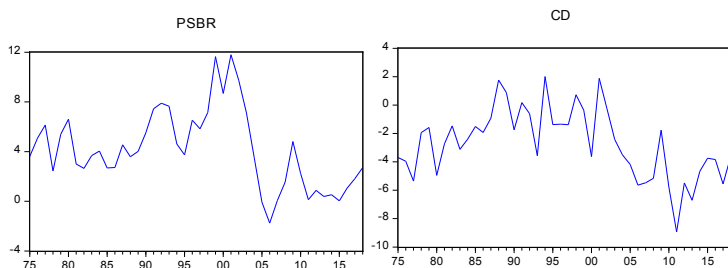


Figure 1. Time series graphs of CD and PSBR

When the graphics of CD and PSBR are examined, it is observed that the structural changes have an effect on the series. In the Fourier Toda Yamamoto test, as in the Toda Yamamoto test, the VAR model in length ($p + d$) is defined under the Fourier function, which adds structural changes to the model, by taking into account the maximum degree of integration (d) and the length of the lag (p). The unit root test results used in determining the maximum integration degree of the series are given in the following table:

Table 2. Unit root test results

Variables	ADF test		Phillips-Perron test	
	Level	First Difference	Level	First Difference
CD	-3.455284 (0.0142)	-8.803595 (0.0000)*	-3.538804 (0.0115)	-11.66173 (0.0000)*
PSBR	-2.205362 (0.2074)	-6.493053 (0.0000)*	-2.309887 (0.1736)	-6.493053 (0.0000)*

* Values in parentheses indicate prob. The test results show that the series is stationary at 1% level.

Unit root test results show that the variables are integrated of the order (1) at 1% level. Fourier Toda Yamamoto test was performed by taking the maximum degree of integration of the series as $d = 1$. By selecting the maximum number of frequencies as 5, the most appropriate frequency number k was determined and models were estimated. The lag length (p) was determined according to the Akaike information criteria. The causal relationship between CD and PSBR is estimated by including structural changes to the model and the results are presented in the table below:

Table 3. Fourier Toda Yamamoto test results

Fourier Toda Yamamoto Causality Test	Wald Test statistics	Bootstrap p-value	k	p	d
CD*PSBR	0.269	0.865	1	2	1
PSBR*CD	6.371	0.062*	1	2	1

* The null hypothesis, which suggests that there is no Granger causality of 10% level, is rejected.

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As a result of the Fourier Toda Yamamoto causality analysis, unidirectional causality from PSBR to CD was found at the 10% level.

CONCLUSION

The hypothesis that explains the relationship between BD and CD is known as twin deficit hypothesis in the literature. This hypothesis is explained by two different approaches called as Traditional Keynesian (TKA) and Ricardian equivalence approach (REH). The REH argues that there is no relationship between BD and CD. The TKA states that the increasing BD is effective in creating CD. Unlike these approaches, some studies in the literature have found that there is a relationship from CD to BD, while in others the two variables affect each other mutually.

The twin deficit hypothesis in this study was analyzed by using annual data for the 1975-2018 periods for Turkey. For this purpose, the percentage of CD in GDP and the percentage of PSBR in GDP representing the BD were determined as variables to be used in the analysis of twin deficits. The period of 1975-2018, affecting the economic and political structure of Turkey, is a period of several structural changes (oil crisis, political events, economic crises etc.). For this reason, not including structural changes in the research may cause in the estimates to bias.

The structural changes in this study, which examined the twin deficits in Turkey, participated in the model with Fourier function without using dummy variables. In this way, it is aimed to prevent power loss caused by the use of many dummy variables. In order to both include the effect of structural changes in the model and to examine the causal relationship between the variables, Fourier Toda Yamamoto causality analysis that was improved by Nazlıoğlu et al.(2016) was used. In the study, the causal relationship between CD and PSBR variables, which were found to be integrated of the first order at the level of 1%, was examined. The results obtained reveal that there exists unidirectional causality from PSBR to CD at the 10% level. So, in Turkey, it can be said that TKA is valid in the 10% level during the period of 1975-2018. However, when the test statistics are evaluated according to 1% and 5% significance level, the null hypothesis that suggests that there is no causal relationship cannot be rejected. The method allowed analysis of the causal relationship by adding structural changes to the model between 1975-2018 periods. In this way, the effects of the variables on each other were tried to be revealed without ignoring the structural changes in the economy. Thus, in

Turkey, by controlling the increases in BD and interest rates, it will be possible to maintain a certain level of CD.

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6

RELATIONSHIP BETWEEN ECONOMIC GROWTH AND UNEMPLOYMENT: OKUN'S LAW

Musa ATGÜR¹

INTRODUCTION

Unemployment rate is a macroeconomic variable that is significantly affected by fluctuations in economic growth and other macroeconomic-financial indicators. It has continued as an important macroeconomic problem theoretical discussions on the relationship between economic growth and unemployment until today. In this context, it forms the macroeconomic theory known as “Okun’s Law” the theoretical background of relationship between economic growth and unemployment. Okun’s Law examined in this study states that the growth in real GDP has a negative effect on the unemployment rate. Okun (1962) estimated the regression by using econometric forecasting methods that indicate the relationship between economic growth and unemployment, using a total of 55 data, quarterly covering the period 1947-1960 of US economy to prove their views known as “Okun’s Law”. Okun (1962) showed that there is a negative relationship between economic growth and unemployment, and stated that increases in economic growth caused a decrease in unemployment rate.

Unemployment is seen as an important macroeconomic problem which was implemented in econometric and Turkey for 2005-2019 period is estimated coefficient of Okun’s coefficient in the study.

This study aims to contribute theoretically and econometrically to the literature on relationship between economic growth and unemployment. In the first part of this study, it has been examined Okun’s Law which forms the theoretical background of relationship between economic growth and unemployment,. In the second part, it has been studied relationship between economic growth and

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unemployment in Turkey. In the third part, it was made econometric applications to examine the validity Okun's Law in Turkey, it was estimated to Turkey Okun's Law. Finally, the findings were evaluated.

THEORETICAL FOUNDATIONS AND EMPIRICAL LITERATURE

Okun (1962) examined relationship between economic growth and unemployment in US economy. Okun (1962) proved that there is a negative relationship between economic growth and unemployment and this negative relationship according to the results of his econometric practice on US economy.

Okun's Law suggests that a drop in output growth between 2% and 3% is associated with a one point increase in the total unemployment rate (Anderton et al. 2012: 4).

The standard model is specified in equation (1) to estimate Okun's Law (Sögner and Stiasny, 2000: 5);

$$\Delta u_t = \alpha_0 + \alpha_1 \Delta y_t + v_t \quad (1)$$

In equation (1), Δu_t represents the annual change in unemployment rate, Δy_t represents the annual change in GDP with logarithmic transformation and v_t represents the residual term.

Okun's Law was empirically estimated by Okun (1962). Accordingly, Okun (1962) estimated the relationship between unemployment and growth for US economy, using a total of 55 observations, quarterly covering the period 1947-1960, and equation (2) was used (Goussakov & Stjernström, 2017: 9-10);

$$\Delta u_t = 0.3 - 0.3 \Delta y_t \quad (2)$$

As stated in Equation (2), the increase in total output growth increases demand for labor, so it is negative as it sees a decrease in output growth, as it tends to lead to a decrease in unemployment. According to the estimated equation (2), if GDP does not change, unemployment will increase by 0.3% and 1% annual real GDP growth is required to keep unemployment stable (Goussakov & Stjernström, 2017: 10).

Okun (1962) started by questioning the production capacity of the economy under full employment conditions and aimed to examine the relationship between

unemployment and economic growth variables according to two different approaches: the “difference method” and the “gap method”. The difference approach describes how economic growth has changed simultaneously with the transition from the previous quarter to the next quarter. This relationship between the two variables is shown in equation (3).

$$\Delta u = \alpha + \beta(g) \quad (3)$$

According to Equation (3), Δu indicates the change in unemployment rate, α shows the constant coefficient, β , Okun parameter, and g shows the real growth rate in the output. The $-\alpha / \beta$ ratio indicates the value that the economic growth rate should take while the unemployment rate is data. Besides, β parameter is expected to take a negative value. The gap approach indicates that if the negative gap between unemployment and potential and actual output is large, the unemployment rate will also be large, or if the unemployment rate is low, the regression equation will indicate that the deficit will be positive, as in equation (4).

$$u = \alpha + \beta(\text{gap}) \quad (4)$$

According to Equation (4), u indicates the unemployment rate, gap shows the difference between potential output and actual output. α shows the difference between potential output and actual output. α shows the value that the full employment unemployment rate will take if the difference between potential output and actual output is zero. Here, β , parameter is expected to take a positive value (Yalçinkaya et al., 2018: 10).

There are different versions of Okun's Law. These versions; difference version, range version, dynamic version and production function version. According to the difference version, he explains the relationship between output growth and unemployment movements, how output growth also changes with unemployment. The difference version is expressed as equality in the following format.

$$\text{Change in unemployment rate} = a + b * (\text{Increase in real output})$$

The above equation shows the correlation between output growth and unemployment movements. Although the parameter b shown in the above equation is called the “Okun's Coefficient”, this coefficient is expected to be negative because of the negative relationship between economic growth and unemployment. The equality

–a / b ratio shows how much the economy should grow in order to achieve a stable unemployment rate in the economy (Knotek, 2007: 75).

Okun's (1962) estimation results of the regression made by using quarterly real data for the period 1948-1960 are shown in below equality.

Change in unemployment rate = $0.30 - 0.07 * (\text{Increase in real output})$

According to the estimation results obtained in the above equality, zero real output growth in a given quarter was associated with a 0.3 point increase in unemployment rate in this quarter. Accordingly, a fixed unemployment rate corresponds to a stable output growth rate of over 4%. Output growth higher than this rate corresponds to the declining unemployment rate, while output growth lower than this rate corresponds to the increasing unemployment rate. The value of the Okun coefficient given above indicates that every percentage point of the real production increase above 4% is associated with a 0.07 percent decrease in the unemployment rate (Knotek, 2007: 75).

This is because output levels in the past and the current period may affect unemployment rates in current period one of conclusions from Okun's (1962) evaluations. In this context, new equation in which the lagged values of unemployment and output variables are determined as independent variables are expressed as "dynamic model" the difference model of unemployment and output variables. Another reason for adding the values of the previous period in the unemployment rate variable to the model is aimed to eliminate the possible relationship between the residual terms. This model is expressed in Equation (5);

$$u_t = \beta_0 + \beta_1 y_t + \beta_2 y_{t-1} + \beta_3 u_{t-2} + \varepsilon_t \quad (5)$$

According to Equation (5), y shows the real growth rate variable. t means the current period, and t-1 represents a lag period compared to the current period. The model specified in equation (5) expresses the dynamic model and is not restrictive as it deals with the relationship between unemployment rates and the growth of output in time. However, due to the use of lagged values in the model, it is not as simple as the difference model (Demirgil, 2010: 12).

Okun's Law is defined more accurately as a general rule rather than a law, as there is no guarantee that the relationship will look the same in every country due to different labor markets and policies (Goussakov & Stjernström, 2017: 10).

Okun's (1962) Law, although an econometric relationship between economic growth and unemployment is important for policy modeling, macroeconomic theory offers relatively few models that link the change in unemployment rate to GDP growth. Within the scope of economic growth and unemployment discussions. Explaining Okun's Law is simple in terms of Keynesian economics. Accordingly, firms change their output plans due to changes in aggregate demand. This causes changes in labor demand and affects the unemployment rate. The basis of this explanation is based on the assumption that prices and wages are fixed (Sögner & Stiassny, 2000: 4).

They have been examined economic growth-unemployment relationship and made to prove the validity of Okun's Law for developed and developing countries in this section. Different results were obtained in studies to examine the economic growth-unemployment relationship for these countries. The findings reveal the existence of economic growth-unemployment relationship and support the results of Okun (1962) in some of these studies. It contradicts Okun (1962)'s findings results achieved in some studies. From these studies, Lal et al. (2010), Jardin and Stephan (2011), Bankole and Fatai (2013), Elshamy (2013), Moroke et al. (2014), Cháfer (2015), Prabagar (2015), Pehlivanoğlu and Tanga (2016), Gois and Jorge (2017), Rahman and Mustafa (2017), Acaroğlu (2018), Daniel et al. (2018), Pata et al. (2018), Soyly et al. (2018), Adelowokan and Okutimiren (2019), Altunöz (2019), Villaverde and Maza (2019) examined the validity of Okun's Law in developed and developing economies. The findings indicate that Okun's Law is valid in general.

ECONOMIC GROWTH AND UNEMPLOYMENT IN TURKISH ECONOMY

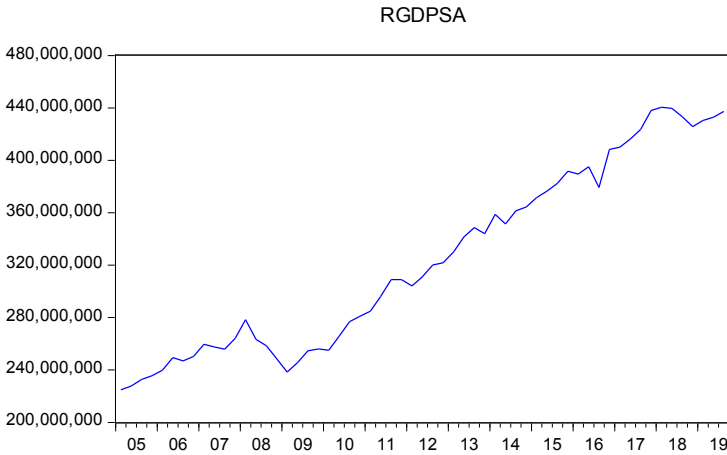
It is one of the most important macroeconomic problems going on from past to present unemployment problem in Turkey. Important policies have been implemented to increase employment both macroeconomically and regionally to reduce unemployment in Turkey. Although significant decreases in unemployment have been achieved after all these developments a permanent, stable and sustainable success has not been achieved in the fight against unemployment. Unemployment rate tended to increase rapidly, reaching the highest level by reaching 14 percent in 2009 in Turkey finally, after the 2007-2008 global financial crisis. Unemployment

rate increased rapidly and reached 14.3 percent finally, after fluctuations in the foreign exchange market in Turkey.

Economic policy practices to be implemented towards achieving a stable economic growth will continue to have an impact on unemployment As in the previous period, in the next period.

On the other hand, besides the factors mentioned above, volatilities in the financial markets and cyclical fluctuations in the markets also affect unemployment. As a result of the slowdown in real gross domestic product (GDP), unemployment is also negatively affected and tends to increase after many recent financial crises.

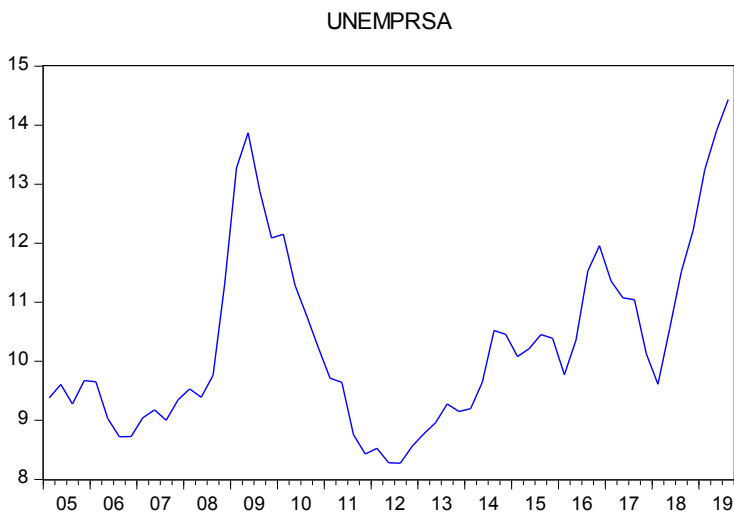
Determined for one of the two series econometric applications of the study of the Turkey real gross domestic product (GDP) series plotted belong to the period 2005-2019 stripped of seasonal effects, as shown in Figure 1.



Graph 1. *Real GDP, (2005:Q1-2019:Q3) (Turkey)*

According to Graph 1, Turkey's real GDP was a significant break in 2008 and entered into after a continuous increase in the trend.

Another series used in the econometric application of the study is the unemployment rate series, this series is shown in Graph 2 as seasonally adjusted.



Graph 2. *Unemployment Rate, (2005:Q1-2019:Q3) (Turkey)*

According to Graph 2, the unemployment rate has followed a fairly fluctuated in Turkey during the period 2005-2012. It has entered into a rapid increase trend since 2008 and reached its highest level in 2009 the unemployment rate in Turkey. After this period, the unemployment rate entered a rapid downward trend. It fell to its lowest level in 2012. After 2012, the unemployment rate started to increase again, it showed a significant fluctuation in the 2016-2017 period. It entered into a rapid increase trend again in the period of 2017-2018, it reached the highest level again in 2019.

When the graphs of both series are evaluated in general, although the trends of both series differed from each other, some periods show similar trends. While the real GDP series was at a minimum level in the 2008-2009 period, the unemployment rate increased to the maximum level.

ECONOMETRIC METHOD AND DATA SET

Real GDP and unemployment rate data were used quarterly frequency for the period 2005:Q1-2019:Q3 in Turkey for the econometric application of the study. These data are taken Central Bank of the Republic of Turkey (CBRT) Electronic

Data Dissemination System (EVDS) internet database. Firstly, logarithmic transformation of real GDP series was made in the econometric application of the study. equation (7) above is based on regression model specified for Turkey represents Okun's Law for econometric practice.

$$\text{UNEMPR}_t = \alpha_0 + \alpha_1 \text{LRGDP}_t + v_t \quad (7)$$

The UNEMPR variable specified in Equation (7) expresses unemployment rates in Turkey belong to period 2005:Q1-2019:Q3. The RGDGP variable refers to the real GDP growth in Turkey belong to period 2005:Q1-2019:Q3. v_t represents the residual term.

For both series, stationary testing was performed by applying Augmented Dickey-Fuller (ADF) unit root test, which is one of the unit root test methods commonly used in time series. at the beginning of the econometric practice. The null hypothesis (H_0) and the alternative hypothesis (H_1) are expressed as follows basis for stationary testing.

H_0 : Real GDP and unemployment rate series are stationary, they does not contain unit root. [I(0)]

H_1 : Real GDP and unemployment rate series are not stationary, they contain unit roots. [I(1)]

The relevant coefficients were estimated by using OLS estimation method after unit root test Real GDP and unemployment rate series used in the study, OLS estimation method is an old and successful method for estimating the coefficients of regression equations in the most realistic way and it is widely used in terms of its properties.

ECONOMETRIC RESULTS

Since the effect of seasonality is considered important in such series such as real GDP and unemployment rate, both series are excluded from seasonal effects by using the moving average ratio method. Then, during the application of the Augmented Dickey-Fuller (ADF) unit root test, the maximum lag value was based on five values, and Schwarz Information Criteria was based on in determining this value in the analysis of stationarity. Augmented Dickey-Fuller (ADF) unit root test results that are performed in a fixed and trending fashion by taking the level and first difference values are shown in Table 1.

Table 1. *Augmented Dickey-Fuller (ADF) Unit Root Test Results*

Variable	Level		First Difference	
	Intercept	Intercept & Trend	Intercept	Intercept & Trend
LRGDP	-0.605(0)	-2.039(0)	-7.632(0)**	-7.568(0)**
UNEMPR	-1.849(3)	-2.346(3)	-2.937(2)*	-5.200(1)**

*(**): 5% (1%) indicates that the absence hypothesis (H_0) was rejected according to the level of significance.

Note: Numerical values show latency lengths in parentheses.

Based on the LRGDP and UNEMPR series level values, based on fixed and fixed-trend extended Dickey-Fuller (ADF) unit root test results, it was determined that both series contain unit root according to the results in Table 1. Afterwards, according to the unit root test results of the related series based on the first difference values, it was determined that both series are stationary, stationary and stationary, this time they do not contain unit root. According to these results, it was revealed that the above-mentioned null hypothesis (H_0) should be rejected.

The regression equation to express the law of least squares ordinary read for Turkey (OLS) related coefficients were estimated using the method following the extended Dickey-Fuller (ADF) unit root test in the study. Obtained the results using the OLS method are shown in Table 2.

Table 2. *Ordinary Least Squares (OLS) Method Estimation Results*

Dependent Variable: DUNEMPR				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.201	0.081	2.484	0.016
DLRGDP	-9.958	2.997	-3.323*	0.002
R-squared	0.164	Adjusted R-squared		0.149
S.E. of regression	0.559	Akaike info criterion		1.709
Sum squared resid	17.513	Schwarz criterion		1.780
Log Likelihood	-47.570	Hannan-Quinn criter.		1.737
F-statistic	11.041	Durbin-Watson stat		1.406
Prob(F-statistic)	0.002			

*: 1% Indicates that the absence hypothesis was rejected according to the level of significance.

According to the results in Table 2, The test statistic value of the slope coefficient belonging to the DLRGDP variable, expressed as the coefficient of Okun, was statistically resulted according to the statistical significance level of 1 percent, the sign of the coefficient resulted negatively as expected. When the obtained slope coefficient is interpreted, one unit increase in the DLRGDP variable decreases the UNEMPR variable by 9.958 units.

When the estimation results obtained are evaluated in general, the increase in real GDP growth negatively affects the unemployment rate. Obtained these results provide strong evidence that one of Okun's law is valid for Turkey.

6. CONCLUSION

Okun (1962) conducted an important empirical study to prove the economic growth-unemployment relationship in sixties. Okun (1962) has four different versions of Okun's Law known by its name. These versions are difference version, range version, dynamic version and production version. The basis of Okun's Law is based on the existence of a negative impact of economic growth on unemployment. It is very difficult to generalize in studies on Okun's Law. In this regard, in some countries, findings regarding the validity of Okun's Law could not be reached and generalization could not be made between countries. In this regard, obtained the econometric results has supported Okun's Law in this study for Turkey.

Okun's Law is criticized in different ways. Accordingly, this model is a static model that is closed to development and change. When the studies in the literature are taken into consideration, the modeling in these studies always adheres to the main and basic model. However, there are different factors and variables that determine relationship between unemployment and economic growth today. Therefore, it is beneficial to question Okun's Law in this respect. Therefore, unemployment and growth relationships should be met naturally in USA in 1962.

It has continued from past to present as an important macroeconomic problem application of econometric study made the unemployment problem in Turkey. The acceleration of economic growth has been effective in lowering the unemployment rate. Despite the macroeconomic and regional economic policies aimed at reducing unemployment, a permanent and steady decline in the unemployment rate has not been achieved due to the impact of financial and cyclical fluctuations.

Different results were obtained in studies conducted to determine the relationship between economic growth and unemployment and the validity of Okun's Law in developed and developing countries. In some studies, similar results were found with the negative coefficient and statistically significant slope coefficient obtained by Okun. The test statistical value of the said slope coefficient was found significant, but the coefficient was found positive in some studies, it was not found statistically significant the test statistical value of slope coefficient in some studies.

Okun's law has been forecast for the 2005-2019 period in Turkey in this study. estimation results obtained using OLS method, although the 2005-2019 period in Turkey showed findings suggest that the validity of Okun's law reveals the existence of a negative and significant relationship between unemployment and economic growth.

In this study, making the findings have been identified for Turkey and knowing the negative relationship between unemployment and economic growth is gaining importance. Accordingly, knowing these results by economic policy determiners and practitioners will play an important role in predicting the expected results from the policies to be implemented and implementing these policies effectively and efficiently.

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7

SEARCHING FOR BUBBLES OR COLLAPSES IN TURKISH PRIVATE SECTOR CREDITS¹

*Alperen AĞCA*²

INTRODUCTION

After the financial liberalization in the late 80s in Turkey, the bank credits have been lifesaving and a crucial factor for Turkey's private sector to adapt the global changes with respect to mentioned liberalization. Financial crises and macroeconomic activities are linked to each other by the financial volume of both public and private sector. However, this paper will focus on the latter side of the coin. In this context, there are two main purposes of this study. The first is to analyze with SADF and GSADF tests whether there has been a high level of collapse in many years in the credits used by the private sector in Turkey. The second is to predict with the forecasting analysis whether a collapse in private sector credits will be seen in the short run or not.

Particularly in the period of uncertainty and crisis, it is seen that self-financing in private sector is not enough (Holmsröm & Tirole, 1998). Moreover, Kaminsky & Reinhart (1999) have been investigated around 20 emerging economies and found that local credits is one of the most effective instruments to determine economic recession period.

In their study which covers the investigation for the period between 1963 and 1995 in Turkey, Kar and Pentecost (2000) stated that when using the private bank credits to proxy the financial development, the economic growth is the reason for a significant development in financial and private sector.

1 The earlier draft of this study has been presented at International Academic Conference in Vienna 2017 and published as only abstract in proceeding booklet of the conference.

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Kaya (2002), has stated that a high rated bank credit expansion in the countries which completed their deflation process has been occurred by the low inflation in the economies of those countries (IMF, 2000).

It has been found that the relationship between the financial debts and the credits used by the private sector from the domestic market is positive (Loaya & Ranciere, 2006).

The former president of CBRT (The Central Bank of The Republic of Turkey) Başçı (2006) has stressed that private sector bank credits have risen in the emerging market countries due to the low interest rates and increasing economic growth.

According to Sayilgan and Yildirim's (2009) paper which analyzes the profitability of Turkish banking sector for the period of 2002 to 2008 empirically, the profitability has been affected positively by the increased volume of banking credits. Besides, it would be useful to know changes in the profitability of banks for private sector.

Vurur and Özen (2013) have reported that rise of the volume of bank deposits leads to an increase in economic growth and the volume of bank credits in their study which seeks Granger causality between 1998 and 2012 quarterly. Besides, depending on the increase in economic growth, there is also an increase in bank credits due to the financial needs of private sector and individuals.

In a paper similar to Vurur and Özen, Atış and Saygılı (2014) have found that there is a slight causality from the volume of bank credits to current deficit in their study which covers the time period of 1998 to 2013 quarterly.

In the light of the literature, it is assumed that private sector credits are assumed to be worth watching especially in the crisis years, and it is also aimed to determine whether high level collapses have occurred. When the SADF and GSADF test literature is examined, it has been determined that this method has not been applied to credit transactions before. For this reason, our work is a first in the literature from this aspect. In addition, our data set is extended with the forecasting method as well as the actual data set and this paper is a first feature because of the implementation of the SADF test and GSADF test.

DATA AND METHODOLOGY

The data set of the study is determined as the amount of credits that the private sector uses from Turkish deposit banks. The data was obtained from the Electronic Data Delivery System of CBRT. The data is monthly and covers the period from July 1994 to June 2017.

To analyze if the bubbles or collapses exists in the timeline of the variable or not, right tailed variation of ADF tests (Rtadf), which are SADF and GSADF proposed by Phillips, Wu and Yu, 2011 (PWY, from now on) and Phillips, Shi and Yu, 2013 (PSY, from now on) respectively, have been conducted. The reduced form of the PWY and PSY test strategies is:

$$y_t = \mu + \delta y_{t-1} + \sum_{i=1}^p \theta_i \Delta y_{t-i} + \epsilon_t.$$

Where y_t represents the private sector credits by deposit banks; μ , p and ϵ_t are the intercept term, the number of lags and the error term, respectively. Besides, θ_i are the differenced lags coefficients for $i = 1 \dots p$. The null hypothesize and the alternative hypothesize are given:

$$H_0 : \delta = 1$$

$$H_1 : \delta < 1$$

The SADF test of PWY indicates that the point r_1 will start the estimation by making the recursive calculations. The sequence r_2 will be ranged between r_0 and 1 representing the ending of the initial estimation window which has been determined at the beginning. While each individual estimate will be an ADF statistics denoted as $ADF_0^{r_2}$, the whole sample estimation shows the final estimate for the test strategy. For the sequence $r_2 \in [r_0, 1]$, the SADF test statistics will be the sup (supremum) value of the $ADF_0^{r_2}$.

$$SADF(r_0) = \sup \{ADF_0^{r_2}\}$$

$$r_2 \in [r_0, 1]$$

The generalized form of the SADF (GSADF) test suggested by PSY and allows to establish a test structure to make estimation of multiple bubbles or reverse

bubbles or collapses is the next test statistics that r_1 -the starting point- is more flexible and can be alternated in the range of 0 and r_2-r_0 .

$$GSADF(r_0) = \sup \{ADF_{r_1}^{r_2}\}$$

$$r_2 \in [r_0, 1]$$

$$r_1 \in [0, r_2-r_0]$$

The strategy of PSY suffered lack of a date-stamping procedure. That's why they used it. Briefly, for the SADF statistics of ADF, the $ADF_0^{r_2}$ sequence ought to be compared to a right-tailed ADF statistics with respect to its critical values in the different confidence intervals. On the other hand, GSADF test statistics should be related to backwards supremum ADF (BSADF).

After the procedures of SADF and GSADF strategies for the current period, the forecasting method which has been compounded with SADF and GSADF strategies was used to analyse the future period of the variable. For this purpose, the fitted value has been gathered by the forecasting analysis and the period was extended by 18 months from June 2017.

The initial windows size for the estimations has been taken as 6 and the replication obtained from Monte Carlo simulation was 1000 for both SADF and GSADF test statistics. The total observation number is 300.

FINDINGS AND CONCLUSION

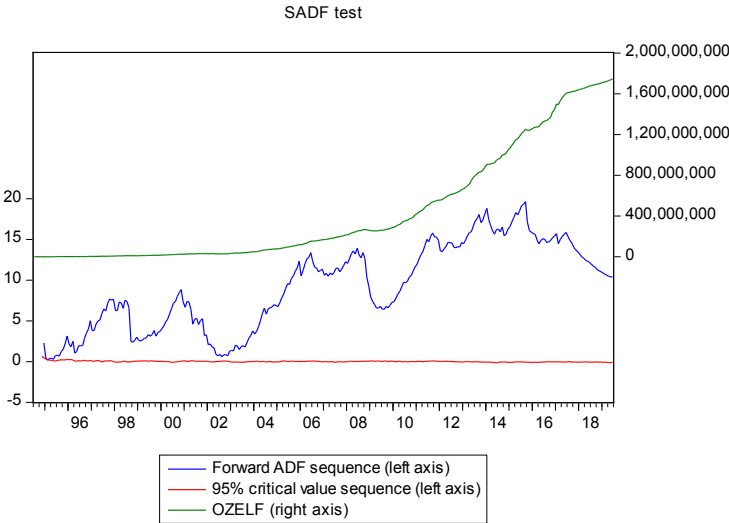
According to the SADF test results indicated at graphs 1 and 2, private sector credits used by deposit banks in Turkey show a dramatic decline in 1994, 2002 and 2009, but there is no mention of a serious collapse that can be called bubble. This can be due to the SADF test, which searches for a single bubble at the time period examined. Because the SADF test is more effective in searching for a single bubble (Phillips & Wu, 2011; Phillips, Shi & Yu, 2012). Nonetheless, private sector credits were found to fall under the critical value in 1994 and 2002 at the 99% percent significance level. As mentioned, after the SADF test, the GSADF test was tested to see if there were multiple bubbles in the time interval of the study, as there were 3 significant decreases in the time interval of the study. As previously mentioned, the GSADF test is more effective than testing multiple

bubbles in the given time period (Phillips, Shi & Yu, 2012). Given the GSADF test results indicated at graphs 3 and 4, bubble was found at private sector loans, especially at 99% significance level. In 2009, there was a significant decrease compared to previous years. Observed in 1994 and 2002, these bubbles were coincided with the financial and economic crisis years in the country, in accordance with the literature. There was a serious economic crisis in the Turkish economy in 1994. The main reasons for the 1994 economic crisis are the budget deficits, the mismanagement of public debts and the excessive increase in the current account deficit resulting in the government failing to pay its debts and showing economic weaknesses (Özatay 1994, Celasun 1999, Boratav, 1994, Oktar & Dalyancı, 2010). For this reason, according to the GSADF test results, in the aftermath of the 1994 economic crisis, the credits used by the private sector also showed a decline that we could call “reverse bubble” also one can call it “collapse”. When the effects of the crisis began to decline, the use of credit increased and exceeded the critical value. Moreover, as compatible with the actual results of the amount of credits used by the private sector from June 2017 to January 2019, the forecasting indicates a dramatic decline in volume of the credits. This improves the validity of our attempt to forecast a crucial variable by combining the GSADF results and given the forecasted data for the financial system in Turkey. One can always develop this test strategy for the good of a healthy banking system or a financial system as well as it could be applied to see if there are any bubbles or collapses in the economy.

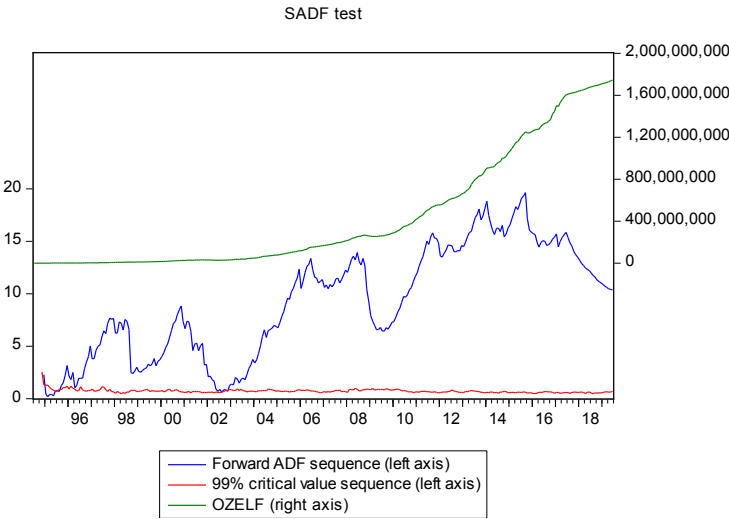
Table 1: GSADF Test Results

	t-statistics	Probability
GSADF Test Statistics	19.64361	0.0040
99% level	11.69360	
95% level	7.449090	
90% level	5.707614	

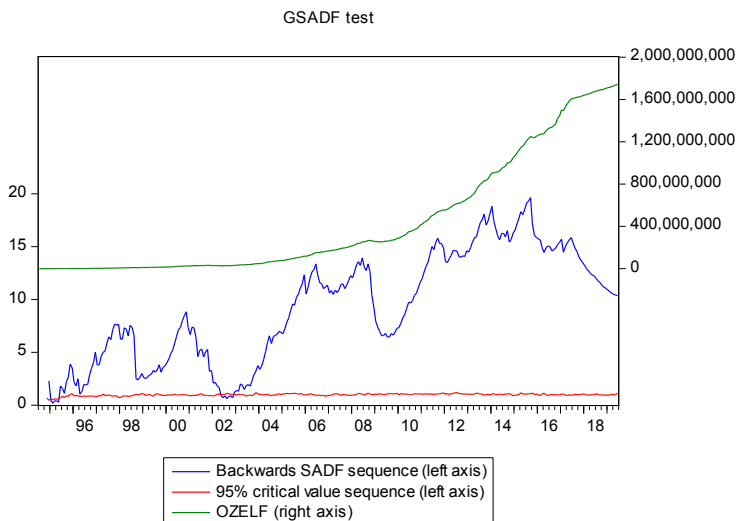
Graph 1: SADF Test Result (0.05 Significance Level)



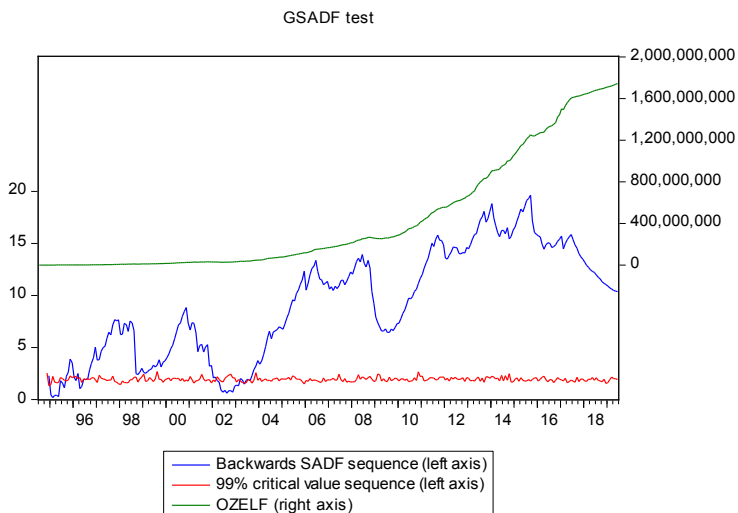
Graph 2: SADF Test Result (0.01 Significance Level)



Graph 3: GSADF Test Result (0.05 Significance Level)



Graph 4: GSADF Test Result (0.01 Significance Level)



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8

YOUTH UNEMPLOYMENT IN THE WORLD AND IN TURKEY AFTER THE POST GLOBAL FINANCIAL CRISIS PERIOD

Cansel OSKAY¹

INTRODUCTION

Neo-liberal policies implemented intensively worldwide since the 1980s and the globalization process and technological development and demographic changes have created many new opportunities, yet they have also affected the labor markets negatively. While the world economy has grown by 5% on average, the unemployment problem has not dwindled. Hence, the change that started with the globalization process led to an economic growth which did not create employment in the world, becoming the main reason for global unemployment. (Çondur and Bölükbaş, 2014: 78-79). Unemployment, which has turned into a global problem, deepened with the global financial crisis experienced in 2008. The 15-24 age group, which is considered as the young population by the United Nations (UN), was affected by the increasing unemployment worldwide the most. The segment referred to as “unemployed youth” by the International Labor Organization (ILO) is comprised of the population between the ages of 15-24 (ILO, 2006: 2). Unemployment rates in the 15-24 age group are an important indicator in that it is the period when individuals join the labor force for the first time. According to the Organization for Economic Co-operation and Development (OECD) report, along with the global crisis, labor market conditions, increasing unemployment, low employment and low wage conditions have worsened for young people in many countries (OECD, 2017). The causes and rates of young unemployment in high-income developed, low-income undeveloped, lower-middle income and upper-middle income undeveloped countries according to the distinction made by income groups in the world may differ, yet it still remains an important and

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common problem to be solved. Among the micro causes of youth unemployment, youth-specific qualifications, educational levels, work prospects and ethnic origins can be listed, while production loss and underemployment that affects the entire society are among the leading macro causes (Aydın, 2017: 4). The inability of the young labor force, which is an important resource for countries, to participate in production can negatively affect sustainable economic growth and could be the main source of individual and social problems as well. In this context, ensuring young people's participation in the labor market is important not only to improve employment prospects and welfare levels individually, but also to augment overall economic growth, equality and social cohesion. (OECD, 2013: 2). At the same time, unemployment of young people for a long time can lead to loss of human capital and increased informal employment. Youth unemployment rate in Turkey, which is included in the developing countries in the upper-middle income group in the world, is above the world and OECD average. This rate has increased steadily with the global crisis and became more severe in 2019, exceeding twice as much as the general unemployment rate . Today, Turkey is the seventh country with the highest youth unemployment in OECD countries. In contrast to the downward trend in recent years with high youth unemployment rates in all countries other than South Africa, it is witnessed that the upward trend still continues in Turkey. In recent years, there has been a serious increase especially in the share of women and higher education graduates in young labor force and youth unemployment. This situation indicates that employment policies implemented in Turkey in order to solve the problem of youth unemployment are not adequate, and new policies need to be developed.

For this purpose, the subject of the study is youth unemployment, which increased significantly as a result of especially global financial crisis in the world and in Turkey and continues to be a major problem in the agenda of the world. In the study covering the period of 2007-2019, initially, the dimensions of youth unemployment in the world were compared in terms of countries included in different income groups through the data obtained from ILO and OECD databases. Then, the dimensions of youth unemployment in Turkey was discussed in comparison with the OECD and European Union-28 countries (EU-28), and the main determinants of youth unemployment were determined. Finally, policy recommendations to reduce youth unemployment were evaluated.

THE DIMENSIONS OF YOUTH UNEMPLOYMENT IN THE WORLD FOR THE 2007-2019 PERIOD

Unemployment has been the most important common problem in all countries regardless of their developmental level from past to present. Unemployment reached serious levels especially during the global financial crisis that started in 2008. While many people wanted to work but could not find a job, most of the working people lost their jobs (OECD, 2013: 2). According to the estimates of ILO's Global Employment and Social Outlook: Trends 2020 report, while the number of unemployed people globally was 164.5 million in 2007 and the unemployment rate was 5.4%, the number of unemployed people increased by 22.1 million and reached 186.5 million in 2009, and the unemployment rate rose up to 6%. The number of unemployed people, which was 185.8 million in 2018, reached 187.7 million in 2019. It is estimated that the number of unemployed people will continue to increase in 2020 and will exceed 190 million. The global unemployment rate declined to 5.4% in 2018-2019, which was the rate in 2007 before the global financial crisis (ILO, 2020). The increase in employment in high-income developed countries has had a great impact on the decrease in the global unemployment rate in the last thirteen years. Despite the low growth rates in high-income countries, their employment growth has mostly been achieved in the service sector, where the average added value per worker is relatively low. In contrast, the unemployment rates of some middle-income countries, which have experienced economic crises in recent years, have increased. It is estimated that the unemployment rate of 5.4% will remain the same in 2020 (ILO, 2019: 19-20).

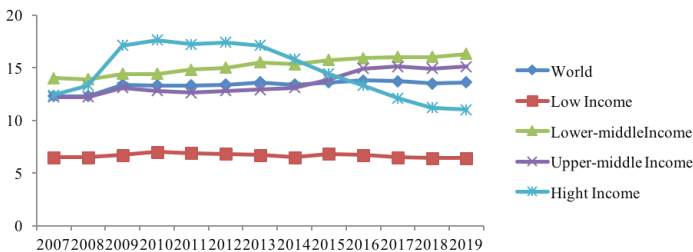
With the effect of the global financial crisis, young people between the ages of 15-24 were most affected by the increase in the global unemployment rate, and it became more and more difficult for young people to find and maintain their jobs. Many international studies reveal that young people are more affected by cyclical fluctuations and the economic crisis. In these studies, it was determined that young people ranked first among those who lost their jobs during the economic crisis and the last among those employed during the recovery periods of the economy (Karahan, Dursun and Uslu, 2019: 116). According to the data obtained from the ILO, while 71.7 million young people were unemployed in 2007, this figure increased by 4.7 million to 76.4 million in 2009. In 2019, it was reduced to 67.6 million. The share of youth unemployment in general unemployment in the world

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has been decreasing over the years. The youth unemployment share, which was 43.6% in 2008, decreased to 36% in 2019. However, despite the decrease in the number of unemployed youth globally, youth unemployment rate continues to increase. While the global youth unemployment rate, which has had a continuous upward trend continuously since the 1990s in the world, was 12.3% in 2007, it rapidly increased during the global crisis period and reached 13.4% in 2009. The global youth unemployment rate increased to 13.5% in 2018 and 13.6% in 2019, and it is expected that the rise will continue in 2020. Throughout the 2007-2019 period, the global youth unemployment rate was more than twice the general unemployment rate. This rise in global youth unemployment has been instigated by the decline in youth labor. While the global youth workforce was 583.4 million people (48.4%) in 2007, it declined continuously due to the global crisis and dropped to 496.5 million (41.2%) in 2019. Global youth employment also declined during the 2007-2019 period. While it was 511.7 million people (42.5%) in 2007 before the global financial crisis, it decreased to 495.9 million (40.8%) in 2009 and 428.9 million (35.6%) in 2019. The decline in global youth employment is largely related to the slowdown in the manufacturing sector along with the recession in the economy. Also in 2020, while the decline in the number of unemployed youth, youth employment and youth labor force continues in the world, the increase in youth unemployment rate is expected to continue. Therefore, it is estimated that it will not be possible to create enough new jobs to employ young people who have recently joined the labor force (ILO, 2020).

*Graph 1: Youth Unemployment Rates in Country Groups by Income Levels
and in the World (%)*



Although youth unemployment is a common problem in the world, the specific characteristics and priority degrees of the youth vary depending on the region

and the income and development levels of the countries. Differences in labor market conditions in each country also differentiate unemployment figures (ILO, 2019). Graph 1, which is prepared using the data obtained from the ILO Global Employment and Social Outlook: Trends 2020 report, shows the average youth unemployment rates in the world and countries by income level groups in the period 2007-2019. It can be seen in Graph 1 that the youth unemployment rate in the low-income undeveloped country group was the lowest during the period compared to countries in both the world and other income groups. The low-income group of undeveloped countries were least affected by the global financial crisis in the world. The youth unemployment rate, which was 6.5% in the low-income undeveloped country group in 2007, decreased further down to 6.4% in 2019. The low youth unemployment rate in most low-income countries does not mean that labor markets are functioning well. In most of these countries, reasons such as very low growth rate, being in poverty and generally lack of social security system force young people to work in all kinds of jobs with low wage and without job efficiency (ILO, 2019: 19-20). The youth unemployment rate in the lower-middle income developing countries increased as a result of the global financial crisis. It increased from 14.4% in 2009 to 16.3% in 2019. It has been the country group with the highest youth unemployment rate especially since 2015. The upper-middle income country group ranks third with a rate of 15.1%. Since 2013, there has been an increase in the youth unemployment rate in upper-middle income countries with the effect of the recession. The high-income developed countries ranks fourth with the lowest youth unemployment rate. The youth unemployment rate, which was 12.4% in 2007 in these countries, increased to 17.1% in 2009 and started to decrease rapidly after 2013. It is seen that the main reason of the rapid rise in youth unemployment rate in developed countries in the period of 2009-2013 is the global financial crisis. In the high-income developed countries, 2013 was the breaking year and the youth unemployment rate, which continued to decline rapidly after this year, has followed a course below the world youth unemployment rate since 2016. It is noteworthy that it decreased to 11% in 2019, which is 1.1% below the rate in 2007. At the same time, it fell 2.6 points below the world average, which was 13.6% in 2019. Graph.1. According to the Employment Outlook published in 2019 by OECD, the members of which are generally high income countries, the unemployment rate in many member

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countries was relatively below the estimated rates, and the unemployment rate has decreased to the lowest level in 40 years across OECD (OECD, 2019: 19). According to the OECD data, the unemployment average of member countries jumped from 5.58% in 2007 to 8.07% in 2009. The rate, which was 7.35% in 2014, has declined since that year and dropped to 6.32% in 2016 and 5.2% in 2019. The youth unemployment rate also followed a course parallel to the general unemployment rate. It jumped from 11.9% in 2007 to 16.6% in 2009. The youth unemployment rate, which started to fall rapidly and receded to 15.1% as of 2014, dropped to 13% in 2016 and to 11.1% in 2018. It was realized as 11.4% in the third quarter of 2019 (See. Table 1). The youth unemployment rate in OECD has been on a course below the world average since 2016. It is 2.2 points lower than the world youth unemployment rate, which was 13.6% in the third quarter of 2019 (See Graph 1.) Although youth unemployment rates have declined in recent years across the OECD, they remain above the overall unemployment rate. Youth unemployment rates in OECD vary greatly by country.

Table 1: Youth Unemployment Rates in Selected OECD Countries for the Period of 2007-2019 (%)

Countries	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019*
Canada	11.2	11.6	15.3	14.9	14.3	14.4	13.7	13.4	13.2	13.1	11.6	11.7	11.7
France	18.9	18.3	23.0	22.6	22.0	23.6	24.1	24.2	24.7	24.6	22.3	20.8	19.2
Germany	11.9	10.6	11.3	9.8	8.5	8.1	7.8	7.8	7.3	7.0	6.8	6.2	6.2
Greece	22.7	21.9	25.7	33	44.7	55.3	58.3	52.4	49.8	47.4	43.6	39.9	34.4
Italy	20.4	21.2	25.3	27.9	29.1	35.3	40.0	42.7	40.3	37.8	34.8	32.2	29
Japan	7.7	7.3	9.2	9.3	8.3	8.1	6.8	6.2	5.6	5.2	4.7	3.7	4
Mexico	7.2	7.7	10.1	9.8	9.9	9.4	9.5	9.5	8.6	7.7	6.9	6.9	7.4
Portugal	16.7	16.7	20.3	22.8	30.2	37.9	38.1	34.8	32	27.9	23.9	20.3	18.3
South Africa	-	45.6	48.4	51.2	50.3	51.7	51.4	51.3	50.1	53.3	53.4	53.4	58
Spain	18.1	24.5	37.8	41.5	46.2	52.9	55.5	53.2	48.4	44.5	38.7	34.4	33.2
Korea	8.7	9.3	9.8	9.7	9.6	9	9.3	10	10.5	10.7	10.3	10.5	9.9
Turkey	17.3	18.5	22.9	19.8	16.7	15.7	16.9	17.8	18.5	19.5	20.6	20.1	27.4
United Kingdom	14.3	15.0	19.1	19.9	21.3	21.2	20.6	16.9	14.6	13.0	12.1	11.3	11.7
United States	10.5	12.8	17.6	18.4	17.3	16.2	15.5	13.4	11.6	10.4	9.2	8.6	8.3
EU-28 Countries	15.7	15.8	20.1	21.2	21.7	23.3	23.7	22.2	20.4	18.7	16.9	15.2	14.5
OECD-Total	11.9	12.8	16.6	16.8	16.3	16.3	16.2	15.1	13.9	13.0	11.9	11.1	11.4

Source: OECD. www.data.oecd.org/unemployment-youth-unemployment-rate

*: 3rd quarter

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Table 1 shows the youth unemployment rates in selected OECD countries for the 2007-2019 period. Among the OECD member countries, the least number of unemployed youth is in Japan, while the highest number is in South Africa. In Japan, the ratio, which was 7.7% in 2007, increased to 9.2% in 2009, followed by a significant decrease to 4.7% in 2017 and 3.7% in 2018. The youth unemployment rate of Japan, which has been experiencing economic stagnation for many years, is well below the OECD average during the period we examined. According to the 2018 data, among the selected countries, the countries with a youth unemployment rate below the OECD average were Japan (3.7%), Germany (6.2%), Mexico (6.9%), the USA (8.6%) and South Korea (10.5%). In Table 1, we see that these countries showed the most improvement when the 2007 and 2019 youth unemployment data were compared. The UK came close to the OECD average of 11.1% with a rate of 11.3%. In recent years, the UK and the USA have achieved a serious decline in the youth unemployment rate. The UK dropped its rate from 19.9% in 2010 by 8.8 points. Likewise, in the USA, the rate of 18.4% in 2010 decreased by 9.8 points to 8.6%. In other countries, the decline was slow throughout the period. We see the European Union (EU-28) countries among those that are most affected by the global financial crisis. The youth unemployment rate, which increased to an average of 21% in the period of 2008-2013, started to decrease in recent years and dropped to 14.5% in the third quarter of 2019.

South Africa ranks the first with the highest youth unemployment rate. The youth unemployment rate in South Africa maintained its high trend during the crisis as it did before the global crisis. The youth unemployment rate, which was well above the OECD average, increased from 45.6% in 2008 to 53.4% in 2018 and to 58% according to the latest data of 2019. As of 2018, South Africa is followed by Greece (39.9%), Spain (34.4%), Italy (32.2%), France (20.8%), Portugal (20.3%), Turkey (20.1%), EU-28 (15.2%), Canada (11.7%) and the United Kingdom (11.3%). Turkey ranks the seventh country among the OECD countries with the highest youth unemployment. Despite the downward trend in recent years in all countries with high youth unemployment rates other than South Africa, this trend is not observed in Turkey. According to the ILO report, the youth unemployment rate of Turkey, which is included among the developing countries in the upper-middle income group in the world, was at a high level during the period of 2007-2018 (excluding 2012). Considering the data from the third quarter of 2019, the country whose youth unemployment rate increased the

most according to the 2018 year-end data was Turkey followed by South Africa. In other countries, this ratio either did not change or decreased (See. Table 1). In Turkey, youth unemployment, which is quite above the OECD and EU-28 average and continues its upward trend, is a serious problem that needs to be solved.

THE DIMENSIONS OF YOUTH UNEMPLOYMENT IN THE TURKEY FOR THE 2007-2019 PERIOD

Turkey, which entered the globalization process by embracing neo-liberal policies in the 1980s, adopted the export-based growth model as many countries did. Making the country's economic growth dependent on global growth and implementing policies to reduce employment costs in order to gain a competitive edge played a role in the increase in the unemployment rate (Colak, 2017: 118). Globalization led to an economic structure dependent on indirect foreign capital investments and growing without creating employment. Therefore, unemployment turned into a structural and permanent problem as a result of many changes and developments (Yüceol, 2017: 50). The economic recession experienced in the world as a result of the global crisis also had an impact on Turkey, and accordingly, the unemployment rate reached severe figures. According to OECD data, the unemployment rate, which was 8.9% in 2007, rose to 12.6% in 2009 with a difference of 3.7 points due to the effect of the global financial crisis. In Turkey, which recovered from the negative effects of the global financial crisis in a shorter time in comparison to OECD and EU-28, the unemployment rate began to go down as of 2010. However, it increased to double digit figures again as of 2015, and the unemployment rate, which was 10.9% at the end of 2018, increased by 3.3 points to 14.2% in the third quarter of 2019. The downward trend continued in OECD and EU-28 within the same period. In the third quarter of 2019, the OECD unemployment rate fell to 5.2% and 6.3% in the EU-28 countries (OECD, 2020).

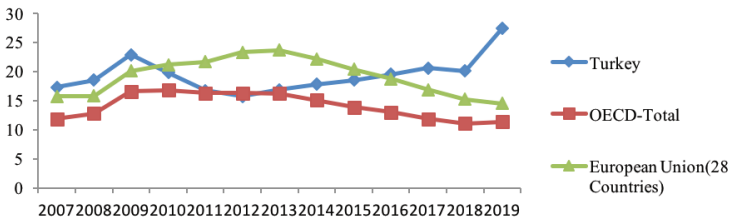
The most important structural feature of the unemployment in Turkey is the high rate of youth unemployment in the 15-24 age group. Among the reasons for the high youth unemployment rate, we can mention the fluctuations in the general economic conjuncture with the global crisis, the demographic change and the inefficiency of the labor market, the urbanization accelerated by the increase in migration from rural to urban areas, the increased level of education in youth, especially in women, changes in the quality of labor force and labor force participation rate (Akgündüz vd., 2017: 2). Along with the global crisis, in addition

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to the increase in the general unemployment rate, the youth unemployment rate increased continuously in the last twelve years, and the outlook became more ominous in 2019. In the OECD and EU-28 countries, the youth unemployment rate tends to decline over the past seven years, although it is more than double the overall unemployment rate. According to the latest data, while the downward trend continues in the EU-28 countries, the OECD countries continue to remain below the youth unemployment rate worldwide, even though there is an increase of 0.3 points. But, in contrast, the youth unemployment rate in Turkey keeps its upward trend (See Table 1 and Graph 2). This situation indicates that Turkey, with its current macro-economic performance, is experiencing a difficulty in solving the problem of youth unemployment (Yüceol, 2017: 58).

Graph 2: Youth Unemployment Rates in Turkey, the OECD and the EU-28 Countries (%)



In Graph 2, the average rates of the OECD and EU countries for the 2007-2019 were compared with the youth unemployment rates of Turkey based on the data obtained from the OECD database. As can be seen in Graph 2, the youth unemployment rate in Turkey during the period from 2007 to 2019 (except 2012) is above the OECD average.

The youth unemployment rate in Turkey in 2012, when economic growth declined, fell 0.6 point below the OECD average with the effect of reduction in the increase in the workforce. As of 2013, the youth unemployment rate in Turkey, which entered into an economic growth process that does not create employment, continued to rise. After 2012, youth unemployment increased in Turkey, while it began to decrease in the OECD, and the difference grew rapidly. In Turkey, the youth unemployment rate, which was 15.7% in 2012, rose to 20.1% in 2018 whereas this rate in the OECD countries decreased from 16.3% in 2012 to 11.1% in 2018. According to data of the third quarter of 2019, Turkey's youth unemployment outlook deteriorated rapidly by increasing 7.3 points, jumping to 27.4%. The most important reason that led to such a huge increase in the youth

unemployment rate was the decrease in the employment rate by 3.1 points due to the economic recession.

The youth unemployment rate, which showed a sharp increase in the EU-28 countries, was higher than the youth unemployment rate in Turkey in the 2010-2015 period. In 2012, the youth unemployment rate started to fall in the EU-28, whereas it began to rise in Turkey, and they reached the same level in 2015. While the youth unemployment rate in the EU-28 was 23.7% in 2012, it dropped to 18.7% in 2015; on the other hand, it rose from 15.7% to 18.5% in respective years. As of 2016, the youth unemployment rate in Turkey continued to increase more than that of the EU-28, and the difference grew bigger. The youth unemployment rate in the EU-28 fell to 14.5% in 2018 and the third quarter of 2019 due to the economic recovery and the employment policies implemented (See Table 1 and Graph 2).

Although there is a downward trend in the young population in Turkey, it is still relatively high compared to the EU-28 and OECD countries. Turkey's youth employment is low, and workforce and youth unemployment rate are high (Aydın, 2017: 6-7). The high proportion of the young population and the high rate of participation in workforce compared to many countries are important in terms of sustainable economic growth and prosperity expectation. However, the inability to create employment opportunities in line with the demand of the labor market and the education areas and capabilities of the high young population poses serious risks.

In Table 2, basic youth workforce indicators in Turkey, The OECD countries and the EU-28 countries for the period of 2007-2018 based on the data retrieved from the OECD database are presented. Turkey seems to be in a poor condition in terms of the OECD and EU-28 countries averages and the rate of participation in workforce and employment rates, which are the indicators of Turkey's basic young workforce market. The youth unemployment rate, which increased in 2008 due to the global crisis, and the declining youth employment rate can be observed not only in Turkey but also in the OECD and EU-28 countries. However, there has been an increase in employment rates in the last 6-7 years. Although the youth employment rates displayed an increase in the OECD and EU-28 countries in the third quarter of 2019, it receded from 35% to 32.1% as a result of economic shrinking experienced in 2018. More than half of the youth between the ages of 15-24 are unemployed. While South Africa occupies the lowest rank among the OECD countries in terms of youth employment rate, Turkey ranks the 16th (OECD, 2020).

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Table 2: Basic Youth Workforce Indicators in Turkey, the OECD and the EU-28 Countries for the Period of 2007-2019 (%)

Years	TURKEY			OECD-Total			EU-28 Countries		
	Unemployment Rate	Labor Force Participation Rate	Employment Rate	Unemployment Rate	Labor Force Participation Rate	Employment Rate	Unemployment Rate	Labor Force Participation Rate	Employment Rate
2007	17.3	37.7	30.2	11.9	49.4	42.9	15.7	44.9	37.2
2008	18.5	38.1	30.3	12.8	49.2	42.3	15.8	45	37.2
2009	22.9	38.7	28.9	16.6	48.2	39.6	20.1	44.4	34.7
2010	19.8	38.3	30	16.8	47.4	38.9	21.7	43.8	33.8
2011	16.7	39.3	32	16.3	47.3	39.1	23.3	43.4	33.3
2012	15.7	38.2	31.5	16.3	47.1	39.1	23.7	43.1	32.6
2013	16.9	39.6	32.2	16.2	47.1	39.1	22.2	42.9	32.6
2014	17.8	40.8	33.5	15.1	47	39.6	20.4	42.4	32.4
2015	18.5	42	34.1	13.9	47	40.1	18.7	42.4	33.1
2016	19.5	42.4	34.1	13	47.1	40.7	16.9	42.4	33.8
2017	20.6	43.3	34.4	11.9	47.3	41.3	15.2	42.5	34.6
2018	20.1	44	35	11.1	47.5	41.9	14.5	42.5	35.3
2019Q3	27.4	-	32.1	11.4	-	42.3	14.5	-	35.6

Source: OECD, [www.data.oecd.org/](https://data.oecd.org/); <https://stats.oecd.org/Index.aspx?DatasetCode=STLABOUR#>

The youth workforce participation rate has been in a downward trend in the EU-28 and OECD countries since 2009. While no significant change in the EU-28 countries has been observed in recent years, an upward trend can be seen in the OECD countries, albeit very low. Turkey's youth workforce participation rate was 38.7% in 2009 and rose to 44% in 2018, though it is below the OECD average of 47.5%. Throughout the 2007-2019 period, youth workforce participation rate and youth employment rate followed a course well below the OECD average (See Table 2). According to Turkey Statistical Institute (TÜİK) data, the workforce participation rate decreased to 43.2%. The workforce participation rate, which decreased by 0.8 point according to the OECD's 2018 year-end data, prevented the youth unemployment rate from rising even further (TÜİK, 2020).

According to the OECD data, Greece is the country ranking first among the countries in terms of the lowest workforce participation rate with 23.3%. Turkey follows South Africa, Italy, South Korea, Portugal, Spain, France, and Mexico among the selected OECD countries. According to the OECD database, the reason why the youth workforce participation rate is low in Turkey, which ranks 27th among OECD countries, is the very low rate of female participation in the workforce, as in other countries. Young women do not participate in economic activities in sufficient numbers. The participation rate and the employment rate of young males in workforce in Turkey is very high compared to the young females. In Turkey, there exists a gender inequality among the youth, and while the workforce participation rates of males are close to that of the OECD countries, female participation is quite low. This shows that there is a serious structural problem in the youth labor market. In 2018, the young male employment rate was 46.3%, and the male workforce participation rate was 56.3%, while the young female employment rate was 23.3% and the female workforce participation rate was 31.3%. While less than half of the young male working age population is working, this rate is half that rate for young women. While the workforce participation rate is low in young women, the unemployment rate is high. In short, young women are less involved in the workforce, while their chances of finding a job are relatively low compared to men. We can say that the increase in the workforce participation rate of young women graduates of higher education in recent years compared to previous years and the inability to create sufficient job opportunities in the labor market are the most important reasons for the rapid increase in the youth unemployment rate. While the rate of unemployed male and female youth was

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close to each other before the global crisis and in the 2007-2010 period, the female youth unemployment rate jumped to 25% in 2018 and to 32.9% in the third quarter of 2019. Young male unemployment rate went up to 17.5% in 2018 and to 24.3% in the third quarter of 2019. In the OECD and the EU-28 countries, female youth unemployment rate has been decreasing in recent years. While the rate in the OECD countries decreased from 11.5% in 2017 to 10.9% in the third quarter of 2019, it decreased to 16.1% and 13.8% in the EU-28, respectively (OECD, 2020).

The changes in gender and education level in the youth workforce market in Turkey has had a great influence on the increase in youth unemployment. Especially in recent years, the human capital of the young population has changed, and the share of higher education graduates in the youth labor force and unemployed youth has increased. According to the data obtained from the ILO, the youth unemployment rate of university graduates, which was 25.6% in 2007, increased to 30.6% in 2009 under the impact of the global crisis. The lowest youth unemployment rate is observed in primary school graduates. Youth unemployment rate among primary school graduates, which was 14.6% in 2018, was followed by high school graduates with 22%. Unemployed young university graduates continue their education in order to increase their chances of being employed. Therefore, an increase is observed in the youth unemployment rate of graduates with a post-graduate degree in recent years. This rate increased from 17.6% in 2014 to 30.5% in 2015 and to 39.2% in 2017, the highest level ever. The youth unemployment rate of graduates with an undergraduate degree in 2018 was 35.5% and the rate of graduates with a post-graduate degree was 30.2% in 2018 (ILO, 2019). The chances of young people with high education levels to be employed in stable and consistent jobs are higher in developed countries in comparison to developing countries (ILO, 2017).

In recent years, the share of young women has increased even more than young men with undergraduate and graduate degrees. Despite the rising education level, low quality of education and unemployment of young higher education graduates cannot meet the needs of the labor market, and there is distortion and incompatibility between labor supply and demand not only in quantity but also in quality. Industry-school cooperation can not be ensured fully in Turkey, the education system can not rapidly adapt to labor market changes, and vocational training system proves insufficient in raising intermediate staff according to the

needs of the market (Aydın, 2017: 6-7). From a sectoral perspective, the field of activity of women, who are mostly concentrated in the service sector, is limited compared to men. The youth unemployment rate is higher in non-agricultural and urban areas. The increasing urbanization as a result of the increase in internal migration and the increase in the number of immigrants, especially Syrian refugees, who work for lower wages in the informal sector, have had an impact on this situation (Apaydın, 2018: 192). Young people with low education levels working informally in the agriculture sector in rural areas decreases their participation in the labor force. Therefore, the share of this segment in the youth unemployment rate decreases (Akgündüz vd., 2017: 9).

CONCLUSION AND RECOMMENDATIONS

The problem of youth unemployment which became deeper across the world and in Turkey as a result of the global financial crisis continues to be a global problem in the present day. In addition to global strategies developed for youth unemployment, which is an important socio-economic problem worldwide, countries have also turned to national solutions. Ensuring economic growth through the increase in the production of high value added manufacturing industry, which slowed down with the global financial crisis, seems to be the most important factor in the reduction of youth unemployment on a global scale. In the post global financial crisis period, especially in developed countries, a decrease in the youth unemployment rate stemming from the effects of policies aimed at increasing economic growth and employment on a national scale is observed. Nevertheless, the youth unemployment rate is still more than twice the general unemployment rate. There are many studies conducted on youth unemployment in the international circles. Youth Employment Network was established with the partnership of the United Nations (UN), World Bank and ILO. Within the scope of cooperation for youth employment, as of 1998, the EU and the Council of Europe established the European Youth Policies Information Center including representatives from Turkey as well, and the European Youth Researchers Pool was created in 2011. Various studies on youth in line with The White Book for Youth (2001), European Youth Pact (2005), the EU 2010–2018 Youth Strategy and Europe 2020 Strategy have been carried out in the EU. Many studies such as Warsaw Summit (2005), Youth Policy of the Council of Europe: Agenda 2020 have been conducted. There are also international studies conducted by the United Nations Organization, especially on young people outside Europe (T.C. Kalkınma

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Bakanlığı, 2015: 2-3). Joint projects for youth employment have been carried out in cooperation with the European Commission, International Labor Organization, the United Nations, the World Bank and the OECD.

Active and passive policies for the issue of youth employment are implemented in Turkey at a national level similar to global policies, and the issue of youth unemployment is included in many policy documents. Youth unemployment issue has been addressed in many policy documents such as National Youth Employment Action Plan, the Tenth Development Plan, Regional Development National Strategy, Information Society Strategy and Action Plan, National Youth and Sports Policy Document, National Employment Strategy, Turkey Entrepreneurship Strategy and Action Plan, Turkey Lifelong Learning Strategy and Action Plan, Turkey Vocational and Technical Education Strategy Document and Action Plan and United Nations Joint Program “Decent Work for Everyone: National Youth Employment Program and Antalya Pilot Region Practice. Turkish Employment Agency (ISKUR), Small and Medium Enterprises Development and Support Administration (KOSGEB), Labor and Social Security Ministry, are focused on vocational and technical education, consulting, and entrepreneurship and employment incentives in order to facilitate the entry of young people into the labor market and to provide them with the opportunity to gain professional experience. Within the scope of the tenth development plan, the Youth Working Group Report has been prepared. In the eleventh development plan, the development of the professional skills needed by the youth in the labor market and their inclusion in employment were included among the main priorities. The National Employment Mobilization in Work Life, launched in 2017, started a second term in 2018 with the slogan “Plus 2 Employment”.

In this context, many new regulations and incentives for young people in Turkey are introduced. Despite the implementation of employment policies and employment incentives for the youth labor market in Turkey, the youth unemployment rate is in a continuously increasing trend. As one of the countries with high young population among the OECD countries, Turkey has the competitive edge to ensure sustainable economic growth, social welfare and integration by turning this potential into an advantage. However, it is understood that the youth employment policies implemented in Turkey are not sufficient to achieve the goals, and that new and active employment policies focusing on a permanent solution rather than temporary arrangements are

needed. Policies towards structural problems that increase youth unemployment should be determined. Among the prominent structural problems effective in the increase of youth unemployment, growth of the national economy without creating jobs, inability to create enough employment in high value-added sectors, differentiation of the rural and urban unemployment as a result of the concentration of economic activities in urban areas, internal migration and the high rate of informal employment, differentiation of qualifications in the workforce, discord between supply and demand for labor, low participation rates of young women in workforce and higher rate of unemployment compared to men can be counted (Akay, 2016: 7-8).

As suggested in many international and national studies conducted on youth unemployment, policies which consider especially the differentiation in gender and education level in youth workforce and the difficulties which the youth experience during the transition from education to work should be emphasized. Harmony between labor supply and demand in Turkey should be established, and employment suitable for the qualifications of the youth should be created. The training and employment policies implemented in Turkey are mainly aimed at supplying workforce in accordance with the qualifications demanded by the labor market. While the infrastructure and quality of the education system are being reorganized in line with the needs of the labor market, at the same time, economic and employment policies should aim to create employment compatible with the training and skills of the youth workforce. In order to attract more investments in the high value-added manufacture industry, agriculture, and tourism sectors, which are important in terms of providing economic growth and increasing youth employment, incentives should be increased. The implemented policies should not only aim to create employment in the private sector, but also the employment opportunities in the public sector should be increased. Considering that the share of female university graduates is high in the increase in youth unemployment, it is seen that it is important to focus especially on policies that increase the employment of young women. From the perspective of increasing women's employment, making the strict labor market more flexible, and providing more incentives and part-time employment opportunities to sectors where women's employment is intense will be important in terms of reducing youth unemployment.

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9

THE RELATIONSHIP OF INSTITUTIONAL STRUCTURE – ECONOMIC GROWTH: AN EMPIRIC STUDY ON TURKEY

Bünyamin DEMİRGİL¹

INTRODUCTION

The growth rates of the countries differ from each other based on the resources that they possess. In this regard, although the traditional factors such as labor, capital, natural resources, and technology are effective on growth, human capital investments such as education and health expenditures have influence on the growth as well. Moreover, the effects of institutional factors such as property rights, democracy, supremacy of law, economic liberties, political liberties, fighting against corruption, freedom of speech and humanitarian development have been analyzed recently in the studies.

Institutions are generally established by the people and they can be defined as the thought habits that provide the interactions among the people (Artan and Hayaloğlu, 2014:351). While the institutions direct the relationship among the people in the society on one hand, they can be effective on economic structure by effecting the decisions of decision-making units in economy such as consumption, savings and investments on the other.

The effects of institutional structure on economic structure can be expressed in this manner. Firstly, by recovering the market failures due to the asymmetrical information, they provide to realize for the people and organizations to make proper decisions and they provide positive exogeneity by decreasing unnecessary transaction costs due to the bureaucracy. Then, by providing cheaper and safer economic transactions among the economic units, active institutional structure increases activity and quality. Furthermore, when the institutional stability rally

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together with economic and political stability, they decrease the usage of economic resources in ineffective fields and prevent waste of resources as well. Therefore, by providing to transfer the resources into the productive fields that provide productivity and employment, institutional structure aids stable economic growth. On the other hand, the increase of institutional activities decrease the transaction and information costs of economic units that encounter with intense competition and commercial risks, and it encourages the entrepreneurs to take risks and make investments. Since the existence of an active institutional structure provides to record the private firms that works in a small scale in shadow economy and therefore, it provides the transparency and decreases corruption and bribery (Şahin, 2018:1-2).

The purpose of this study is to research the impact of institutional structure in Turkey on economic growth. In this sense, whether there is a long-term relationship between economic growth and institutional structure indicators such as economic liberties, democracy and corruption perceptions index was analyzed with bound test (ARDL) by utilizing the annual data of Turkey belonging to the years of 1995-2018.

LITERATURE REVIEW

There are wide range of empirical studies towards analyzing the relationship between institutional factors and economic growth. Although there are time series analyses belonging to one country in these studies as well, the method of panel data analysis was generally used in most of the studies. By utilizing the panel data analysis of various country groups, the studies that discovered the positive-oriented relationship between economic liberties, one of the institutional factors, and economic growth are as below;; Abrams and Lewis (1993), Islam(1996), Scully (2002), Ali and Crain (2002), Dawson (2003), Ulubaşoğlu and Doucouliagos (2004), Çetin (2013), while Santhirasegaram (2007), Sarıbaş (2009), Erdem and Tuğcu (2012), Türkay (2015) stated that there is a negative relationship among the variables. On the other hand, according to the results of their studies, De Haan and Sierman (1998), Carlsson and Lundström (2001), Yalman et al. (2011) detected that some of the constituents of economic liberties affected the growth positively, while some of them affected negatively.

In the studies that are towards to explain the relationship between one of the institutional factors, democracy, and economic growth: While Benhabib et al.

(2013), Jaunky (2013), Masaki and Walle (2014), Saatcioğlu and Karaca (2015), Hayaloğlu (2015), Şahin (2017) discovered a positive relationship between the variables, Tavares and Wacziarg (2001), Acaravcı et al. (2015), Rachdi and Saidi (2015) detected a negative relationship between the variables.

In the studies that are towards to explain the relationship between one of the institutional factors, corruption, and economic growth: While Mauro (1995), Mo (2001), Gyimah-Brempong (2002), Akçay (2002), Anoruo and Braha (2005), Yapraklı (2008), Erkal et al. (2014), Sofuoğlu et al. (2017) discovered a negative-oriented relationship between the variables, Swaleheen and Stansel (2007), Ali et al. (2010), Powell et al. (2010), Huang (2012) detected a positive-oriented relationship between the variables.

In the studies that are towards to explain the relationship between institutional factors and economic growth through Turkey: Beşkaya and Manan (2009) analyzed the relationship between growth and democracy-economic liberties with Engle and Granger cointegration test for the period of 1970-2005 for Turkey in their studies. According to the result of their analysis, while there was a positive relationship between economic liberties and growth, a definitive conclusion for the relationship between democracy and growth was not possible to attain due to the positive-oriented relationship in some of the installed models and negative relationship in some of the other installed models.

In their studies, Şanlısoy and Kök (2010) analyzed the relationship between political instability and economic growth for the period of 1987-2006 for Turkey with the aid of Engle-Granger cointegration test in their studies. According to the result of the test, there was a negative relationship between the political instability and economic growth.

In their studies, by utilizing the annual data of Turkey for the period of 1972-2009, Artan and Hayaloğlu (2014) analyzed the relationship between institutional structure and economic growth with Johansen and Juselius cointegration test. In the result of their study, it was detected that the level of political liberty, which was taken as an indicator of institutional structure, affected the economic growth in long-term positively and there was no significant relationship between the variables for the short-term.

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In their studies, Acaravcı and Erdoğan (2015) had been researched the causal and long-termed relations between democracy, real income and openness with the data for the period of 1984-2012 and bound test (ARDL). According to the result of the study, it was concluded that economic growth affected the democracy in both short and long terms positively.

DATA SET, METHOD AND EMPIRICAL DISCOVERIES

In this study, the relationship between institutional structure and economic growth was researched with bounding test (ARDL) by using the annual data of the period of 1995-2018 for Turkey. While Per Capita GDP (\$) was used as per procurement for the economic growth, economic liberties, democracy and corruption perceptions index were used as per procurement for the institutional structure. The variables that were used in the study are in Table 1.

Table 1: The variables that were used in the study and their explanations

Variables	Explanations	Resources
Growth (lngdp)	Per Capita GDP (\$)	World Bank, World Development Indicators
Economic Liberties (efi)	Economic Liberty Index is arranged among 0-100. High grade expresses liberty, low grade expresses pressure.	The Heritage Foundation
Democracy (dmcy)	It is arranged among 1-7. Low grade expresses liberty, high grade expresses pressure. (The Average of Political and Civil Rights Index)	Freedom House
Corruption (crptn)	Corruption Perceptions Index is arranged among 0-100. While 0 point indicates the highest corruption perception, 100 points signify the lowest corruption perception.	Transparency International

In the study, that the annual data of Turkey for the period of 1995-2018 were contained and four variables were used, (lngdp) variable, which acts as the per capita gross domestic product, is dependent variable, while (efi) variable, which acts as economic liberties, (dmcy) variable, which acts as democracy, and (crptn) variable, which acts as corruption, are independent variables. Natural logarithm was taken for one of the variables that was used in the analysis, Per Capita GDP, in the analysis.

The model that was used in the analysis of the study is determined in (1) number equation as below:

$$\ln gdp = \alpha_0 + \beta_1(efi)_t + \beta_2(dmcy)_t + \beta_3(crptn)_t + u_t \quad (1)$$

ADF (Augmented Dickey Fuller) unit root test was implemented for the detection of the stagnation of the series. In order to research the existence of a long-termed relationship between the variables, on the other hand, the approach of bounding test (ARDL), which was developed by Pesaran et al. (2001), with the aid of Eviews 10 program was used in the study. The stagnation of the variables that were used in the study was researched thoroughly thanks to the ADF unit root test and the ADF unit root test results that belonged to these variables are in Table 2.

Table 2: ADF unit root test results

Variables	ADF Unit Root Test	Critical Value (%5)
Lngdp	I(1) -4,46	-3,63
Efi	I(1) -4,63	-3,63
Dmcy	I(1) -3,64	-3,63
Crptn	I(1) -3,64	-3,63
Note: If the critical value was %5 level of significance, it would demonstrate Dickey-Fuller Critical Values. The values are Dickey-Fuller table values for stable and trend line values.		

According to the ADF unit root test results in Table 2, when the first differences of all variables have been taken, it was demonstrated that they are stable. In the study, bounding test (ARDL) approach, which was developed by Pesaran et al. (2001), was utilized for the test of long-termed relationship between the series. Bounding test (ARDL) results are in Table 3.

Table 3: Bounding test result

k	F Statistic	The limit values in %5 significance level	
		Lower Limit	Upper Limit
4	8,73	3,23	4,35

A cointegral relationship between the series in the bounding test is provided with the larger value of the upper limit of estimated F statistic value. As it is seen in

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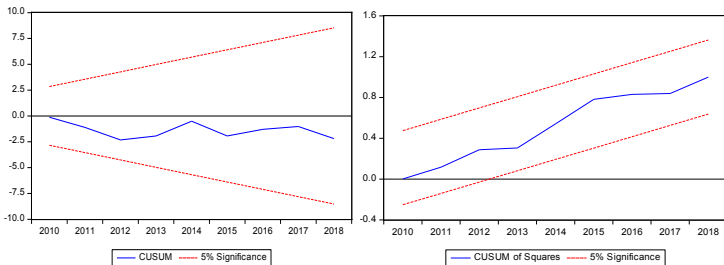
Table 3, since the estimated F statistic value is 8,73, in other words, it is larger than the Pesaran upper limit of 4,35, it is certain that there is a cointegration relationship between the series. After determining the existence of a long-term equilibrium relationship between the series, it is necessary to estimate the parameters that reflect the long-term relationship. However, firstly, it requires to determine proper lag length in the first stage of ARDL. In this study, optimal lag length was taken as 3 in accordance with Akaike (AIC) information criterion and it was detected that proper model is ARDL (1, 1, 3, 3) model. The results of estimated model are in Table 4.

Table 4: The estimated short and long term results of ARDL (1, 1, 3, 3) model

Dependent Variable lngdp				
Short-Term Results				
Variables	Coefficient	Standard error	T-statistic	Probability*
EFI(-1)	-0.0467	0.0158	-2.9560	0.0161
DMCY(-1)	-0.5254	0.1236	-4.2478	0.0021
CRPTN(-1)	0.0595	0.0161	3.6921	0.0050
D(EFI)	0.0050	0.0106	0.4764	0.6451
D(DMCY)	0.1141	0.0744	1.5338	0.1594
D(DMCY (-1))	0.7776	0.1774	4.3813	0.0018
D(DMCY (-2))	0.4981	0.1681	2.9619	0.0159
D(CRPTN)	0.0231	0.0097	2.3834	0.0410
D(CRPTN(-1))	-0.0484	0.0095	-5.0575	0.0007
ECM	-0.6525	0.1602	-4.0728	0.0013
Long-Term Results				
EFI	-0.0381	0.0126	-3.0262	0.0143
DMCY	-0.4288	0.0624	-6.8694	0.0001
CRPTN	0.0486	0.0113	4.2746	0.0021
C	13.30724	2.301822	5.781177	0.0003
Diagnostic Test	LM (Probability)			
Autocorrelation Test	$X^2_{BG}=3.41$ (0.10)			
Changing Variance	$X^2_{ARCH}=0.44$ (0.68)			
Error of setting up a model	$X^2_{Ramsey}=1.57$ (0.15)			
Normalcy Test	$X^2_{JB}=0,18$ (0,91)			

According to the diagnostic test results of ARDL model (1, 1, 3, 3), it can be said that there are no problems of either autocorrelation or changing variance, there is no error of setting up a model and the error terms have a normal distribution. Graph 1 demonstrates the consistency of ARDL Model and CUSUM AND CUSUMQ graphs that are based on the cumulative sum of sequential error terms in order to research the structural break.

Graph 1: CUSUM and CUSUMQ Graphs



According to the Graph 1, the relevant values are in critical bounds in both CUSUM and CUSUMQ tests. According to this result, the variables that were used in the analysis are stable.

The coefficient of long-term variables, which was obtained by utilizing in ARDL model, is statistically significant in the level of %5 in Table 4. According to this, 1 point increase in independent variables, (efi) (dmcy) and (crptn), will increase the independent variable %0,038, decrease %0,428 and increase %0,048 respectively. In other words, according to this, the increase in the level of economic liberties will affect the economic growth negatively. On the other hand, since the increase in democracy index will mean the negative-oriented progress, the decrease in democracy will affect economic growth negatively. Furthermore, since the increase in corruption perceptions index will mean the decrease of corruption, the decreases in corruption will affect the economic growth positively.

The term of ECM (Error Correction Model) in Table 4 expresses that the coefficient is statistically significant and a value of it between 0 and -1 means that the short-term disparities have been prevented. According to the Table 4, the coefficient of error correction term (-0,6525) is statistically significant and negative. According to this, error correction model is functional and approximately %65 of variances

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that generated in the short-term in variables will be amended in next period and they will achieve to the equilibrium of long-term.

CONCLUSION

In this study, whether the institutional structure indicators, such as economic liberties, democracy and corruption, are effective on economic growth was analyzed and by utilizing the annual data of Turkey for the period of 1995-2018, cointegration analysis was made with the bounding test (ARDL). In the analysis result of study, a long-term relationship between the variables, which are used per procuration of economic growth and institutional structure, was detected. In long-term, while the increase in economic liberties affect economic growth negatively, the decrease in democracy will affect economic growth negatively and the decrease in corruption will affect the economic growth positively.

When the results that were obtained from the study were evaluated together, it was detected that there is a statistically significant and long-termed relationship between institutional structure and economic growth. According to the relevant analysis results for 1995-2018 period, providing the participatory democracy and increasing the levels of fighting against the corruption will increase economic growth by giving rise to positive effects on institutional structure.

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UNDERSTANDING THE RELATIONSHIP BETWEEN FDI AND THE POLLUTION HAVEN HYPOTHESIS

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INTRODUCTION

Foreign Direct Investment (FDI) is capital flow that realized by multinational companies. All factors that can affect the decisions of multinational businesses also affects FDI size and orientation. Among these factors, the use of economies of scale, the use of specific advantages and the life cycle patterns of the products come to the fore. However, local labor corporate tax, market conditions, environmental measures, tariff barriers, subsidies, privatization and legislation related to governments that want to develop FDI activities in their countries also play a very crucial role in determining the area of motion of foreign capital (Agiomirgianakis, 2003).

Countries that see FDI as a tool to achieve their economic growth target try to make their country more attractive in terms of all these features. FDI also figure in restructuring global production and forming the international income distribution between developing and developed countries. For this reason, governments are in an effort to draw FDIs to own country, both by providing more favorable political and economic environmental conditions and by implementing various incentive measures. This effort; In addition to reasons such as additional outsourcing, know-how, marketing contribution, new technology, new management skills, market access, it can also be said to arise from opportunities such as increase in capital accumulation, production, export and employment.

On the other hand, the desire of the countries to make FDI to the territory of other countries is based on three reasons. According to Esty and Gentry (1997), the first two of these are the search for a production platform and a search for new

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resources. The third is the low cost production target of labor, operating or factor. The first two reasons are not sensitive to environmental policies. However, the low cost production target is sensitive to environmental cost, especially in increasing global competition (Aliyu, 2005). For this reason, FDI by companies that want to achieve a comparative advantage in hazardous goods production usually tends to countries with weaker environmental protection laws. In short, there is an inverse relationship between FDI inflow and local environmental conditions. This relationship is referred to as the Pollution Haven Hypothesis (PHH).

It can be said that the air pollution increased by the use of fossil fuels disrupts the ecological order of the whole world, weather changes are experienced above the seasonal norms, the size of the drought and the melting rate of the glaciers, the damage caused by environmental pollution increases day by day. However, one of the most damaging factors in this process is human emission greenhouse gas (CO₂) emissions. As a result of carbon emission, many other environmental problems, especially air pollution, make countries accountable to each other in the globalizing world. For this reason, many countries today sign national and international organizations, contracts and protocols to reduce the environmental damage of fossil fuels. These developments provide a basis for PHH to be experienced in countries with weak environmental policies (Aydın and Esen, 2018)

There are three forms of PHH. The first is to move polluted industries from developed countries with strict environmental policies to developing countries where similar policies are not compulsory. The second is that developed countries discharge hazardous waste to developing countries after industrial and nuclear power generation. The third is the use of non-renewable and scarce natural resources in developing countries by multinational companies. Among these, the most common type of PHH is the move of the polluted industry from one country to another. This is due to the behavior of OECD countries, which are at the center of environmentally hazardous activities. Environmental awareness has become widespread in industrialized OECD countries. In these countries, efforts to reduce environmentally hazardous activities and use alternative technology have gained strength. In this case, manufacturers of industrialized countries have to bear an additional cost and cannot maintain their price advantage in international competition. The difference in environmental regulations in developed and developing countries caused the polluting industrial production. Developed countries shift their pollutions to developing countries in order to take advantage of the cost

advantage. In short, according to PHH, industries that create pollution flee from countries implementing strict environmental policies and create pollution shelters in outwardly open economies where restrictions remain inadequate.

Developing countries choose pollution shelter for the investments of developed countries. The movements of FDI in the world are also a proof to this situation. According to the 2019 World Investment Report, FDI flows are experiencing a sharp decline in the economies of developed countries. On the other hand, FDI flows remain stable for developing countries and increase by 2%. As a result, emerging economies enabled global FDI, which was 46 percent in 2017, to have an increasing share of 54 percent. FDI inflow to developed economies decreased by 27 percent since 2004 and reached their lowest level. FDI inflow to emerging economies remained stable and rose by 2 percent. While emerging Asia and Africa recorded higher FDI inflows. Up to all this information, the PHH suggests that there is a positive interaction between FDI and carbon emissions. In other words, this hypothesis suggests that as the amount of FDI increases, both the interaction between countries and the carbon emission will increase. The reason for this is expressed as the waiver of environmental standards and taxes in order to realize more production at a lower cost and captivate more foreign investors (Kirkulak et al., 2011; Blanco et al., 2013). This paper will be focus on the relationship between FDI and carbon emission, which is considered as an indicator of pollution. Correctly determining the direction of this relationship is of great importance for both global economy and local economies. The correct findings to be obtained through the empirical analysis will significantly affect the tax policies of the countries regarding the FDI and the environmental standards.

SELECTED LITERATUR REVIEW

Currently, studies testing PHH have found wide application in worldwide, as serious discussions on global warming are the international agenda. It is possible to divide these studies into two as those who accept the validity of PHH and find contrary evidence to PHH. First of all, studies that do not accept the validity of PHH will be included. Among these, Zhang and Zhou (2016) took the CO₂ emission as a dependent variable in their study on the Republic of China between 1995-2000 period. As a result, FDI reduce CO₂ emission. Kirkulak et al. (2011) detected that FDI do not have a negative effect on air quality. Unlike others, in this study, it was determined that FDI increased the air quality. Adewuyi and

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Awodumi (2017) took CO₂ emission and trade openness as variables in his study on West Africa between 1980-2010 period. As a result, trade openness is not significant on carbon emission. Zhu et al. (2016) discussed ASEAN five between 1980-2010 period in his study with similar variables. By this paper, trade openness reduce CO₂ emission. Tang and Tan (2015) concluded that FDI reduces CO₂ emission in a study for Vietnam between 1976-2009 period. Liang (2006) found that there is a negative correlation among air pollution and FDI. According to this result, the increase in FDI benefits the environment. Akin (2014) examined 12 high income country groups in his study. Findings indicate that FDI in these countries reduce carbon emissions. Yilmazer and Ersoy (2009) found the relationship between FDI and CO₂ emissions in developing countries using data from the 1975-2006 period. In their analysis, they concluded that there is no relationship among FDI and CO₂ emissions in the long run. Yaylali et al. (2015) have founded the relationship among FDI and CO₂ emissions in Turkey for the period 1980-2011. They concluded that there is no long-term cointegration relationship among FDI and CO₂ emissions. That is, the two variables do not act together.

Solarin et al., one of the studies that accepted the validity of PHH. (2017), in their study on Ghana between 1980-2010 period, they took FDI and trade openness as variables. By the result, FDI trade openness have positive impact on CO₂ emission. Ren et al. (2014), in their study on China between 2000-2010 period, showed that, FDI and trade openness increases CO₂ emission. On the other hand Dean et al. (2009) in their studies for China, Hong Kong, Macau and Taiwan determined that high pollution industries have a positive relationship with weak environmental standards. Cai et al. (2018), CO₂ emission, using the export and import variables, the findings obtained show that China has become a pollution haven for 22 developed countries. In a similar study, Shahbaz et al. (2015) conducted 10 countries between 1975-2012 period. Findings at the end of the study; FDI, increase CO₂ emission. In another study examining 24 transition economies, Smarzynska and Wei (2001) found that the PHH is valid. Acharyya (2009) examined the interaction of FDI and CO₂ emissions in India between 1980-2003. By the result of the study, a correlation was found between these two variables. According to this finding, it is determined that the increasing CO₂ emission in India, which is at the top of the world carbon emission ranking, is caused by the increase in FDI.

As can be seen, there are studies in the literature that contain the results that support PHH, as well as studies that contain the opposite results. The validity of PHH is still included in the related literature as a subject of discussion and this is the motivation of the study. Accordingly, in this study, the direction of the relationship between these two concepts and whether this relationship is positive or negative were determined for selected developing countries.

ECONOMETRIC APPROACH AND RESULT

The goal of this paper is to examine the effect of FDI on environmental pollution within the framework of PHH. Therefore, gross domestic product, FDI and carbon emission annual data between 2005-2017 period for selected 13 developing countries (Argentina, Brazil, Colombia, Chile, Malaysia, India, Indonesia, Mexico, Pakistan, Russia, Romania, Turkey and South Africa) were evaluated within the scope of panel data analysis.

For the purpose of the study, the model in Equation 1 used by Aliyu (2005) will be estimated.

$$CO2_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 FDI_{it} + \varepsilon_{it} \quad (1)$$

Panel data regression models are based on the assumption of horizontal section independence between units. In the Baltagi (2005) panel data analysis, he stated that the horizontal fixed dependence (FE) and random effect (RE) estimates to be found in the series in the long run cause consistent and ineffective deviations of the standard errors. For this reason, several different cross-sectional dependence (CD) tests are used in panel data analysis. In this study, Pesaran (2004) test, which looks for the correlation between the units, using the Spearman's rank correlation coefficient and the non-parametric Friedman (1937) test and Frees (1995) test based on the sum of squares of rank correlation coefficients are applied and showed in Table 1.

Table 1. CD Test results

Test	Test Statistic	P value
Pesaran CD Test	1.801	0.0718
Friedman CD Test	26.698	0.0085
Frees' CD Test	1.001 ¹	0.1984

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In all three tests, horizontal cross-section dependence was detected between the variables. According to Wald Variance Test (t statistic: 4931.36 and p value: 0.000) and Wooldridge Autocorrelation Test (t statistic: 99.196 and p value: 0.000) results, both first-degree autocorrelation and heteroskedasticity problems were identified in the series. In heteroskedasite, autocorrelation and correlation between units, the variance covariance matrix of the error term is not equal to the unit matrix. This causes inconsistency when working with large samples, but does not affect effectiveness. In other words, the validity of variances and therefore of standard errors, t and F statistics and the confidence intervals of R² are affected. Beck-Katz (1995) proposed “Panel Corrected Standard Errors (PCSE)” for these cases. PCSE was used for the situation where the variance problem and the correlation between units and the error structure has the units-specific AR (1) process. As a consequence of the time series properties of the data by taking the CD into account, autocorrelation and heteroskedasticity resistant Panel Corrected Standard Errors estimation results are showed in Table 2.

Table 2. Panel corrected standard errors results

Variables	Coefficient	p-value
<i>GDP</i>	0.321	0.000
<i>FDI</i>	0.144	0.000

As a result of PCSE analysis, it was determined that the overall model was significant. If we look at the PCSE results in Table 2; a 1% increase in GDP increases CO₂ emission by 0.32. A 1% increase in FDI causes an increase of 0.14% on CO₂ emission.

CONCLUSION

The positive effects of FDI inflows on the country’s economy are to accelerate the capital accumulation of developing countries, to gather technology and business information, and to contribute to economic growth. With this approach, while foreign direct investments help the economic growth of countries, it is also considered as a tool to increase the efficiency of the global economy. Moreover, foreign technology and management skills are easier to come to the country invested by FDI. Therefore, governments are trying to draw FDI to their countries, both by improving political, economic and environmental conditions, and by

applying certain incentives. In addition to the positive contribution of FDI to the development processes of developing countries, the environmental deterioration in these countries is the basis of frequently discussed in recent years. This view, called the pollution haven hypothesis (PHH), is the subject of this study.

According to this study, an analysis was made for 13 developing countries (Argentina, Brazil, Colombia, Chile, Malaysia, India, Indonesia, Mexico, Pakistan, Russia, Romania, Turkey and South Africa) and used the annual data that is from 2005-2017 and aimed to reveal the level of pollution created by investments. Analysis results show that; an increases in GDP and FDI levels in this country group has a positive effect on environmental pollution by increasing CO₂ emission. This result is a proof for the validity of the PHH hypothesis for this country group.

When the results obtained from the study are evaluated, it is possible to say that FDI coming to this country group consist of investments with low technological equipment, ignoring environmental protection in order to reduce costs, and therefore, increasing CO₂ emissions and destroying the environment. It is extremely important that these countries behave more selectively in FDI that will come to the country in order not to disrupt sustainable development efforts in the coming period. In this context, in order for these countries to achieve an environmentally friendly growth, it is necessary to prioritize foreign investments that adopt a high-tech and environmentally friendly production approach.

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TURKEY-US TRADE BALANCE AND EFFECTS OF REAL EXCHANGE RATE

*Cemil CİFTÇİ**

INTRODUCTION

Since the last quarter of the twentieth century, barriers on free trade have been rapidly decreased over the world. In this process, the exchange rate has become one of the main variables that determine the international competitiveness of firms by changing the relative price of traded goods. Therefore, any change in the exchange rate directly affects the trade balance of a country. Theoretically, a depreciation of a national currency is expected to increase in export and decrease in import and thereby improve the trade balance. For this reason, countries frequently use the exchange rate as a policy tool to improve their trade balance. This topic has therefore taken considerable attention by both economists and policy makers for a long time. For example, the Elasticities approach to the trade provides the conditions for a change in the exchange rate to improve the trade balance. The necessary and sufficient condition for devaluation to have a positive effect on the balance of payments is that the sum of demand elasticities in both countries is greater than unity. This condition is called as Marshall-Lerner (ML) condition in the literature. Many empirical studies (e.g. Bahmani-Oskooee, 1985; Boyd et al., 2001; Gomes and Paz, 2005; Bahmani-Oskooee and Kara, 2005; Dash; 2013) test the validity of the ML condition for different samples by different empirical methodologies.

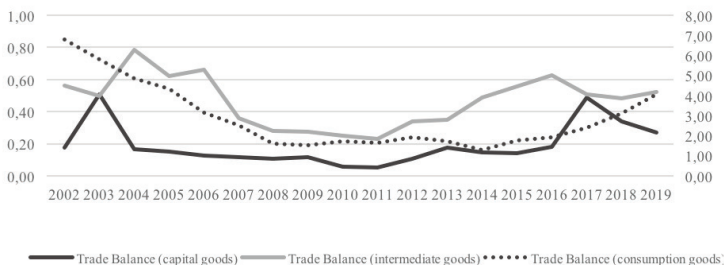
Since the seminal paper of Magee (1973) the effect of a devaluation on trade balance is mostly investigated by comparing the short-run and long-run price elasticities of an exchange rate. Magee (1973) argue that because of some adjustment lags, the devaluation may initially worsen and then improve the trade balance depending on the short and long-run elasticities of international trade. This unfavorable effect of currency depreciation is called as J-curve effect since the time-path of the trade balance is similar to the letter “J” (Magee, 1973). The

short-run elasticities tend to be smaller than long-run elasticities. On the supply side, Magee (1973) indicates that the effect of a change in an exchange rate has negative impact on the trade balance in the short-run due to signed agreements and pass-through problem. This fact leads to an increase in the domestic-currency prices of import goods faster than the prices of export goods with no change in quantities initially. On the demand side, consumers may not react immediately to relative price changes due to habits, plans or commitments. In the long-run, the volume effect that resulting from the decrease in the value of the national currency and the increase in competitiveness of national firms may become dominant, and thereby the trade balance gets better. There are many studies in the literature to test the J-curve effect for the trade balance between countries with aggregate data (e.g. Hacker and Hatemi-J, 2003; Bahmani-Oskooee et al., 2005; Halicioglu, 2008b; Bahmani-Oskooee and Kutun, 2009) and for the bilateral trade between one country and her trading partners (e.g. Rose and Yellen, 1989; Halicioglu, 2007; 2008a; Wilson; 2001; Ketenci and Uz, 2011) or the bilateral trade between countries for commodity or industry level data (e.g. Ardalani and Bahmani-Oskooee, 2007; Bahmani-Oskooee and Hegerty, 2008).

As a small open economy, Turkey has also experienced many times devaluations as a policy tool to improve its trade balance. Until the beginning of the 2000s, the Turkish Lira (TL) was devalued in 1946, 1958, 1970, 1978, 1979, 1980, 1994 and 2001. Afterwards, TL depreciated many times with numerous national and international shocks. The trade between Turkey and the U.S. which is one of the largest trading partner of Turkey have also increased significantly. Turkey's total exports to the U.S. increased by 2.4 times, while its total imports from the U.S. increased by about 4.8 times. There are many studies (e.g. Halicioglu, 2007, 2008a; Tunaer Vural, 2016; Cergiboza and Ari, 2018) in the literature that investigate the effect of TL/\$ exchange rate on bilateral total trade between Turkey and her trading partners. Classifying the exports and imports as capital goods, intermediate goods and consumption goods provide an opportunity to analyze the effects of change in an exchange rate on supply and demand sides separately. Since we can say that the capital and intermediate goods generally represent the supply side of the economy, on the other side the consumption goods represent the demand side. However, as far as we know, only one study (Keskin, 2008) analyzed the relation between real exchange rate and the trade balance between Turkey and the U.S. by classifying the goods according to their economic categories using quarterly data for the period 1987-2005. Besides, the developments both in TL/\$

exchange rate and in this sub-categories of trade makes re-examination of this link timely and important. Figure 1 depicts the trade balance which is defined as the ratio of Turkey's exports of capital, intermediate and consumption goods to the U.S. over imports of these goods from the U.S.. During the period 2002-2019, Turkey is a net exporter of consumption goods, while it is net importer of capital and intermediate goods. It is clear that the trade balance in the first years of the global financial crisis has followed a horizontal course for all commodity groups for a while. However, it is seen that there are upward and downward movements in the trade balance of these sub-commodity groups (earlier for consumer goods) over time. This trend over time in the trade balance is closely associated with the value of the Turkish Lira. The real exchange rate had a stable pattern until the financial crisis and it fluctuated in the 0.53-0.70 band during the 2002-2007 period. After increasing to 0.80 in 2008, it increased continuously to 8.65 in 2019.

Figure 1: The trade balance of capital, investment and consumption goods with the U.S.



Source: Turkish Statistical Institute, 2020.

Note: The trade balance values are calculated by the author.

In light of all these developments, the goal of this study is to investigate whether the depreciation of TL/\$ exchange rate deteriorates (improves) or not the balance of trade between Turkey and the U.S. in the short-run (long-run). Moreover, we aim to reveal whether exchange rate and income of the countries have different effects on the trade balances of capital goods, intermediate goods and consumption goods. To this end, we employ Autoregressive Distributed Lag (ARDL) and Bounds Test approach proposed by Pesaran et al. (2001) to analyze the long-run relations and estimate Error Correction Model (ECM) in the short-run.

The remaining part of this study is organized as follows. In Section 2, a brief literature review is presented. In Section 3, we outline the economic model, econometric methodology, perform the ARDL model and discuss the empirical findings. Lastly, Section 4 concludes the study.

LITERATURE REVIEW

The empirical studies in this topic can be classified in three main groups (Baek, 2013). A large body of studies in the literature use aggregated trade data and employ ARDL cointegration approach for testing the J-curve hypothesis. For example, Bahmani-Oskooee et al. (2005) for Australia and her 23 trade partners and Bahmani-Oskooee and Kutan (2009) for 11 transition economies find no significant evidence. Hacker and Hatemi-J (2003) analyze the J-curve effect for Belgium, Denmark, Netherlands, Norway, and Sweden and find some supports. Also, Gomes and Paz (2005) investigate the effect of real exchange rate on trade balance of Brazilian over the period 1990-1998, and the results show the evidence for both the ML condition and the J-curve hypothesis. As can be seen from these examples, the studies with aggregated data provide mixed results.

Rose and Yellen (1989) first claim that the empirical studies which employ aggregate data have some aggregation bias problems. They emphasize that the impact of a change in exchange rate may vary with respect to countries. Therefore, in order to avoid such problems, one can use disaggregated bilateral trade data. Thus, following Rose and Yellen (1989), the second group in the literature use disaggregated bilateral data. Bahmani-Oskooee and Ratha (2004) employ ARDL approach to analyze the bilateral trade between the U.S. and her 18 major trading partners in order to determine short and long-run effects of the dollar depreciation. Dash (2013) investigates the effect of exchange rate on the bilateral trade of India and her four major trading partners. While the results of Dash (2013) support for the ML condition only for India-Germany trade balance, the J-curve hypothesis is valid for the bilateral trade for India-Japan and India-Germany. Hacker and Hatemi-J (2004) analyze the bilateral trade between three transitional central European countries and Germany. They find that initially the export-import ratio has dropped within a few months, but the ratio exceeds the initial value in the long run. Wilson (2001) using with the bilateral aggregate data examines the trade balance between South Korea, Malaysia, and Singapore with regard to both Japan and the U.S. in the period of 1970 and 1996. Wilson (2001) finds evidence

that supports the J-curve hypothesis only for South Korea and her bilateral trade between Japan and the U.S., while no evidence for others.

The third group of the studies dealing with bilateral trade between the two countries analyze at the goods/industry level with disaggregated data. Bahmani-Oskooee and Ardalani (2006) reveal that empirical studies that use the bilateral disaggregated data also suffer from another aggregation bias because various goods/industry may react in a different manner after devaluation. They investigate the exchange rate sensitivity of the U.S. trade flows with the rest of the world with industry level data and find that depreciation of the U.S. dollars has a positive impact on export earnings in many industries. Bahmani-Oskooee and Hegerty (2008) analyze the impact of exchange-rate variability on Japanese-U.S. trade in the period of 1973-2006 utilizing the disaggregated data for 3-digit level Japanese industries. Their results reveal that the effects of the exchange rate varies for different commodities. They also show that many of the industries are not affected by exchange-rate depreciations in the long-run. Ardalani and Bahmani-Oskooee (2007) analyze the impact of the real exchange rate on the 66 industries in the U.S. over the period of 1991:1-2002:8. Their results support the J-curve hypothesis for only 6 of the 66 industries in the short-run. On the other hand, in the long-run, the results of the 22 industry support that exchange rate is a significant determinant of the trade balance.

There are many studies either analyze the J-curve effect between Turkey and the rest of the world using aggregate data or between Turkey and her trading partners using bilateral trade data. Using annual data, Turkay (2014) test the validity of ML condition in Turkey over the period 1980-2012. He finds that the sum of elasticities of import and export goods is higher than one and these results support ML condition in the long-run. Akbostanci (2004) obtained similar results for the period of 1987-2000 using with quarterly aggregate data for Turkey. She also shows that opposite to J-curve hypothesis there is not a worsening effect of currency depreciation on the trade balance in the short run, but the impact of depreciation of Turkish Liras on the trade balance is positive in the long run. Cergibozan and Ari (2018) investigate the relationship between the exchange regime and trade balance between Turkey and her 5 major trading partners over the period of 1987-2015 using with aggregated data. The results indicate that while long-run relationship between variables exist, there is no support for the J-curve. Halicioglu (2007) is the first study which uses the disaggregated trade data

to analyze the bilateral trade of Turkey in the period of 1960-2000. The findings point out that there is no evidence for the J-curve hypothesis both for aggregated and disaggregated level data, but ML condition is valid for some of the trading partners for the aggregate data. Halicioğlu (2008a) analyze the bilateral J-curve effect between Turkey and her 13 trading partners utilizing quarterly disaggregated data over the period 1985-2005. Similarly, he shows that the J-curve effect does not exist, but ML condition is valid in the long-run for the bilateral trade balance with the U.K. and the U.S. While Cil Yavuz? et al. (2010) investigate the existence of J-Curve and ML condition for Turkey over the period of 1988-2007 and they find the evidence for a J-curve effect, but they highlight that ML condition is not valid. Unlike many other studies using aggregate data for Turkey, Yazici (2008) analyze the relationship between devaluation and the trade balance at three main sector (agriculture, manufacturing and mining) between 1986-1998. His findings indicate that while the three sectors show similar pattern in the short-run, the trade balance of agriculture deteriorates and differs from the others in the long-run. Durmaz (2014) investigate whether there is J-curve effect at industry level in the period of 1990-2012, and he points out that J-curve hypothesis is supported in only 13 industries.

MODEL, METHODOLOGY AND FINDINGS

In this study, in order to analyze the existence of the J-curve effect of real exchange rate on the bilateral trade between Turkey and the U.S. at the broad economic categories, we follow Ardalani and Bahmani-Oskoei (2007) and employ the trade balance model. The model has the following specification:

$$\ln TB_{i,t} = \alpha + \beta \ln Y_{TUR,t} + \gamma \ln Y_{US,t} + \theta \ln REX_t + \varepsilon_t \quad (1)$$

TB_i is a measure of trade balance of goods and i defined as the ratio of Turkey's exports of goods i to the U.S. over her imports of goods i from the U.S.. According to Broad Economic Categories (BEC) classification, the goods are classified into three groups: capital, intermediate and consumption goods. Y_{TUR} is the real income of Turkey. Since an increase in the real income of Turkey is expected to boost the U.S. exports to Turkey, we expect an estimate of β to be negative. Y_{US} is the real income of the U.S. When the real income of the U.S. increase, her import from Turkey will increase, so we expect an estimate of γ to be positive. REX is the bilateral real exchange rate that defined as $REX = (P_{TUR}/P_{US})$ where NEX

is the nominal exchange rate defined as the number of units of Turkish Lira per U.S. dollar, P_{TUR} is the consumer price index (2015=100) in Turkey and P_{US} is the consumer price index (2015=100) in the U.S. So that, a depreciation of Turkish Lira leads to encourage her imports and discourage her exports. Hence the trade balance of industry i improve, and we expect θ to be positive. Trade data is taken from Turkish Statistical Institute; nominal exchange rate data is obtained from Central Bank of Turkey. Data for nominal GDP and CPI are taken from OECD database.

In order to test the J-curve effect, the short-run dynamics are needed to be added into Equation (1). Thus, we follow and apply the ARDL approach introduced by Pesaran et al. (2001) and modify Equation (1) to obtain an error-correction model as in Equation (2).

$$\Delta \ln TB_{i,t} = \alpha + \sum_{k=1}^n \beta_k \Delta \ln TB_{i,t-k} + \sum_{k=1}^n \gamma_k \Delta \ln Y_{TUR,t-k} + \sum_{k=1}^n \theta_k \Delta \ln Y_{US,t-k} + \sum_{k=1}^n \rho_k \Delta \ln REX_{t-k} + \delta_1 \ln TB_{i,t-1} + \delta_2 \ln Y_{TUR,t-1} + \delta_3 \ln Y_{US,t-1} + \delta_4 \ln REX_{t-1} + \mu_t \quad (2)$$

The ARDL cointegration methodology allows us to search for any J-curve effect by combining the short-run and the long-run variables in a single equation. While the coefficients on the difference terms provides short-run effects, the long-run relation between the trade balance and the explanatory variables are determined by the estimate of δ_2 to δ_4 normalized on δ_1 . In order to test the validity of long-run estimates, we start with applying Bounds F-test with new critical values tabulated by Pesaran et al. (2001). These new critical values take into account the integration properties of the variables. Hence, we do not need to employ pre-unit root tests. While the traditional definition of the J-curve asserts that the negative estimates of ρ_k 's at lower lags should be followed by positive values at higher lags. On the other hand, if we follow an alternative definition by Rose and Yellen (1989) we will look for negative of insignificant short-run estimates of ρ_k and significantly positive normalized estimates of δ_4 .

The ARDL model needs to determine the optimal lag structure of the models by using criteria such as Akaike Information Criterion (AIC) and Schwarz Bayesian Criterion (SBC) which are obtained based on the smallest values of the relevant information criterion. To test whether there is a long-run relation among the variables a bounds testing procedure is conducted by using the F-test for the joint significance of the coefficients of the lagged levels in Equation (2). The null hypothesis of no cointegration can be rejected when the test statistics surpass their

relevant upper critical values. Lastly, the long-run coefficients of the trade balance model is estimated by using the optimum ARDL model and then the short-run dynamics are estimated by the associated Error-Correction Model (ECM).

Using monthly data over the period from 2002:1 to 2019:12, we examine the short-run and long-run effects of exchange rate on bilateral trade balance of Turkey and the U.S. by Broad Economic Categories classification. As a first step, following the literature we employ AIC in selecting optimum number of lags and estimate the trade balance models and report the results in Tables 1-3. We carry out the F-tests for joint significance of all lagged level variables and report them in the Panel C sections of the tables along with other descriptive statistics. While the null hypothesis of no cointegration is strongly rejected for capital and consumption goods, it cannot be rejected for intermediate goods. Note that Keskin (2008) found no long-run relation for capital and intermediate goods trade balance with the U.S.. Since we do not find any cointegration relation for intermediate goods trade balance with the U.S., we proceed to interpret the long-run and short-run behaviors of capital and consumption goods.

The findings point out that Turkey's real income ($\ln y_{TUR}$) has a significant negative effect on the trade balance of both capital and consumption goods. This result confirms our theoretical expectation because we expect that an increase in Turkey's real income leads to an increase in imports from the U.S. and worsens the trade balance of Turkey. In the long-run, a 1% increase in real income of Turkey leads to approximately 3% decrease in capital goods and 4.1% decrease in consumption goods trade balance. The estimated coefficients of real income of the U.S. ($\ln y_{US}$) also confirms our theoretical expectations -an increase in foreign income increases the import which leads to an improvement in the trade balance- for both models. For capital and consumption goods models a 1% increase in real income of the U.S. increases trade balance with 6.26% and 6.86%, respectively. The coefficients of error correction term (-0.45 and -0.26) are statistically significant in both models. These highly significant and negative signs of ECM's support the existence of long-run relationship among the variables and imply deviations from long-run equilibrium is corrected through time.

In the short-run, the coefficients of all the variables are statistically and economically significant for the capital goods trade balance model. While the real income of the U.S. has the largest effect, the real exchange rate has the smallest effect on

the trade balance. On the other hand, the short-run effects of real income of the U.S. and real exchange rate on the trade balance of consumption goods are also statistically significant and positive. However, the coefficient of Turkey's real income is not statistically significant at time t . Furthermore, when we compare the short-run coefficients for both models, it is clear that the magnitudes of the coefficients are almost twice larger in capital goods.

The findings indicate that neither the traditional definition of the J-curve nor the Rose and Yellen (1989)'s definition of the J-curve is not supported in any case, because the $\Delta \ln \text{rex}$ variables are positive and significant in both consumption and capital goods trade balance models. This result is inconsistent with the study of Keskin (2008) which found insignificant short-run coefficients for $\Delta \ln \text{rex}$ in consumption goods trade balance models.

Table 1: Regression results of ARDL models for trade of capital goods

Panel A: Short-run coefficient estimates for ARDL (3,0,0,0)					
$\Delta \ln \text{tbcap}_{t-1}$	$\Delta \ln \text{tbcap}_{t-2}$	$\Delta \ln \text{rex}_{t-1}$	$\Delta \ln \text{ytur}_t$	$\Delta \ln \text{ytur}_{t-1}$	$\Delta \ln \text{yusa}_t$
-0.40*** (-4.68)	-0.25*** (-3.11)	0.48*** (3.35)	-1.36*** (-2.75)	-	2.84** (2.18)
Panel B: Long-run coefficient estimates					
Constant	$\ln \text{ytur}$	$\ln \text{yusa}$	$\ln \text{rex}$		
-17.90* (-1.78)	-2.99*** (-2.91)	6.26** (2.27)	1.05*** (3.66)		
Panel C: Diagnostic statistics					
F	ECM_{t-1}	LM	RESET	CUSUM	CUSUMQ
5.54***	-0.45*** (-4.91)	0.75	6.42**	S	S

Note: t -ratios are in parentheses. *, ** and *** indicate 10%, 5% and 1% significance levels, respectively. LM is the Lagrange multiplier statistic for autocorrelation and RESET is Ramsey's misspecification test.

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Table 2: Regression results of ARDL models for trade of intermediate goods

Panel A: Short-run coefficient estimates for ARLD (2,0,0,0)

$\Delta \ln \text{tbin}_{t-1}$	$\Delta \ln \text{tbin}_{t-2}$	$\Delta \ln \text{rex}_{t-1}$	$\Delta \ln \text{yur}_t$	$\Delta \ln \text{yur}_{t-1}$	$\Delta \ln \text{yusa}_t$
-0.38*** (-6.36)	-	0.069 (1.62)	-0.30* (-1.93)	-	0.90* (1.74)

Panel B: Long-run coefficient estimates

Constant	lnyur	lnyusa	lnrex
-17.90* (-1.71)	-1.81** (-2.28)	5.42** (2.21)	0.41* (1.66)

Panel C: Diagnostic statistics

F	ECM _{t-1}	LM	RESET	CUSUM	CUSUMQ
2.67	-0.17*** (-3.66)	6.43	0.59	U	U

Note: See the notes for Table 1.

Table 3: Regression results of ARDL models for trade of consumption goods

Panel A: Short-run coefficient estimates for ARDL (2,2,0,0)

$\Delta \ln \text{tbcons}_{t-1}$	$\Delta \ln \text{tbcons}_{t-2}$	$\Delta \ln \text{rex}_{t-1}$	$\Delta \ln \text{yur}_t$	$\Delta \ln \text{yur}_{t-1}$	$\Delta \ln \text{yusa}_t$
-0.18*** (-2.79)	-	0.25*** (3.54)	0.81 (1.20)	1.49** (2.33)	1.80** (2.60)

Panel B: Long-run coefficient estimates

Constant	lnyur	lnyusa	lnrex
-13.05* (-1.67)	-4.10*** (-8.53)	6.86*** (3.58)	0.95*** (6.11)

Panel C: Diagnostic statistics

F	ECM _{t-1}	LM	RESET	CUSUM	CUSUMQ
6.37***	-0.26*** (-4.44)	3.17***	0.50	S	U

Note: See the notes for Table 1.

CONCLUSION

In particular, after the Global Financial Crisis, the bilateral trade balance between Turkey and the U.S. has improved in tandem with the increases in real exchange rates. The U.S. is one of the most important trading partner of Turkey. Therefore, analysis of the effect of TL/\$ exchange rate on the trade balance of these countries may provide some insightful implications for policy makers. Hence, in this study, we investigated how and in what extent a TL depreciation (increase in real exchange rate) effect the trade balance between Turkey and the U.S.. We used monthly data for the period 2002:1-2019:12 and to compare the different effects of real exchange rate we analyzed the trade models by classifying the goods according to broad economic categories.

The most crucial finding of this study is that the real exchange rate and trade balance relationship do not support the J-curve hypothesis in any type of goods. However, it is concluded that devaluation has a positive and significant effect on both consumption and capital goods trade balance both in the short-run and long-run. Therefore, policy makers should be aware of that decreases in the value of national currency may decrease the persistent deficits in Turkey-U.S. capital goods trade and it may improve the trade surpluses in Turkey-U.S. consumption goods trade.

The ARDL model generates long-run significant positive (negative) coefficients for foreign (domestic) income on trade balances of capital and consumption goods. Thus, the findings show that the trade balance improves accordingly with the increase of income levels of both countries. For capital goods, the positive impact of an increase in real income of the U.S. is far more than the negative impact of an increase in real income of Turkey. This result is also valid for consumption goods. These findings imply that the supply side factors of the Turkish economy dominate the demand side in the long-run. In other words, both capital and consumption goods export supply increases by more than the demand for the imports of the same goods. However, it is well known that while Turkey is a net exporter in consumption goods, it is net importer in intermediate and capital goods trade with the U.S.. Therefore, Turkey should not rely on the competitive advantage that is ensured by the rise in exchange rate, but it should also pay particular attention to the product quality, range and development of technological infrastructure.

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GLOBALIZATION AND INTERNATIONAL POLITICAL ECONOMY

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INTRODUCTION

The International Political Economy (IPE) began to develop as a new discipline in the 1970s. The fact that politics, trade and economy have reached transnational dimensions and this network of relations has gained global importance has increased the interest in this field. The emergence of different actors such as multinational corporations in addition to state-centered actors in national and international political and economic relations has brought International Political Economy to the agenda. Especially the neo-liberal period that emerged with the 1980s increased the globalization of economic and other relations and the importance of the International Political Economy in connection. While this phenomenon, which is described as globalization, is considered to be a natural and inevitable result according to some, there are different approaches including positive or negative opinions about what globalization is. However, it seems possible to evaluate the complex nature of the interdependence relationship economically, politically and socially with the perspective of IPE, together with the phenomenon of globalization. Three major theories, Realism, Liberalism and Marxism, originating from Mercantilism to explain IPE, dominate this field. These theories provide a basic framework for explaining the problems and the phenomenon of globalization in today's world and understanding the interrelation between politics and economy both nationally and internationally. This study aims to explain the interaction and relationship between globalization and IPE in the context of international relations and to provide a more understandable conceptual perspective.

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WHAT IS INTERNATIONAL POLITICAL ECONOMY? THE EMERGENCE AND DEVELOPMENT OF DISCIPLINE

International Political Economy explains the relations between the political and economic affairs of the state, the interactions between the state and the market institutions, the role of the state in the production and distribution of welfare, and how political decisions affect the economic activities of the actors (Gilpin, 1987: 9). The effect of government policies on the market can be explained as social and economic actors also shape government policies. IPE is an interdisciplinary social science approach that examines the interaction of states and markets and how they shape each other. States, the main form of organization of international politics, establish relations on the basis of power. Markets, which are the basic basis of the economic movement, are accepted as the basis for welfare production. In this context, Gilpin (1975: 43) defines IPE as “the mutual and dynamic interaction of the search for power and prosperity in international relations”. The striking point here is that besides the state, market actors and social forces are also for mutual interaction. The economy and politics that are covered by IPE are separate areas. At the intersection of these, the political economy field emerges. The facts of liberal understanding and globalization required that IPE should be handled separately as an academic study area. The economy is built on political politics and economics. Therefore, this field affects the development of both politics and the economy. In this regard, IPE is an interdisciplinary field of study. In today's global age, it is seriously questioned that the state is the only actor in social and international relations. From time to time, it is seen that the private sector is decisive in economic matters in a way that prevents the state.

Two key concepts in IPE studies are state and market concepts. Without these concepts, IPE cannot be analyzed significantly. The complex relationship between states and markets also shows mutual competition and cooperation between these two structures. Modern states seeking permanent power are trying to establish sovereignty over certain boundaries and human and natural resources within these boundaries. Market actors seeking permanent prosperity are often seeking to increase their capital accumulation through a widening volume of trade, money flow and technology transfer. In addition, concepts such as authority, power, welfare, market, hegemony, and exchange are also included in this field and examined. Only the concepts of state and market are not sufficient to understand the issue. Besides, as the Marxist understanding emphasizes, including social actors in the field of

study leads to more accurate results. Complex political and economic relations in today's world cannot be understood simply by analysing economy and politics, the state and the market (Strange, 1988: 21-25).

Relationships between independent government institutions and their practices and the various social pressures involved in the shaping of policies are also important when learning the political dimension of the world economy. Like other political sciences, international political economy is also a matter of the state's role at the center of attention. Undoubtedly, foreign policy policies are implemented by the relevant policy makers. The state is relatively independent or autonomous from the political, economic and social pressures arising from social processes. The state shapes society and foreign economic policies become a part of shaping process. The economic and political system can best ensure that these demands are regulated. The state, in fact, is a means of realizing socio-economic and political interests.

States use the prosperity produced by the market in economic conditions to gain power. The economic approach, which wants to increase the welfare more, wants to benefit from the regulatory, rule-making and authority of the state. This mutual cooperation brings cooperation between the state and the economic structure / markets. From time to time, this harmony can turn into conflict.

While IPE explains the mutual interaction of political science and economics on a global scale and developments in this field, it examines global production, exchange and distribution systems. In fact, economic factors had been effective in international relations for a long time since the Mercantilist period. The economic objectives, sources and tools of the foreign policies of the states have been the most prominent elements in the struggle between political units and actors (Gilpin, 1987: 3-4). The structure and functioning of the international political system has been influenced by economic developments and relations throughout history. Economic relations between the states, the effect of economic factors on international politics Relations between the international political economy and the internal political structures of the states are in the field of IPE.

Modern IPE discipline emerged in the 1970s. However, its theoretical origins go back to much older dates. According to one view, the concept of political economy first appeared in the 18th century (Ataman, 2007:5). The origin of realist political economy theories is based on 15th century mercantilism. The mercantilist approach suggests that states encourage exports and restrict imports

through protective walls. The origins of liberal political economy theories are based on Adam Smith's work on the Welfare of the Nations, which proposed free trade and the capitalist division of labor as the main dynamics of prosperity growth in the 1800s. Marxist theories are based on the work of Marx. In his works, Marx and Engels aimed to reveal the dynamics of the production, change and distribution of capitalism, and suggested that the flow of history was shaped in the axis of classes and class conflict.

IPE has become prominent as a research area in the post-World War II period. Initially, IPE was first examined under the discipline of international relations, which emerged as an independent discipline in the early 20th century. In the early periods when international relations emerged, military and political security studies were carried out on diplomacy, political history, keeping peace, and preventing war. In the tense environment between the two wars, international relations focused on foreign policy analysis, political thought theories and studies on state systems. The beginning of international relations' interest in the political economy started with the 1960s. Because, in the 1970s, developments in Third World countries started to dominate the agenda of developed countries such as the USA and European countries. Developing Third World countries, which want to act more independently with targets such as development and economic growth, have increased the interest in the political economy.

After the 1970s, international relations discipline had to focus more on the issues of political economy. Especially, seeing social, economic and political problems such as growth, development, welfare, and income distribution necessitated the handling of politics and economics together. According to Strange, the increase in the interest in the international political economy has been the result of international developments and events, not the thoughts on this issue (Strange, 1988). The economic problems experienced in the 1970s and political responses to them have made international economic issues a part of international policy studies. With this period, IPE started to take shape as an independent working area. In the analyses made on the international political economy, the interaction of many different factors must be taken into consideration. It is a fact that both national and global powers are important in international political economy within today's complex relations network. The national and international distinction is the main focus of many debates within the framework of IPE. Similarly, many researchers consider multinational companies as great global independent organizations, while

others consider these companies as part of the national system of the country to which they belong.

The feature of the global international economy is the multinational production style, international financial flows and the international trade volume reaching huge dimensions. In international relations research, economics issues in the political field were included in secondary importance and less important issues for a long time. In this sense, issues such as economic relations and welfare were accepted as low politics. However, after the 1970s, the collapse of the fixed exchange rate system, the oil crises, and the fact that the third world countries began to question the power relations that constitute the existing system with the idea of the new international economic order have been experienced as political economy developments. With these developments, economy politics has started to be seen as the subject of high politics. In this development, besides the political power, it is seen that the phenomenon of prosperity, foreign policy as well as the internal political factors affecting international relations become important. In addition, the importance of political economy in international politics has increased as a result of increased mutual economic interaction between states, economic activities of states, and awareness of the public against economic problems (Ataman, 2007:5-9). Strange says that those who work in the field of international relations do not take into account the field of economy, and that economists are wrong, assuming that the international economy operates in a separate environment from politics. From this point of view, he stated that economy and politics should be studied together rather than separately (Strange, 1970). In the same period, Keohane and Nye stated in their work titled "Transnational Relations and World Politics" (1972) and (1977) "Power And Interdependence: World Politics in Transition" that international politics could not be understood within the framework of a realistic approach. They proposed the concepts of interdependence and transnational relations with a new approach to understanding political economic relations. The political economic crises that took place during the 1970s enabled the development of IPE today. In this framework, besides security and politics issues in international politics, it is started to be asked who will win, what to win, and questions in economic politics (Strange, 1988). Thus, IPE started to develop when nation-state based realist international policy approaches based on security failed to adequately analyze new economic problems, inter-state interdependence (Cohen, 2008: 28-31). In fact, IPE, whose origins are very old, is not a certain theoretical and methodological approach. It is the name of a discipline whose purpose is

to understand how power and prosperity shape each other in the international order. The comprehensive structure of IPE is tried to be explained with different theoretical approaches (Öniş and Kutlay, 2014: 309).

BASIC THEORETICAL APPROACHES IN INTERNATIONAL POLITICAL ECONOMY

There are various approaches and a rich intellectual background in the field of IPE, which is an interdisciplinary approach. In the historical process Mercantilism, Liberalism and Marxism are the prominent approaches in this regard. Mercantilism, realism or economic nationalism; There are also alternative approaches developed within the framework of criticism of liberalism and Marxism approaches (Acar, 2007; Ataman, 2007; Özdemir, 2007).

Realism, the oldest school of thought in international relations, ignores economic issues. It also pays attention to power and security issues. Despite being an old theory in this sense, the power of explanation remains limited. According to realism, there is no single authority in the international system. In the international system, states are dominant and individuals are in the market. The state is the dominant international economic actor. Economic relations in an anarchic international environment is a zero-sum “win-lose logic” game (Balaam and Dillman, 2015: 92-95).

Liberalism, another important school of international political economy, is not only limited to the field of economy. Analysis unit of liberalism in the context of the international political economy; individual, firm and market. Liberalism is a system that will ensure free trade and universal peace. Liberals see economic relations as a positive sum game (Balaam and Dillman, 2015: 67).

The third important approach in the field of international economic policy is Marxism or critical theory. Marxist political economy explains the commodification of all aspects of social life and the deepening of capitalist social relations. In Marxism, modern capital and capitalism determine social relations. With this approach, Marxist political economy also includes global political economy. Marxism does not accept the traditional analytical distinction between national and international

politics. Thus, Marxism approaches the global political economy in a holistic and critical way (Balaam and Dillman, 2015: 124-152).

After all, liberalism speaks of concepts such as free markets (*laissez-faire*) high profit. Economic nationalism concerns the state, state power and security. Marxism, on the other hand, explains how markets and inter-state relations in capitalism cause class conflicts and conflicts. These theories developed in the historical process to understand the subject point to one aspect of IPE. However, it is necessary to expand the analysis to cover different ideas. To this end, alternative approaches such as Rational Choice, Institutionalism, Constructionism and Feminist Criticism have also developed. Rational choice theory explains that public policies are determined by various actors ranging from individual consumers to companies, governments and even some international organizations. Accordingly, in order to understand how decisions are taken in IPE, we need to look at different actors acting rationally, their interests and the institutional framework in which they operate.

Constructivism states that ideas and beliefs determine the identities and interests of institutions and states. States are not just political actors, they reflect society's values and beliefs and affect IPE decisions in this context. Unlike the rational choice approach, institutionalists say that in IPE, institutions that shape individual decisions are effective, not individuals' actions. It strongly emphasizes the restrictive and beneficial effects of institutions (O'Brien and Marc Williams, 2016: 27-30).

These three basic theories that try to explain the relationship in the field of economy and politics, according to Gilpin, are their own unique approaches. These theories envision state, market and social relations with a very different understanding. The pioneers of these basic theories, which are examined here, express their own value system and their thought system as normative preferences (Gilpin, 1987: 26). The reason they are valid for a long time is; First of all, it is not possible to falsify these theories. They also prevent their failure to make predictions with temporary hypotheses. They appear at different levels of analysis for different purposes (Gilpin, 1987: 42). The table below shows a comparison of theoretical approaches.

Table 1 Comparing the Theories

Aspect	Economic Nationalist	Liberal	Critical
Historical origins	15th century	19th century	19th century
Major figures	List, Hamilton, Krasner, Gilpin, Strange	Smith, Ricardo, Kant, Wilson, Keynes, Hayek, Keohane, Nye	Marx, Lenin, Frank, Cox
Variants	Realism, Mercantilism,	Interdependence, Free trade,	feminism, Marxism, environmentalism
Human nature	Aggressive	Cooperative	Malleable
Units	States	States, ngos, firms, igos, individuals	Global capitalism, planet, class, gender
View of the state	Unitary actor	Pluralist state: diverse interest	Representative of class interest groups
View of TnCs	Harmful / beneficial	Beneficial	Exploitative
Behavioural dynamic	state as power seeking rational actor	individual as rational actor but outcomes not always optimal	Dominance and exploitation within and between societies
Market relations	Potentially negative	Positive	exploitative
Game metaphor	Zero sum	Positive sum	Zero sum
System structure	conflictual / anarchy	interdependence / cooperative	conflictual / hierarchy
Hegemony	importance of a dominant state	Post-hegemonic cooperation	hegemony in state and society
International institutions	not very significant	important	states, firms, classes, serve interests of wealthy

Source: (O'Brien and Marc Williams, 2016:20)

GLOBALIZATION AND GLOBAL POLITICAL ECONOMY

It is impossible to ignore the phenomenon of globalization in the 21st century. It can be said that the concentration of globalization since the early 1970s has transformed the world political economy into a global dimension by exceeding the international dimension. Although there are some people is exaggerated (Hirst and Thompson, 1996). Globalization with product and service exchange, the

circulation of finance, sexist division of labour, development opportunities, the ecology of the planet, the transmission and power of ideas, the pursuit of security, the mobilization of political forces, and national forms and international governance have a significant impact on political and economic relations in the world.

With the end of the Cold War, some developments took place in the political economy area, and the area of IPE has expanded. Liberalism and Capitalism declared their victory and the phenomenon of globalization was on the agenda with the slogan of the New World Order (Heywood, 2013: 126-127). The rapid wave of globalization at that time and the transition of the former Eastern Bloc countries, which were independent after the Soviet Union, to capitalism created new problems. However, with the 2000s, the unipolar international system led by the USA quickly replaced the multi-polarity debate. In this context, in addition to the discussions in the field of IPE, globalization and democratization discussions have been brought to the agenda. In this new era, the first question to be answered in the field of IPE was the nature and dimensions of the power shift experienced in the global system after the US hegemony. The emergence of China as a major actor, BRICS countries joining forces with an economic formation has created the possibility that non-Western powers in developing countries may become the main actors of the international political economy.

With globalization, it was stated that hegemonic power in the field of international political economy will be a structurally powerful actor who can control security, production, finance and information structures with coercion and consent (Öniş and Kutlay, 2014: 311 and Morton, 2007). Because, in order to manage international economic relations well in order and stability, there should be cooperation and institutions to ensure this. In addition, the presence of an international hegemonic leader was necessary for the smooth functioning of the political economy order. According to the hegemonic stability theory, a strong leader state had to ensure stability in the field of IPE. This was done by England during the 19th century and by the USA until the 1970s (Tayfur, 2005: 197). The issue of globalization was being discussed around the questions of what should be a democratic political economy governance that internationally developing countries will have a say in. Globalization, democratization, hegemony discussions have increased the importance of the Comparative Political Economy discipline as well as the IPE. This is the discipline that aims to comparatively understand how countries' internal political structures affect economic policy choices and their economic performance.

Because with the globalization, the internal political and economic structures of the countries became more open to international influences.

The economic political discipline that began to appear in the 1970s was referred to as the International Economic Relations Policy (PIER). With the economic and political developments in the 1980s, Orthodox values and theories began to change and this discipline turned into an International Political Economy (IPE). According to this understanding, there were non-state social and economic actors that steered the field. Since the 1990s, with globalization, IPE started to be referred to as Global Political Economy (GPE). While the international political economy PIER was called IPE until the globalization phenomenon accelerated, it was tried to be explained by three schools under the name of GPE recently (Tayfur, 2005: 201-214).

In other words, if the political economy approaches are divided into periods; economic policy studies were named PIER between 1945-1970, when the USA was the sole ruler; The period between 1971-1989, when a group of large states dominated on the basis of interdependence, is defined as IPE. Finally, the discipline was defined as GPE, after 1989 with three economic fields, supranational, national and subnational, and different social organizations consisting of society, state and global society. According to another approach, the international political economy turned into GPE after 1970s (O'Brien and Marc Williams, 2016: 23). Apart from the states, companies and citizens have started to take part as important actors competing in the field of economic politics in an intense globalization environment. Recently, it is seen that new trains, which are expressed in the field of political economy as "consolidation", "integration" and "expansion", have emerged. Thus, more consensus will be provided on IPE, In addition, discipline will cover developing countries, include concepts such as consumption, and understanding will be expanded through post-structuralist approaches (O'Brien and Marc Williams, 2016: 32-36).

CONCLUSION

Globalization has increased its area of influence and speed in the last two centuries; regardless of location and time, it has a decisive influence on the behaviour and preferences of states, societies and individuals. Beyond the understanding of international relations that states are determinant, globalization has prepared

the ground for multi-dimensional relations between states, inter-communal and inter-company. On the basis of interdependence challenging the state's sovereignty area, international political economy approaches, whose roots go back to mercantilism, have begun to develop in order to explain economic and political social developments. Emphasizing that political events have economic origins and economic events have political origins, international political economy has gained importance as a discipline at the common point of political science, economics and international relations.

During the post-Cold War globalization period, where economic, political and social interactions increased and the world became a small village, the international political economy discipline was now called the "GPE". With the tools provided by the global political economy discipline, it is possible to bring more explanatory approaches to multidimensional issues such as international trade and finance, development and dependency, hegemony and north / south relations, multinational companies, culture, security and environment in the context of globalization. The international or global political economy looks like a discipline that continues to consolidate its autonomy, rather than being interdisciplinary, with new, dynamic and powerful arguments in a globalization environment where state-centered analysis is inadequate.

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DISABILITY EMPLOYMENT AND ECONOMIC GROWTH IN TURKEY: A FREQUENCY DOMAIN CAUSALITY ANALYSIS

Ahmet AYSU¹, Doğan BAKIRTAŞ²

INTRODUCTION

The number of people with disabilities who are among the disadvantaged groups in society is increasing gradually in the world. According to research and estimates (WHO, 2015), approximately 15% of the world population is disabled. This rate means that one in seven people in the world is disabled. In the UN Convention on the Rights of Persons with Disabilities, people with disabilities are defined as individuals who have a variety of disabilities such as long-term physical, mental and sensory impairments that may prevent full and effective participation in society on a par with other individuals. The WHO explains the concept of disability as a condition of loss and restriction of ability to perform a job compared to a normal person, which occurs as a result of a deficiency. Although the definitions of disability differ, the common point is that these people have lower educational levels, lower economic opportunities and higher rates of poverty (WHO, 2015).

In all countries around the world, a number of policies that aim to improve the social and economic conditions of people with disabilities are implemented. In particular, gaining economic independence, which is an important factor in integrating the disabled into social life, highlights the employment fact within the scope of the social state approach. Employment is an important concept for people with disabilities to earn their income (Shang 2000, p. 149). Although gaining economic independence is the main objective, it has many benefits that lead to positive changes in the social lives of the disabled. Employment supports elements

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that can enhance opportunities to fit into a community such as a positive change in the self-esteem and in the quality of life besides financial security. In addition, when the disabled who are employed socialize with their colleagues and fellow workers, they can contribute to reducing attitudes such as prejudice, misunderstanding and discrimination that exist in the society (Lamichhane 2012, p. 482).

Persons with disabilities are faced with various restrictions on employment and many cannot get involved in the labour market. This, in turn, leads the disabled to keep away from economic and social life.

Countries develop a number of policies aimed at increasing the disability employment. First of all, it can be stated that in many developed countries the resources transferred to the disabled are higher than the resources used to combat unemployment (Förster, 2008) and the transfer expenditures are a serious burden on government budgets. Therefore, ensuring the participation of the disabled in the labour market will reduce dependence on social assistance and therefore there will be no need for additional resources in government budgets. However, undoubtedly some of the disabled who receive financial support cannot work, but many can work or may want to work when a proper and decent job is provided. From this perspective, the fact that such a large group of working age is not economically active is a waste of human resources (OECD, 2010).

Looking at the labour market in recent years, it is revealed that there has been a shift from manufacturing industry to services, and from low-skilled jobs to high-skilled jobs. Therefore, this change reduces job opportunities for less skilled and less educated workers (OECD, 2010, p. 2). Given the fact that the vast majority of people with disabilities have a lack of skills and a low level of education (Mitra et al., 2013; Yeo and Moore, 2003), such a change on a global basis is disadvantageous to disability employment. Nevertheless, medical advances, rehabilitation and technological advances stand out as an element that enhances the functional abilities of individuals with disabilities. These developments contribute to having access to economic and social opportunities and participation in employment for the disabled (Metts, 2004).

Reducing the economic output in such a way makes up the economic cost of disability. GDP gap that is lost worldwide every year due to disability is estimated to be between \$ 1.22 trillion and \$ 1.59 trillion for high-income countries, between \$ 377.70 billion and \$ 492.00 billion for middle-income countries and

between \$ 110.50 billion and \$ 143.94 billion for low-income countries. At this point, development-oriented disability policies and strategies aim to reduce the economic costs of disability by increasing the functionality of the disabled and reducing the barriers that prevent them from accessing social and economic opportunities (Metts, 2004). Increasing the economic activities of the disabled is important in terms of both decreasing poverty and increasing economic outputs.

Secondly, employment is considered to be an important element of economic growth in the neoclassical model, as well as expressing workers' part of the workforce. Production increase within the scope of production function -assuming that capital and technology are constant in the short term- is explained by the increase in the labour force (Özdemir et al., 2006; Raleva 2014, p. 5). From this point of view, it can be stated that disability employment has/may have an impact on the economic growth performances of the countries.

The efficiency (*quality*) of labour is more prevalent than the physical state of labour in approaches to economic growth. In today's world, the improvement of health services, the diversification and expansion of education services, the advancement of knowledge and technology-oriented business lines instead of businesses of the past based on man-handling, have increased the productivity of people with disabilities and therefore employment opportunities.

According to Disability Survey made in 2002 by Turkish Statistical Institute, total disability proportion in the overall population is 12.29% in Turkey (TUIK, 2009). According to 2011 Population and Housing Census (*PHC*), the proportion of the population who have at least one type of disability is 6.9% (TUIK, 2013). The total population of persons with disabilities is more than 4,8 million in Turkey. As can be seen from the ratio and statistics, the inclusion of persons with disabilities is important for both economic development and increasing welfare of persons with disabilities. When public spending for the disabled in Turkey evaluated (*after the Law on Disabilities entered into force in 2005*) in the last 10 years, it is observed that there is a substantial increase in public expenditure for persons with disabilities. The share of public spending on disability in GDP was 0,025% in 2006. In 2015, the public spending on disability was 0,070 % of GDP (Yılmaz and Yentürk 2017, p.70).

Policies for the disabled in Turkey are pursued by different state organs (*Ministry of Labour and Social Security, Ministry of Finance, General Directorate of Services*

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for Persons with Disabilities and the Elderly, etc.). Various policy implementations, such as prevention of discrimination, social benefits, financial incentives and increasing employment contribute to the improvement of the socio-economic conditions of the disabled. Especially in terms of employment, implementations such as the requirement that workplaces which employ 50 or more workers have to employ disabled people at the ratio of 3% of their total employees in private sector and at the ratio of 4% of their total employees in public sector, and the payment of the entire social security premium share of employers who employ persons with disabilities by the Treasury are significant influences on the increase in employment rates. These and similar implementations provide support for increasing the employment of disabled people with limited access to the labour market, for their economic independence and for their participation in social life. Participation of everyone who is able to work in the active workforce may also be beneficial in the long run in terms of the national economy and development goals (AÇSHB, 2020).

In the light of explanations made above, the purpose of this study is to investigate the causal linkage between disability employment and economic growth using Turkey data from 1972 to 2016. The contribution of this paper is twofold. First of all, to the best of our knowledge, this is the first paper examining causality between disability employment and economic growth. The results would be a guide for emerging market economies, such as Turkey. Another contribution is that the econometric methods employed in the paper give important insight into the permanence of the causal relationship between variables. In this regard, if the relation is permanent, it is possible to conclude that policies built to increase employment of persons with disabilities in the economy. Otherwise, social policies have to consider again in order to increase efficiency. Moreover, the results obtained from recently developed time series analysis methods, will be useful to conclude the effects of economic growth on the employment rate of persons with disabilities. Another purpose is to raise awareness in this area by revealing the effects of disability employment on economic growth. Increased awareness will contribute to a more specific and comprehensive treatment of policies for this area.

The rest of the paper proceeds as follows. In the next section, we briefly give the previous empirical studies on the economic aspects of disability persons and summarize the econometric methodology. Section 3 describes the data employed

in the empirical analysis. Section 4 presents the empirical results. Finally, Section 5 concludes the paper.

LITERATURE AND METHODOLOGY

Literature

In the literature if the studies are on disability employment, there are studies which have revealed the factors that affect employment disparities between the disabled and the non-disabled, and have concluded that there are great drops in employment levels of people with disabilities, especially at the big recession (Livermore and Honeycutt, 2015); which explore the differences in salary and employment between disabled and non-disabled young adults and as a result suggest that there are large salary discriminations between people with and without disabilities (Mann and Wittenburg, 2015), and which analyses the relationship between legal disability employment and productivity within the framework of disability employment policy implemented in Japan, and have revealed that providing the level of legal disability employment does not have any effect on a company's productivity (Nagae, 2015). However, no empirical study has been found on the relationship between disability employment and economic growth, which is the subject of this study.

Econometric Methodology

In this study, we employ a frequency domain causality analysis method. Frequency domain causality analysis has been applied in the various economic researches in order to detect the causal dynamics. Some of these researches investigate the causal linkages of trade deficit and government expenditure (Kayhan et al., 2013); energy consumption and economic growth (Bozoklu and Yilanci, 2013); governance and economic growth (Huang and Ho, 2017); commodity prices and inflation (Ciner, 2011); domestic private credit and economic growth (Stolbov, 2017); tourism, trade and economic growth (Suresh et al. 2017); exchange rates and foreign exchange reserves (Bayat et al., 2014); short-term interest rate and exchange rate (Saraç and Karagöz, 2016).

Breitung and Candelon (2006) proposed a simple test procedure for frequency domain causality developed by Granger (1969), Geweke (1982) and Hosoya (1991). The traditional Granger causality test investigates the interaction between

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variables in a given period with a single test statistics for all frequencies. Geweke (1982) and Hosoya (1991) argue that casual linkages between variables may vary across frequencies.

Geweke (1982) defines two-dimensional vector autoregressive model VAR(p) with a finite order as in the following:

$$\theta(L) \begin{pmatrix} GDPPC_t \\ EPublic_t \end{pmatrix} = \begin{pmatrix} \theta_{11}(L) & \theta_{12}(L) \\ \theta_{21}(L) & \theta_{22}(L) \end{pmatrix} \begin{pmatrix} GDP_t \\ EPublic_t \end{pmatrix} = \varepsilon_t \quad (1)$$

Where $\theta(L) = I - \theta_1 L - \theta_2 L^2 - \dots - \theta_p L^p$ is a lag polynomial with $L^k GDPPC_t = GDPPC_{t-k}$ and $L^k EPublic_t = EPublic_{t-k}$. GDPPC and EPublic (or EPrivate) represent gdp per capita and disability employment in public sector (or disability employment in private sector). It is assumed that error vector ε_t is white noise with zero mean and $E(\varepsilon_t \varepsilon_t') = \Sigma$, where Σ is positive definite. The MA (moving average) representation of the system is:

$$\begin{pmatrix} GDPPC_t \\ EPublic_t \end{pmatrix} = \psi(L) \eta_t \begin{pmatrix} \psi_{11}(L) & \psi_{12}(L) \\ \psi_{21}(L) & \psi_{22}(L) \end{pmatrix} \begin{pmatrix} \eta_{1t} \\ \eta_{2t} \end{pmatrix} \quad (2)$$

Where $\psi(L) = \theta(L)^{-1} G^{-1}$ and G is the lower triangular matrix of the Cholesky decomposition $G'G = \Sigma^{-1}$ such that $E(\eta_t \eta_t') = I$ and $\eta_t = G\varepsilon_t$.

The causality test statistics developed by Geweke (1982) and Hosoya (1991) can be expressed as follows:

$$M_{EPublic \rightarrow GDPPC}(\omega) = \log \left[1 + \frac{|\psi_{12}(e^{-i\omega})|^2}{|\psi_{11}(e^{-i\omega})|^2} \right] \quad (3)$$

If $|\psi_{12}(e^{-i\omega})| = 0$, we can say that EPublic does not Granger cause GDPPC at frequency ω . Breitung and Candelon (2006) propose a novel way to test the null hypothesis of $M_{EPublic \rightarrow GDPPC}(\omega) = 0$ using the linear restrictions as follows:

$$|\theta_{12}(e^{-i\omega})| = \left| \sum_{k=1}^p \theta_{12,k} \cos(k\omega) - \sum_{k=1}^p \theta_{12,k} \sin(k\omega) i \right| = 0 \quad (4)$$

Where $\theta_{12,k}$ is the (1,2) element of θ_k . Hence, a sufficient set of conditions for no causality is

$$\sum_{k=1}^p \theta_{12,k} \cos(k\omega) = 0 \text{ and } \sum_{k=1}^p \theta_{12,k} \sin(k\omega) = 0$$

Thus, the null hypothesis of no Granger causality at frequency ω can be tested by performing a standard F test for the linear restrictions. The F statistic is distributed as F(2, T-2p) for $\omega \in (0, \pi)$ where 2 is the number of restrictions, T and p indicate the number of the observations and order of VAR model, respectively.

Data

In this study, we employ Turkey's annual GDP per capita (*constant 2010 US\$*) and the number of active disabled workers in both public (EPublic) and private sector (EPrivate) data spanning over the period of 1972 to 2016. The GDP per capita data is obtained from World Development Indicator online database (WDI, 2017). The numbers of active disabled workers data is obtained from the statistical yearbook of Turkish Employment Agency which operates under the Ministry of Labour and Social Security (ISKUR, 2017). All the data were converted to natural logarithms.

Empirical Findings

In order to test the unit root properties of variables and determine the integration degree of variables, we performed ADF and PP unit root tests developed by Dickey and Fuller (1979, 1981) and Phillips and Perron (1988) respectively. The null hypothesis is non-stationary for the both ADF and PP tests. Table 1 reports that all variables are non-stationary at their level according to both ADF and PP test results. However, these variables are stationary at their first differences. The unit root analysis thereby implies that they are integrated of order one I(1).

Table 1: Unit Root Test Results

	Variables	Level		First Difference	
		PP	ADF	PP	ADF
Constant	EPublic	-1.500 (3) [0.524]	-1.671 (0) [0.438]	-9.388 (1) [0.00]***	-7.398 (0) [0.00]***
	EPrivate	-0.798 (0) [0.809]	-0.789 (0) [0.809]	-7.585 (1) [0.00]***	-7.600 (0) [0.00]***
	GDPPC	0.691 (3) [0.990]	0.639 (0) [0.989]	-6.256 (1) [0.00]***	-6.256 (0) [0.00]***
Constant+Trend	EPublic	-3.081 (2) [0.123]	-3.063 (0) [0.127]	-16.310 (2) [0.00]***	-6.064 (3) [0.00]***
	EPrivate	-2.404 (0) [0.372]	-2.404 (0) [0.372]	-7.485 (1) [0.00]***	-7.500 (0) [0.00]***
	GDPPC	-1.938 (0) [0.617]	-1.938 (0) [0.617]	-6.303 (3) [0.00]***	-6.308 (0) [0.00]***

Notes: The figure in the parenthesis represents the lag selection by using the Schwarz info criteria. Figures in brackets are probability values. *** indicate significance at the 1% level. The bandwidth selected is based on Newey–West using Bartlett kernel for the PP test.

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Findings of frequency domain causality analysis are summarized in Table 2. Frequency domain causality analysis proposed by Breitung and Candelon (2006) allows us to attain different causality test statistics for different frequencies. Thus we can set the causality test at high frequencies ($\omega_i = 2.5$ and $\omega_i = 2.0$), low frequencies ($\omega_i = .01$ and $\omega_i = .05$) and moderate (medium) frequencies ($\omega_i = 1.0$ and $\omega_i = 1.5$). Lag order of the VAR model is chosen as four according to the Schwarz information criterion.

Table 2: Results for Frequency Domain Causality

ω_i	Long Term		Med Term		Short Term	
	0.01	0.05	1.00	1.50	2.00	2.50
GDPPC \rightarrow EPublic	0.296	0.301	1.675	0.898	4.555**	2.330
GDPPC \rightarrow EPrivate	10.966***	10.981***	10.818***	0.123	0.154	1.034
EPublic \rightarrow GDPPC	3.374**	3.343**	10.477***	2.166	3.311*	4.087**
EPrivate \rightarrow GDPPC	4.049**	4.052**	6.371***	4.519**	13.295***	9.230***

Notes: The lag lengths for the VAR models are determined by SIC. F- distribution with (2, T-2p) degrees of freedom equals about %1=5.17, % 5=3.22, %10=2.40. For every ω_i (frequency) between 0 and π , $\omega \in (0, \pi)$

Table 2 shows that GDPPC Granger causes EPublic in the short term, while the causal linkage disappears in the medium and long-term. On the other hand, there is a causal relationship running from GDPPC to EPrivate in the long and medium term. The GDP per capita affects the disability employment in public sector only in the short-term and the disability employment in private sector in the long and medium term. Results of frequency domain causality test indicate that disability employment in the public sector and in the private sector causes GDPPC in the short and long term. Disability employment in public sector and private sector affects the GDP per capita in all time period. The results imply there is a bi-directional causality between disability employment in public sector and GDP per capita only in the short run and bi-directional causality between disability employment in private sector and GDP per capita in the long and medium term.

CONCLUSION

Along with economic development, efforts to expand the implementations of the social welfare state, to make legislative regulations in order to increase disability

employment and to reduce social exclusion in society enhance the employment opportunities of disabled people. The main point of action for related policies towards the disabled is to ensure social integration. The way to achieve this is to improve the social and economic conditions of people with disabilities. Increasing employment opportunities is an important tool for both the socialization of disabled people and the improvement of their economic conditions. In addition, disabled individuals who want to work but cannot be employed represent the idle share of the workforce, which is an important input to economic growth. For these reasons, states are in search of a policy to increase disability employment. There is a need for more specific implementation of disability employment, which is generally addressed within the framework of active employment policies. Enhancing disability employment is important in terms of ensuring the social participation of disabled people, reducing dependence on the capital budget and contributing to the economic growth performance of countries. In this context, disability employment in Turkey from 1972 to 2016 and per capita income were examined through frequency domain causality analysis. According to the results of the analysis, a short, medium, and long-term causality running from disability employment in the public sector and the private sector to the per capita income was revealed. However, it was also found that the relationship between the variables was partially bi-directional. There was causality from per capita income to disability employment in the public sector in the short term, and in the private sector in the medium and long-term.

In the Turkish economy, economic growth leads to increases in the employment of the person with disabilities in both private and public sector. But the relation is temporary in public sector while it is permanent in private sector. This supports the Keynesian view that real economic growth will lead to an increase in the level of employment. It is possible to conclude that in the aftermath of the economic growth in the Turkish economy, employment of persons with disabilities increased permanently in the private sector. On the other hand, results implying permanent causality relationship from disability employment to economic growth, both in the private and the public sector, indicates that policies to increase disability employment have been successful in terms of economic growth.

The results of the study obtained from data belonging to an emerging market economy, Turkey. It should be taken into account that the relationship between employment of persons with disabilities may differ according to the level of

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development of the country. Therefore, in the future studies on this field, it is possible to investigate the causation linkage for different countries which have a different level of income and compare the results in order to test if there is a difference or not among them and to clarify the possible reasons.

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ECONOMICS OF BLOCKCHAIN AND IMPACTS ON ECONOMY: RISE OF THE CRYPTO ECONOMY¹

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INTRODUCTION

Every century has groundbreaking innovations that changed the world and in fact economy itself. Isaac Newton published his famous and essential book, Principia, in 1687 at Cambridge and changed the science methodology forever. Eli Whitney patented the cotton gin and increased the production of cotton in 1794. James Watt invented the steam engine and increased the production of everything in 1769. They created the economic power of United States and United Kingdom. 19th century was full of epochal inventions that changed the world and world economics forever. Faraday's electric dynamo (1831), Perkins's refrigerator (1834), Pasteur's pasteurization (1856), Otis's safety elevator (1852), Nobel's dynamite (1866) and Otto's internal combustion engine (1876) were some of the inventions that changed the way of living. 20th century affected the human life with invention of nuclear power, personal computer, airplane, automobile, submarine, antibiotics, radio and internet. It is endless to discuss the effects of these innovations for the humans, world, world economy, nations, some nations, and nation's economy. In the 21th century variety and number of the inventions are more than of every century but one invention seems to be the most important one that will change the way of interconnected life: Blockchain. Satoshi Nakamoto presented the Bitcoin in his seminal paper and Blockchain

1 This is a preliminary version of a study to get invaluable feedback as comments, criticisms, and suggestions for a project that authors are currently studying on. All of the feedbacks will be carefully considered.

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technologies attracted the attention (Nakamoto, 2008) of the world. In fact, roots of the Blockchain technologies depends on Haber's and Stornetta's paper that is published in 1991. They stated a problem about the certifying of creation or modification time and offered a unique solution. Nakamoto utilized from several similar papers about time-stamping and presented the framework of the Bitcoin. Especially after Nakamoto's paper Blockchain technology became the core of the new applications. Blockchain is a specific technology of the public decentralized ledger platform that solved the "Byzantine General's Problem" (Lamport et. al, 2019). Bitcoin and other cryptocurrencies is based on Blockchain and due to the decentralized character of technology brought more secure and costless transfers. Ledger is the basic concept of this technology and used throughout the history. In the 20th century ledgers digitalized but do not solve the problem of trust and cost. Nakamoto offered the solution as a decentralized ledger idea and Blockchain became a powerful tool of the 21st century.

Blockchain is now seems as the fundamental technology for the 21st century and have a potential to change the world economy. Bitcoin as a cryptocurrency is the first significant innovation of this public decentralized ledger platform that does not require third party verification. The use of Blockchain as cryptocurrency and a secure tool to transfer assets without any kind of third-party approval changed the direction of relations by removing any kind of barriers. Bitcoin is important for the Blockchain technology because it brings strong reputation and usefulness. Digital money system changed the way of trade by increasing speed and trust with low costs by using a simple protocol regardless of any institution. In this framework, main aim of this chapter is to discuss and clarify the potential impacts of this new concept of technology for economic aspects. This chapter will discuss the effects of Blockchain technologies on markets, financial sector, jobs, employment, elections, contracts, banking and world economy generally.

Blockchain is one of the keywords in the economic debates because in 21st century digitalizing is the most important concept. Therefore, Blockchain will be the main tool for digitalizing of the many services in the economic system.

This chapter will consist of three sections. First section is introduction and second section will be about the literature review of the economics of Blockchain. Due to the difference of Blockchain from any kind of information and communication technology (ICT) new literature gave rise in the economics. There will be a review

of the discussions in this section. Every kind of innovation effected world in a very different way and turned the economy into a different way. In this section impacts of Blockchain technology will be presented by using the literature. In the third section the future of the Blockchain will be discussed and debates about the technology will be presented. Besides, there will be suggestions about the future directions that may lead to the new studies.

Blockchain is the newest and widely unknown technology by the public and brought up the digital money to the economies. Besides, new protocols like Ethereum that use Blockchain technology will give us new kinds of features, laws, institutions, and understanding.

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Many articles investigated the impact of the Blockchain technology on the economies and emphasized the importance. Because, Blockchain technology have a significant potential to change the economic paradigm by being an alternative for the third-party institutions. There were many different challenging innovations that change the structure of the market. Tschorsch and Scheuermann (2016) stated that there are community-driven and non-commercial technologies like anonymous communication, PGP and Bit Torrent. Every technology has presented various opportunities and changed the structure of the market that effected the economy as a whole. Moreover, some of the innovations destroyed the brands, corporates, sector, market and brought a brand new one or poverty for the city, region and country. Detroit (Motor City) is a remarkable example for the effect of technological innovation. Technological change in automotive industry effected the market structure and shifted the economy to digital world. Labor-intensive companies like Ford, GM and Chrysler dropped the number of workers and city has declined year by year.

There are many stories similar to fall of Motor City for many economies and will be in the future. Blockchain technology can create the same effect for the economies as well as creating opportunities for them. Therefore, analyzing this revolutionary technology become center of the debates in the literature. This technology is very different from the other ICT innovations because of creating a record alternative. Moreover, this record alternative is a decentralized ledger that is not limited by any kind of border. This special feature makes Blockchain a very useful technology that can promote the economy by decreasing the time and cost

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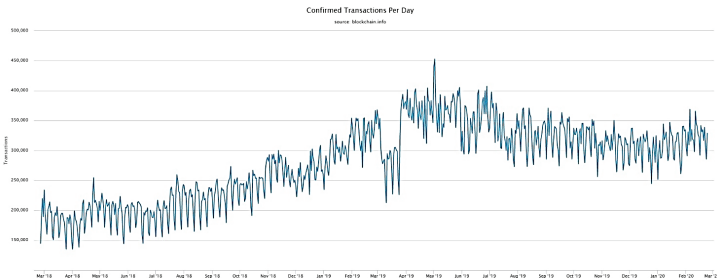
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of transactions in a dynamic world. Especially due to the decreasing need for the third party institutions will decrease transaction costs and time.

This special feature of Blockchain disrupted the financial markets and lead to new innovations. Financial services like asset management and insurance are costly for the firm and customers because of the need for the third-party institutions that are using the expensive methods for financial transactions with screening. Economic agents can easily monitor and transact their wealth. More control with more security will promote the usage of this new tool. Blockchain created a safe way to transfer and monitor assets without an intermediary. For instance, smart contract is a basic application example of the Blockchain technology in financial services. Real estate sector is now needing a useful, fast, cheap and secure solution for transactions. These may change the rule of the game and may increase the size of the market. Likewise, Blockchain technology will have effect on insurance industry by decreasing the costly mistakes and frauds.

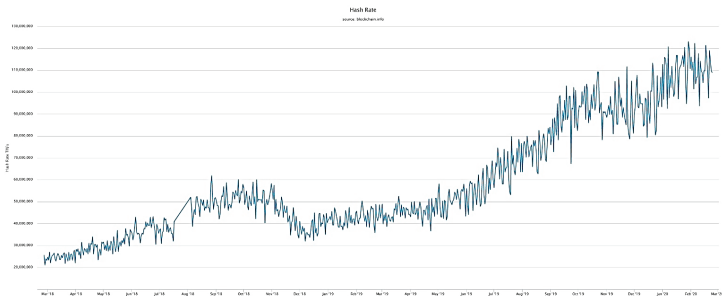
There are 5.146 cryptocurrencies and still increasing. Main question will arise here: What is the prevalence of use of the Blockchain? There are many statistics about the Blockchain technology but basic answer can be the number of Cryptocurrencies and total market capitalization of them. According to the CoinMarketCap, total market capitalization of 5.146 cryptocurrencies is about \$250 billion and dominance rate of Bitcoin is about %64 with \$160 billion total market capitalization (based on the prices at 27.02.2020). Moreover, confirmed transactions are increasing in the last year and saw over 450k transactions.

Figure.1: Confirmed Transactions Per Day from March 2018 (The number of daily confirmed Bitcoin transactions.) Source: <https://www.blockchain.com/tr/charts/n-transactions?timespan=2years>



On the other hand, as seen in figure 2 Hash Rate from March 2018 is obviously increasing that is reflecting the computational power per second used when mining due to the growing Bitcoin network. Researchers are expecting a continuous growth in the prevalence of Blockchain technology for this decade mainly because of the digital finance. Reduced transaction costs with reduced fraud and being free from any kind of border will be the main promoter of the cryptocurrencies.

Figure.2: Hash Rate from March 2018 (The estimated number of tera hashes per second (trillions of hashes per second) the Bitcoin network is performing.) Source: <https://www.blockchain.com/tr/charts/hash-rate?timespan=2years>



Bargan (2016) in his thesis showed remittances as a remarkable example for the transactions in the financial system. Many of the international worker encountered with the high transactions costs and Blockchain can be a major technology for the costless transactions. Besides, these workers will be free to transfer their asset anytime to anywhere without any kind of third-party institution. This is a simple example for a shift in financial markets because borderless asset will easily change the market with a lower cost in a secure way. This will be a digital disruption in the financial markets. XRP is the digital asset for global payments that is the third in the ranking of cryptocurrencies in terms of total market capitalization. On the other hand, StableCoin will be the payment alternative for the digital economy that depends on the physical dollar.

Blockchain technology is different from the other kinds of ICT innovations because of the its nature (Davidson et. al., 2016). Decentralized structure of the Blockchain can create different alternatives to financial assets. Commodity-backed cryptocurrency is an important example for the new kind of financial asset. An asset-backed token that is including the any kind of metals will be a disruption for

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the financial market because these kinds of the coins will be the main competitor for the investing companies.

There can be many different financial innovations by using the Blockchain technology. Monetization of resource is possible by cryptocurrencies and this will be a disrupt for the financial markets. Everyone can monetize the idle CPU power or disk space on HDD and use the other idle power or space when needed. This kind of monetization is only can be done with Blockchain technology.

Blockchain technology can be used for the smart contracts for the dynamic global world to increase the trust in the trade (cong & He, 2016). Peters and Panayi (2015) stated that digitizing asset ownership, intellectual property and smart contracts are the second generation in the Blockchain technology. In fact, Szabo (1997) mentioned about the smart contracts but Blockchain technology enabled it to apply to dynamic world. In the daily life economic agents are exchanging money, commodities, financial assets or assets many times with a relatively high transaction costs. Smart contract approach has widespread application area and can be an important tool for cost minimizing without an intermediary. Besides, Blockchain will prevent loss and fraud in the system by eliminating the intermediaries that are increasing the time-delay. On the other hand, many of the organizations that are using the personal private records can store and share on the Blockchain in a secure way.

Especially there are many opportunities for the companies for using Blockchain technologies. Companies can raise capital by using the cryptocurrencies, loan from anonymous lenders, change or trade assets and decrease their cost by disintermediation or smart contracts. This general purpose technology will change the understanding of the modern financial markets and provides many opportunities to all agents in the market. This challenge in the financial markets created an extraordinary asset type: Crypto-asset. Crypto-asset is the digital asset that based on Blockchain technology and attracted the attention of all financial institutions and many of them spend sources to understand the impacts on financial system and policies in general. According to Coinschedule \$3.2 billion fund raised in 2019 and over \$31.7 billion from 2016 until today.

European Central Bank (ECB) established a special unit named as Crypto-Assets Task Force to understand the crypto-asset and its potential implications and Manaa et. al., published working paper in 2019 that is discussing the implications of the

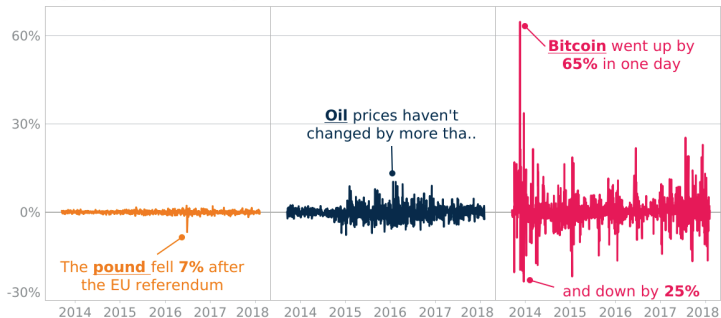
crypto-assets. Especially they stated that there are limited ability to control and manage the implications of crypto assets in current framework and conditions. Therefore, they concluded in their paper that due increasing trading-volume of the crypto-currency ECB must raise awareness and develop preparedness for any adverse scenarios (Manaa et. al., 2019).

Besides, Bank of England is asking unpredictability of the cryptocurrencies and answered as “yes, very unpredictable” with a figure depicted in the below. Bank of England draw attention to the volatility of the cryptocurrencies in the figure 3. It seems that many of the central banks started to analyze the impacts of the crypto-assets and have different approaches. In this framework, researchers should expand their work to financial markets. For instance, Evci (2020) investigated the “Day of the Week Anomaly” for the Bitcoin market and addressed some papers that are investigating the cryptocurrencies.

Figure.3: % change in price from the day before. (Source: <https://www.bankofengland.co.uk/knowledgebank/what-are-cryptocurrencies>)

The Bitcoin rollercoaster

% change in price from the day before



See also: https://public.tableau.com/views/Bitcoinpricechanges/Dailypricechanges?:embed=y&embed_code_version=3&loadOrderID=0&display_count=y&origin=viz_share_link

FUTURE RESEARCH DIRECTIONS

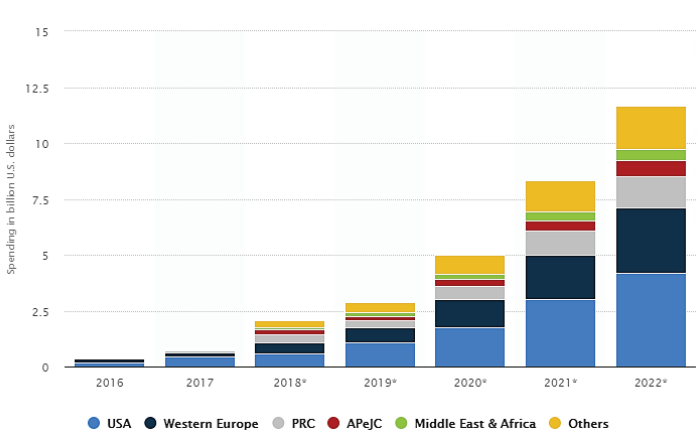
Blockchain technology has boundless opportunities and applications within many debates. There are many different alternative uses of Blockchain technology that

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will change the dynamics of economies. This general purpose technology will disrupt many areas in the modern world. Besides, literature about the Blockchain in the economics, politics, law, finance, human resources, governance, and management is increasing and became a specific research area. There are many different subjects that must be discussed by the researchers and understood by the public. However, there are threats of the of the Blockchain technology because of the disruptive and decentralized character. For instance, researching the attitudes of the governments to anonymity of the Blockchain technology is essential. On the other hand, governments can be digital by using the power of the Blockchain technology. Debates about strengths, weakness, opportunities and threats of the Blockchain should be the topic of the future researches. There many studies in the literature that are asking new questions for the future.

Figure.4: Worldwide spending on blockchain solutions from 2016 to 2022, by region, in billion U.S. dollars (Source: Statista, <https://www.statista.com/statistics/800561/worldwide-blockchain-solutions-spending-by-region/>)



The emergence of the Blockchain technology is the groundbreaking event of the last decade by providing different possibilities. Catalini and Gans (2016) stated that Blockchain is a general purpose technology like steam engine, electricity or internet that leads to very different innovations and productivity gains. This is a very compact definition about the nature of Blockchain technology that reflects the importance for the economy. Besides, progression of this general purpose

technology created a new branch of economics named as “Crypto Economy” and attracted more attention of the public. This new area is revealing many opportunities, threats and questions for the all of the sectors in economy with a wide application area. Cryptocurrencies are well-known by the agents but literature is still discussing the rest of the innovations based on Blockchain technologies.

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SECTION **II**
FINANCE AND ACCOUNTING

15

A NEW PERSPECTIVE ON BEHAVIORAL FINANCE

Çağrı HAMURCU

In this chapter, a new perspective on behavioral finance is presented. This new perspective is composed of the combination of the 2nd generation of behavioral finance theory and the financial therapy approach. First of all, the 2nd generation of behavioral finance theory with the historical development process and then the financial therapy approach are explained. In final, the cross contribution of two distinct notions is interpreted as a new perspective on behavioral finance.

2nd GENERATION OF BEHAVIORAL FINANCE

Behavioral finance could be described as a sub-category of finance whose primary objective is to discover, predict and define emotional and cognitive patterns of investors' behaviors and decision making processes and an interconnection point in between finance, psychology, and sociology (Ricciardi, & Simon, 2000). It is stated that behavioral finance is built on behavioral preferences, arbitrage limits and cognitive&behavioral biases (De Bondt, Muradoglu, Shefrin, & Staikouras, 2008):

Behavioral Preferences

Regret aversion is a behavior that prevents feelings of regret that may arise after investing. In this preference, an investor wants to avoid regret by preventing decisions whose evaluated outcomes are negative.

Loss aversion behavior is shown when the perceived impact of losses is greater than earnings. In that case, the value given to the event in decision-making is determined according to a ref point and the perceived impact of losses compared to earnings.

Mental accounting is a preference that categorizes and evaluates financial consequences. In the mental accounting tendency, people place their investments by doing mental calculations and in this placement work use coding, categorizing and calculating processes.

Self-attribution is a thought based bias in that individual skills are the reason for success and external factors are the cause of failure. With this effect, investors could not be able to see their mistakes, be aware of their wrong decisions. Hence, the probability of repeating that kind of decision mistakes could be increased.

Arbitrage Limits

Arbitrage is defined as buying and selling out the same or similar financial assets in two different markets to take advantage of price differences (Shleifer, & Vishny, 1997). The arbitrage aims to take advantage of price differences between markets. Because of taxes, payments and cost-related factors, activities of noise investors and their irrational beliefs and expectations, asset prices could be inefficient, these may create some risky arbitrages and limit arbitrage. The above stated irrational beliefs and expectations could be explained as, though the evidence and evaluated future expected returns don't support investors beliefs, winners and losers respectively don't want to sell and hold their assets and insist on their wrong decisions in order not to realize losses (Odeon, 1998). Arbitrage limits could be explained with the ineffectiveness of financial markets and the irrational behaviors of the investors.

Biases

Overconfidence is about giving extra values to their abilities. The tendency of overconfidence is the heuristic belief in intuitive thinking and cognitive abilities. This bias might cause investors to take too much risk and cause unforeseen losses.

Anchoring is a heuristic when the value of a financial asset needs to be calculated, the reference decision point about the value of the investment is assessed according to available limited information and could not be adjusted correctly. In that situation, investors would suffer a loss as a result of their wrong value calculations.

Representativeness is excessive confidence in stereotypes. The human brain assumes that objects and thoughts with similar characteristics are similar. Investors could give more meaning to the most recent or more prominent assets and can neglect real possibilities and real values.

Availability bias happens when easily accessed and recalled information is overweighted. In the tendency of availability, it could be excepted that because of making decisions according to easily accessed and recalled information, the probability of losing could be increased.

Portfolio Theories

According to the portfolio theory defining as a mean-variance, portfolios are created by mean and variance calculations. On the contrary, according to the behavioral portfolio theory (BPT), these portfolio creations are performed by considering expectations and these behavioral portfolios could be integrated into a single or multiple mental accounts. (Shefrin, & Statman, 2000).

Evaluating the price of the assets, different kinds of factors are included. In the behavioral asset pricing model, some utilitarian and expressive factors are incorporated (Statman, 1999).

Risk factors are counted in utilitarian factors and thoughts and feelings about financial assets coming to mind unconsciously and automatically are known as expressive factors. In standard finance, automatic and unconscious factors are not counted in affecting factors on asset pricing. Risk factors are included in the expected return calculations in the pricing models defined as capital asset pricing (CAPM) and the three-factor (Statman, Fisher, & Anginer, 2008).

Market Efficiency

According to standard finance, financial markets are efficient which means that all information about the markets and assets are exactly and correctly reflected the prices (Fama, 1991) and beating the market systematically is impossible. On the other hand, concerning the behavioral finance theory markets are inefficient. In other words, asset prices are irrational, value-expressive characteristics could be included in the asset price calculations and beating the market systematically is possible (Statman, 1999). The distinction between standard finance and behavioral finance is rooted in having different perspectives on the concept of market efficiency, from efficient markets to hard-to-beat markets. In addition to that, behavioral finance studies the mechanism, cause and effect relation about beliefs on investor's choices such as the reasons for easy to beat market belief (Statman, 2014).

Life-Cycle Theories

While wanting for spending is the only reason for saving in standard life-cycle theory; utilitarian, expressive, and emotional benefits of wealth are reasons for saving standard in behavioral life-cycle theory. According to behavioral life-cycle theory, there are cognitive and emotional short-cuts to compromise the differences

between wants for saving and spending. On the contrary, these short-cuts are not incorporated into standard life-cycle theory (Statman, 2019b).

Irrational/Rational/Normal

Standard finance, 1st & 2nd generation of behavioral finance theories are compared according to some basic factors; investor, portfolio, save&spend, expected return, the efficiency of the market, the investor wants, cognitive & emotional errors and cognitive & emotional short-cuts in Table 1. Investor approaches are different for all three theories, stated as rational, irrational and normal respectively. 2nd generation of behavioral finance could be considered as in between standard finance and 1st generation and has a transition role especially in the transformation of cognitive & emotional short-cuts into errors and from an efficient market to an inefficient market.

Table 1: Standard Finance, 1st & 2nd Generation of Behavioral Finance Comparison

	Standard Finance	1 st Generation of Behavioral Finance	2 nd Generation of Behavioral Finance
Investor	rational	irrational	Normal
Portfolio	mean-variance portfolio theory	behavioral portfolio theory	behavioral portfolio theory
save&spend	standard life-cycle theory	behavioral life-cycle theory	behavioral life-cycle theory
expected return	standard asset pricing theory	behavioral asset pricing theory	behavioral asset pricing theory
efficiency of market	efficient	inefficient	not efficient
investor wants	utilitarian benefits	utilitarian, expressive and emotional benefits	utilitarian, expressive and emotional benefits
cognitive & emotional errors, cognitive & emotional short-cuts	non-errors, non-short-cuts	cognitive & emotional errors	cognitive & emotional short-cuts

Statman (1995) describes behavioral finance as a different kind of behavioral model specified for human behaviors including preferences of investors such as cognitive and emotional errors and helping to understand financial structures of new markets, regulations, problems of investors. The first generation of behavioral

finance is established on the definition of “irrational people”. In early times of behavioral finance in 1980, wants of people especially on choosing assets having low risk and high expected returns are accepted as rational provided in standard finance (Statman, 2017).

In the second generation, “normal people” definition is included in the theory. According to the theory, normal people have normal wants. These wants are included benefits of utilitarian, expressive, and emotional and different from errors such as to satisfy the needs of their children and families, to gain respect and social status, to protect from poverty, to stay true to values, to get fairness (Statman, 2017).

Wants are determinant factors for investors and vary. To satisfy wants, cognitive and emotional shortcuts are used to decide shortly. These are known as cognitive and emotional heuristics. Cognitive and emotional shortcuts are thought of as the state changer, they can help to change individual cognitive and emotional state easily in order to alter cognitive complexity and emotional difficulties. The satisfaction of wants includes utilitarian, expressive, and emotional benefits in a full range, costs, and swaps. Utilitarian benefits are about increasing wealth with high returns and low risk, expressive benefits are about being true to our values and status and emotional benefits are about how our decision makes us feel (Statman, 2019a). During the decision process, these shortcuts sometimes turn into errors and distract normal investors from their best decisions. At this time, this transformation becomes very important especially when it is used in financial decisions such as saving and spending actions, evaluating the price of assets and constructing portfolios (Statman, 2019b).

Kahneman (2011) defines two modes of human thinking as System 1 & 2, System 1 is fast, automatic, and effortless and System 2 as slow, controlled, and effortful. System 1 works in order to understand a vast amount of information in a hurry in an unconscious way because it believes it has a limited time. For this reason, System 2 comes up with a better solution, in that process the brain actively takes over the control and consciously make a decision. The above stated cognitive and emotional heuristics and biases are included in Kahneman’s System 1. When System 1 directs us incorrectly, System 2 takes over the control and prevents cognitive and emotional errors. To use cognitive and emotional shortcuts accurately, besides financial knowledge, knowledge of humans is required. Without this knowledge,

because of incorrect usage of shortcuts cognitive and emotional errors become inevitable (Statman, 2019b).

FINANCIAL THERAPY

Financial therapy is a new field exploring the mechanism in between behavioral, cognitive, emotional, economic and financial impacts of financial health including identification, reduction and removing (Britt, Klontz, & Archuleta, 2015). Financial therapy concerns current financial behaviors such as illogical, irresponsible, inconsistent, and self-destructive behaviors that are affected by past attitudes and behaviors. These behaviors are common in researches on behavioral finance, financial planning, consumer finance, family therapy, and psychology. In money-related studies, emotions should be included. In financial therapy, to achieve financial well-being and increase life quality, financial factors, psychological and systematic obstacles are taken into consideration (Archuleta, Burr, Dale, Canale, Danford, Rasure, & Horwitz, 2012). From this aspect, it resembles financial planning as a proactive way and financial counseling as a reactive way (Archuleta, Britt, & Klontz, 2016).

Cognitive Behavioral Financial Therapy

In cognitive-behavioral therapy, there are mutual interactions between thoughts, emotions, and behaviors. These interactions include the transactions from thoughts to emotions, thoughts to behaviors or opposite ways. In order to change behaviors, it could be made the benefit of those interactions. To remove or change money related disorders such as gambling disorder, hoarding disorder, and compulsive buying disorder, Cognitive Behavioral Financial Therapy is used. This therapy is one of the fields of application of Cognitive Behavioral Therapy, the evidenced-based approach includes identifying, interrupting and changing problematic beliefs, behaviors and automatic thought records (Nabeshima & Klontz, 2015). Automatic thoughts or beliefs could be defined as organized patterns created according to threat and loss perceptions recorded in an individual's old experiences. In some cases, automatic thoughts or beliefs could be evaluated as positive or negative according to circumstances or results. At the end of the Cognitive Behavioral Therapy process, mood and behavior improvements are achieved. This general process is applied to money related script logs and problematic money-related scripts are determined, changed or removed. These money related scripts could be

resulted in poor financial consequences and counterproductive financial behaviors (Archuleta et al., 2016). For this reason, financial therapy could be used to reduce financial market anomalies. To predict and to control the irrational financial behaviors is among the aims of behavioral finance. In this therapy, after identifying the problematic financial situation, behavior, and corresponding emotion and associated money script, the cognitive restructuring stage is executed. As a result, irrational financial behavior is changed and well-being in psychological meaning is achieved (Klontz, Kahler, & Klontz, 2008).

Money Scripts

Money scripts are created in early childhood and affected in adulthood and assumed as basic supposals or beliefs about money and money related issues. It is assumed that the source of money scripts is early life financial flashpoint events. Net income, debt, status in early childhood and financial behaviors are found related to money scripts (Klontz, Britt, Mentzer, & Klontz, 2011). These events are money related and powerful in that its effect continues for life-long. Other important characteristics of money scripts are passing through generations and structuring financial behaviors. It is found that financial decision patterns are passing from families to children and hard to change (Cude, Lawrence, Lyons, Metzger, Lejeune, Marks, & Mactmes, 2006). If this kind of pattern is not revealed, the negative effects of financial behaviors increase and become more powerful than before (Horwitz & Klontz, 2013). To reveal underlying beliefs about money and change irrational financial behaviors, the Klontz Money Script Inventory (KMSI) is developed (Klontz & Klontz, 2009). In this inventory, money scripts are allocated in four subcategories as money avoidance, money worship, money status, and money vigilance (Lawson, Klontz, & Britt, 2015).

Money Avoidance

Avoiding to deal with money is the main characteristic of individuals having money avoidance scripts (Lawson et al., 2015). This script either developed or inherited. Money related issues could create unwanted emotions such as anxiety, fear, and disgust. Underspending, overspending, risk aversion, financial rejection, financial dependence, financial denial are the possible financial behaviors might be seen in money avoiders (Klontz & Britt, 2012). Terms of financial rejection, financial dependence, and financial denial will be explained in the money disorders section.

Money Worship

Adopting the idea that happiness is related to having more money is the common belief in people having money worship. Those kinds of people believe that if they work more, they would get more money and money is the main source of showing their love. Their main focus point is an inward value of the accumulation of money. Money dependence, workaholism, and hoarding are common financial behaviors and disorders among them (Klontz & Klontz, 2009). These common financial behaviors could lead to compulsive buying and overspending. It is found that focusing on financial success and giving extra importance to money-related items might be reasons for low-level well-being (Tatzel, 2002).

Money Status

People who suffer from money status scripts believe that their socioeconomic status equals to their money, their self-worth, and net worth is equivalent to their socioeconomic standing. That kind of person has an increased level of anxiety and anxiety-related symptoms. In those people, levels of self-actualization, life satisfaction, vitality, and happiness decrease (Klontz et al., 2011). Displaying their wealth to others is a distinguishing way of the people who have money status scripts. It is found that pathological gambling behaviors could be predicted with money status scripts (Klontz and Britt, 2012). According to those people, success is calculated as the amount of money they have. Overspending and excessive risk-taking are common financial behaviors of them (Lawson et al., 2015).

Money Vigilance

Being diligent, awake and wonder about financial issues are the most important properties of money vigilant investors (Lawson et al., 2015). At first sight, these properties are perceived as positive behaviors. When these are evaluated in a general manner, the probability of those people having gambling and overspending behaviors are less. Money vigilant individuals demonstrate caution and anxiety about money-related activities. They feel that saving money is essential for people. Even, that prefer not to have close relations with others, not to use credit cards and to use cash (Klontz & Britt, 2012).

Money Disorders

Money disorders are financial behaviors lead to anxiety, stress, distress, confusion at high levels (Klontz & Klontz, 2009). Common features of this kind of self-destructive financial behaviors are being permanent, presumable and strong. Individuals having money disorders usually know that these behaviors affecting them in a bad way. Reasons under their behaviors are their tainted beliefs about money, emotional difficulties, and unresolved emotions. Unfortunately, they could not change them by their selves (Gallen, 2002, Klontz & Britt 2012). The money disorders are explained below.

Compulsive buying disorder manifests itself as repetitive and uncontrollable buying behaviors (O'Guinn, & Faber, 1989). It has adverse psychological and financial results such as distress, depression, feeling guilty, conflict, financial debt and legal problems (Billieux, Rochat, Rebetez, & Van der Linden, 2008).

Permanent and repeated gambling activities are defined as gambling disorders (APA, 2013). These behaviors create distress, deterioration in psychology, debt and bankruptcy (Grant, Schreiber, Odlaug, & Kim, 2010).

Working for long hours, excessive attachment and compulsiveness to work, self-absorption in work are common patterns of workaholism. This disorder has some potentials to create psychological, health and financial problems. According to workaholics, it is estimated that financial needs are positively related to the amount of time spent at work (Major, Klein, & Ehrhart, 2002). Workaholism is related to higher income and revolving credits (Klontz et al. 2011). One of the consequences of workaholism is a postponed retired plan (Sussman, 2012).

Hoarding disorder is defined as unhealthy extreme saving behaviors, it could be about objects or money (Klontz & Klontz, 2009). Though saving is useful behavior, it becomes negative when it causes avoidance to spend on necessary basic needs. People who have hoarding behavior might have money-related problems in their family or their early times. Emotional attachment is thought of as one of the reasons for hoarding disorders (Booth, 2006). Thoughts about money-related issues occupy excessive value of place in the brain and this creates cognitive confusion in money hoarders. This mechanism is unlike to general hoarders.

When a person avoids to solve money related problems and tries to minimize that kind of issue, it could be mentioned as a defense mechanism. This defense

mechanism is financial denial. This defense aims to escape financial distress. Disposing of poor performing portfolios is harder for investors than selling doing well ones (Odean & Barber, 1999). These kinds of financial defense behaviors are more common among financial deniers compared to other investors.

Approving money related requests unconditionally or easily is one of the money disorders named financial enabling (Klontz et al., 2008). This is normal behavior could lead to unfavorable financial results (Klontz & Klontz, 2009). Moreover, financial enabler makes an emotional investment. For this reason, this belief creates confusion in money-related activities.

Financial dependence is a feeling when financial support becomes a pattern for a long time for an individual and some unwanted effects could be revealed such as tension, fear, anxiety, anger, resentment (Klontz, Britt, Archuleta, & Klontz, 2012). In those people, financial problems cause tension in their families because of dependency. Low income and low level of education are related to financial dependence. It is estimated that higher childhood socioeconomic status is also linked to financial dependence (Canale, Archuleta, & Klontz, 2015).

Financial rejection is a money disorder that unwillingness to financial activities, avoiding financial costs and getting rid of money and money related activities (Klontz et al., 2012).

To satisfy caregivers' needs, if money is used as a manipulation tool on children, financial enmeshment happens. In that situation, manipulated children have some difficulties when satisfying their own needs. This creates some beliefs about they have inabilities and inadequacies. It is found that financial enmeshment behaviors are more common in high wealth men (Klontz et al., 2012).

Hiddenness and deviousness about money and its related issues remind the existence of financial infidelity. Hiding savings, accounts, financial securities could create trust-related problems when it happens in family kind of close relationships. The probability of having financial infidelity disorder is high among low-level income individuals. (Klontz & Britt, 2012).

Ellis' ABC Model

In behavioral models such as Ellis' ABC model, it is estimated that cognition, emotion, and behavior are the basic important factors influencing each other (Ellis, 1991). In this model, the behavior is a result of the behavioral process stimulated by activating events. These activating events stimulate investors' decision-making processes by influencing their affections and cognitions (Tvede, 2002). Then, these stimuli are filtering according to investors' beliefs. In the end, these activating events resulted in some consequences such as behaviors and attitudes. This model could be explained as a psychological mechanism including stimulant, affection and/or cognition, and behavior and/or attitude.

CHANGING IRRATIONAL FINANCIAL BEHAVIORS

ABC model could be implemented to change irrational financial behaviors and decisions such as changing money scripts and money disorders. To change irrational financial behaviors and decisions, the decision-making process should be explored by the ABC model. In this model finding the core belief and scripts under these behaviors and decisions are very important.

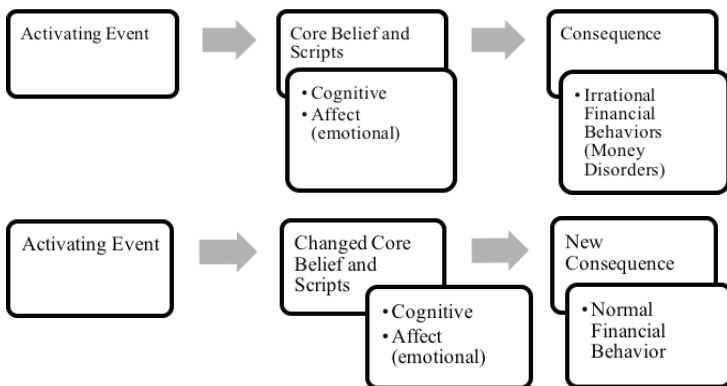


Figure 1: Financial Therapy/ABC Model Application on Behavioral Finance

Figure 1 shows the ABC model application as a financial therapy on behavioral finance. To change money scripts, first of all, KMSI should be applied to individuals. The result of this inventory shows script characteristics of that individual hierarchically.

With the help of results, beliefs under destructive financial behaviors could try to be revealed. After that, the cause-effect relations of financial behaviors are investigated. The most important part of this process is to show individuals how their financial behaviors are affected by their core beliefs and what are the results. In that process, financial planners, therapists or coaches talk about how to change old beliefs and which choices could be preferred as alternative financial behaviors. An individual's participation in the process should be encouraged by using brainstorming activities. At the end of this changing process, old scripts of irrational financial behaviors are replaced by new alternatives and as a result, irrational financial behaviors are changed with the normal ones (Lawson et al., 2015).

CONCLUSION

This chapter is presented a new alternative viewpoint that converging the concepts of 2nd generation of behavioral finance and financial therapy. It is recommended new studies should be structured by successive stages as determining the type of financial behavior and level of behavior according to base of investor rationality, from rational to normal, normal to irrational, evaluating the core belief under the specific financial behavior, applying financial therapy to individual, changing the old financial behavior, measuring the effects of the proposed model in the financial behavior and consequences.

It is believed that this kind of study structured on multidisciplinary approaches could create divergent and compelling perspectives on behavioral finance. With this proposed model, anomalies in financial markets could have a chance to stay in a limited amount, irrationality could be reduced and efficiency is increased. When the study is evaluated in terms of subject, frame, findings, and results, it is thought to be a promising study that may be useful in terms of giving ideas to future studies.

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BANKING SECTOR CONTAGION AND NETWORK ANALYSIS: EVIDENCE FROM G-7 COUNTRIES

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INTRODUCTION

Throughout the era of financialization, both emerging and developed economies have confronted with severe imbalances, whilst the most acute one among them is the 2007-09 financial crisis. The GFC emerged from the US financial system and rapidly spilled to other countries. The literature on the contagion of the financial crisis has gained momentum since then.

Despite numerous attempts on defining contagion both empirically (Bae *et al.*, 2003; Dungey *et al.* 2004, Rodriguez, 2007; Sugihara, 2010; Jaworski and Pitera, 2014) and qualitatively (Calvo and Reinhart, 1996; Claessens *et al.*, 2001; Forbes and Rigobon, 2002; Karolyi, 2003), there is no consensus on contagion. Some studies associate contagion to sudden rise in cross-market correlations following a shock emerged in a component of the financial system (Forbes and Rigobon, 2002), whereas some of the others link contagion to excessive co-movements Pindyck and Rotemberg (1990).

Shocks that emerge in one country could be dispersed via various channels, such as stock markets, exchange rates, trade, sovereign risk, and commodities. In this study, we focus on financial contagion reflecting on the systematic risk of the banking sector for the most advanced economies. In this context; first, we construct high frequency (daily) stress indexes for the banking sector of G-7 countries comprised of banking sector betas calculated by the DCC-GARCH model within the ICAPM framework, the maximum cumulated loss (CMAX) of the banking sector index and the realized volatility of the banking sector index.

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Second, we use high-frequency stress indexes for the banking sectors as inputs and evaluate dynamic connectedness among G-7 countries relied on the spectral representation of the Vector Autoregression model. Frequency-based connectedness captures the financial calm and turmoil periods accurately and robustly. Finally, we exhibit network topologies of directional spillovers around financial stress incidents to detect systematic risk contagion between G-7 countries. Empirical findings of the study underline the importance of monitoring financial stress by employing an effective regulatory framework and using modern risk techniques.

The rest of this chapter is organized as follows: The following two sections review studies that deal with financial contagion and financial connectedness, respectively. Afterward, the next section provides the data and the methodology of the study. Finally, the last section summarizes the main findings of the study.

FINANCIAL CONTAGION

Even though there is no universally accepted definition of the term “financial contagion”, scholars have devoted themselves to the analysis of contagion using various models both quantitatively and qualitatively. The literature has put emphasis on how shock could be spilled and the research field has gained further momentum following the GFC.

In an attempt to define the contagion, the precursor studies used correlation analysis (Lee and Kim, 1993; Calvo and Reinhart, 1996; Baig and Goldfajn, 1999; Masih and Masih, 1997; Ghosh *et al.*, 1999). Contagion is labeled to a rapid rise in correlation according to this strand of literature. Even though the following studies asserted that the correlation analysis suffers from some limitations to comprehend the contagion owing to heteroscedasticity and omitted variable problems (Billio and Pelizzon, 2003). Along similar lines, some studies argue that the correlation analysis is inconclusive to detect contagion due to biased upward correlations during the crises (Forbes and Rigobon, 2002; Bekaert and Harvey, 2005).

It is worth considering to mention studies that investigate financial contagion in terms of co-movements. This strand of literature label contagion to intensified co-movements between financial assets from financial sectors such as equity markets or foreign exchange markets (Johnson and Soenen, 2002; Haque and Kouki, 2010; Kutty, 2010; Lin, 2012; Moore and Wang, 2014; Sui and Sun, 2016) by

employing different econometric methods (DCC-GARCH, Granger causality test, principal component analysis, wavelet analysis).

Nevertheless, the contagion literature is ample, studies that investigate the banking sector contagion is scant and relatively new. Among this strand of literature, Dungey and Gajurel (2015) employ EGARCH and CAPM models to estimate banking sector betas and use betas as inputs in the contagion analysis. Likewise, Poirson and Schmittmann (2013) implement the CAPM framework to detect contagion that stemmed from banking sectors for 21 countries.

Furthermore, some studies detect contagion by using dynamic betas. For example, Wongswan (2003) analyze equity market contagion by implementing the R-GARCH model that relied on the CAPM. Engle *et al.* (2015) estimate dynamic betas of banking sectors by employing DCC-GARCH and detect contagion across Europe by implementing the t-copula model.

Additionally, the recent literature puts emphasis on the dynamic nature of the contagion. In doing so, the studies implement various econometric models such as DCC-GARCH (Chiang *et al.*, 2007; Celik, 2012; Hemche *et al.*, 2016), VAR (Favero and Giavazzi, 2002; Ang and Longstaff, 2013; Samarakoon, 2011; Boubaker *et al.*, 2015), copulas (Aloui *et al.*, 2012), logit-probit models (Luchtenberg and Vu, 2015; Dungey and Gajurel, 2015).

FINANCIAL CONNECTEDNESS

The literature is curious on how financial markets are connected and focuses on financial connectedness during financial calm and turmoil periods. In an attempt to gauge financial connectedness, a pioneer study computes spillovers (total, directional, net) among financial markets by employing a N -variable VAR model based on H -step ahead generalized forecast decompositions (Diebold and Yilmaz, 2009). Diebold and Yilmaz (2012, 2014 and 2015) estimate connectedness between various financial markets by employing the D-Y methodology².

By employing the D-Y methodology, scholars estimate spillovers among financial markets such as currency markets (Bubák *et al.*, 2011; Antonakakis, 2012; Baruník *et al.*, 2016), equity markets (Fujiwara and Takahashi, 2012; Cipollini *et al.*, 2013;

2 See <http://financialconnectedness.org>.

Tsai, 2014; Guimarães and Hong, 2016; Polat, 2018), bond markets (Antonakakis and Vergos, 2013; Bostanci and Yilmaz, 2015).

Additionally, Baruník and Křehlík (2018) specify connectedness within different time intervals (short, medium and long) relied on the spectral representation of VAR approximation. This novel approach is superior to conventional network measurements and the D-Y approach since the proposed approach provides spillovers within different frequency bands rather than an overall spillover obtained by a static model, and ensures the variance decompositions invariant to VAR orderings.

DATA AND METHODOLOGY

Our data set is comprised of stock market indices, risk-free rates, and banking sector indices for G7 countries over the 2004, April and 2018, December period. All data are collected from the Bloomberg database. We compute dynamic betas by employing DCC-GARCH within the framework of ICAPM. We follow Polat and Ozkan (2019) to compute the maximum cumulated loss over 2 years for the banking sector. The realized volatility of the banking sector index is identified by implementing the GARCH(1,1) model. Afterward, we construct high-frequency stress indexes for the banking sectors of G-7 countries by employing the PCA³. Finally, we estimate connectedness between banking sectors for G-7 countries by implementing the frequency connectedness approach of Baruník and Křehlík (2018).

FREQUENCY CONNECTEDNESS APPROACH

“The frequency connectedness methodology is based on the spectral representation of a VAR model of order p . In the model, the share of each variable x_i , $i = 1, \dots, N$ is built by the shocks to variable \hat{j} are put in for all $j \neq i$ ” (Baruník and Křehlík (2018, 275). The VAR model is described as follows:

$$x_t = \sum_{i=1}^q \Phi_i x_{t-i} + \varepsilon_t \quad (1)$$

where x_t is the $N \times 1$ vector of assets, ε_t , is $N \times 1$ vector of i.i.d. error terms with $\varepsilon_t \sim N(0, \Pi)$.

3 The PCA results and the methodology for constructing high-frequency stress indexes for the banking sectors are available upon request.

The MA representation of VAR is given below:

$$x_t = \Psi(L)\varepsilon_t \quad (2)$$

where $\Psi(L)$ can be computed recursively from $\Phi(L) = [\Psi(L)]^{-1}$.

Then, Baruník and Křehlík (2018, 276) define “frequency response function $\Psi(e^{-i\omega}) = \sum_h e^{-i\omega h} \Psi_h$ which is derived as a Fourier transform of the coefficients Ψ_h ”.

Baruník and Křehlík (2018, 276) define “the spectral density of x_t at frequency ω as a Fourier transform of $MA(\infty)$ filtered series” as:

$$S_X(\omega) = \sum_{h=-\infty}^{\infty} E(x_t x_{t-h}') e^{-i\omega h} = \Psi(e^{-i\omega}) \Psi'(e^{+i\omega}) \quad (3)$$

According to Baruník and Křehlík (2018: 276), “the generalized causation spectrum over frequencies $\omega \in (-\pi, \pi)$ ” is:

$$\tau(\omega)_{j,k} = \frac{\sigma_{kk}^{-1} |\Psi(e^{-i\omega})_{j,k}|^2}{(\Psi(e^{-i\omega}) \Psi'(e^{+i\omega}))_{jj}} \quad (4)$$

$$\text{Where } \Psi(e^{-i\omega}) = \sum_h e^{-i\omega h} \Psi_h$$

Baruník and Křehlík (2018, 278) define “Scaled generalized variance decompositions on the frequency band $d = (a, b): a, b \in (-\pi, \pi), a < b$ ” as

$$\text{as } \left(\dot{\theta}_d \right)_{j,k} = (\theta_d)_{j,k} / \sum_k (\theta_\infty)_{j,k}.$$

Baruník and Křehlík (2018, 278) introduce “The within connectedness on the frequency band d ” and “the frequency connectedness on the frequency band” in (5) and (6), respectively.

$$C_d^w = 100. \left(1 - \frac{\text{Tr}(\dot{\theta}_d)}{\sum \theta_d} \right) \quad (5)$$

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$$C_d^f = 100 \cdot \left(\frac{\frac{\sum \dot{\theta}_d}{\sum \dot{\theta}_o} - \frac{Tr \left(\dot{\theta}_d \right)}{\sum \dot{\theta}_o}}{\frac{\sum \dot{\theta}_d}{\sum \dot{\theta}_o}} \right) = C_d^w \frac{\sum \dot{\theta}_d}{\sum \dot{\theta}_o} \quad (6)$$

EMPIRICAL RESULTS

Figure 1 exhibits dynamics of banking sector indexes for G-7 countries obtained by the PCA over the 2004/9/06-2018/12/05 period.

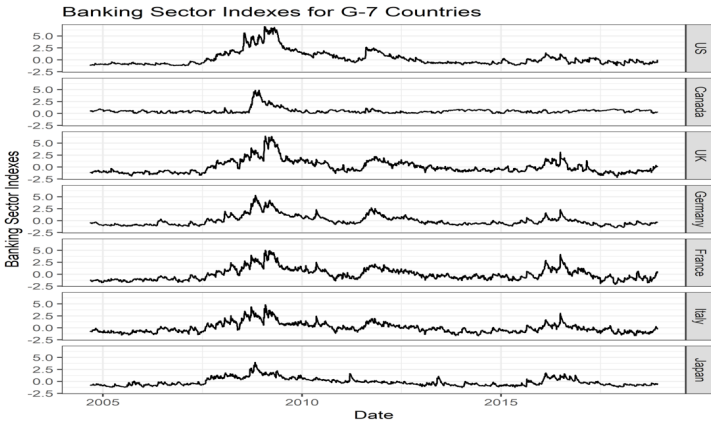


Figure 1. *Dynamics of Banking Sector Indexes for G-7 Countries*

As seen in Figure 1, all banking sector indexes create proper signs to prominent financial stress events. Sharing a common pattern, the indexes significantly surge during the GFC and reach their peak values. The banking sector indexes for the EU states in the sample soar during the European Sovereign Debt Crisis and surpass their average levels around the Brexit referendum.

Next, we identify connectedness among banking sector indexes by employing frequency connectedness approach. We compute frequency connectedness for 100-day-ahead forecasts in the VAR model⁴ in 200-day rolling window on the band $(\pi, \pi/4)$. Figure 2 depicts overall spillovers on band $(\pi, \pi/4)$ with prominent financial stress events.

⁴ The optimal lag for the VAR model is selected as 3 based on the AIC and the FPE.

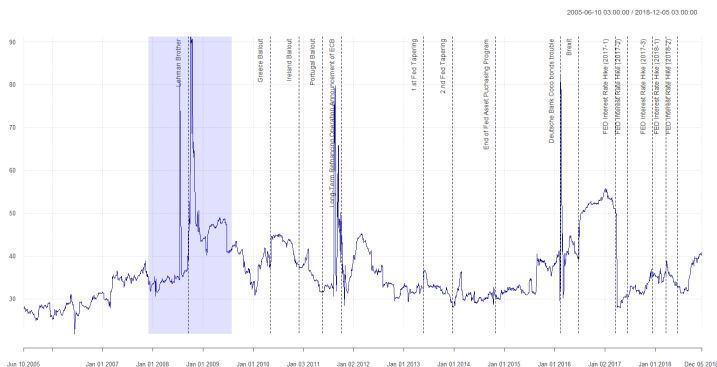


Figure 2. Overall Spillovers on 3.14 to 0.79.

As shown in Figure 2, the maximum value appears during the GFC (October 03, 2008) just before the Lehman Brother's collapse. Overall spillover index slightly drops following the Greek bailout and gradually surges with the LTRO announcement of the ECB. The index mildly elevates following the first and the second taperings of the FED. The index skyrockets around coco ("contingent convertible") bonds trouble of Deutsche Bank and the Brexit entails jumps in overall spillover index. The index dampens to its average levels starting from the first quarter of 2017.

CONCLUSION

In this study, we examine financial contagion and connectedness between banking sectors of G-7 countries by implementing frequency connectedness approach of Baruník and Křehlík (2018). In this respect; first, we construct high-frequency banking sector indexes for G-7 countries by employing the PCA analysis, using dynamic betas estimated by the DCC-GARCH model, CMAX and the realized volatilities for the banking sector indices for G-7 countries. Second, we identify frequency connectedness of for 100-day-ahead forecasts in the VAR model in 200-day rolling window on the band $(\pi, \pi/4)$.

Dynamics of banking sector indexes reveal that all indexes accurately capture financial tranquil and turmoil periods. Sharing a common pattern, the banking sector indexes reach their peak values during the GFC. Furthermore, the indexes soar during the ESDC and around the Brexit referendum.

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Overall connectedness between banking sector indexes indicate that the index robustly captures well-known financial stress events. The index remarkably surges during financial turmoil periods and captures prominent financial distress events such as Lehman Brother, Greek bailout, LTRO announcement of the ECB, coco bonds trouble of Deutsche Bank and the Brexit referendum.

This study has important policy suggestions. First, authorities need to constitute an efficient regulatory structure to monitor banking sector. In doing so, they are able to build a robust financial sector, in which the risk of contagion can be minimized. Second, the policymakers need to analyze and monitor financial contagion regularly by applying modern risk techniques. In this context, stress tests and machine learning tools could be helpful. Finally, the contagion through other financial sectors such as equity and currency markets need to be analyzed thoroughly.

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FUNDING AND FUND UTILIZATION METHODS OF PARTICIPATION BANKS

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INTRODUCTION

Bank deposits are usually collected through commercial banks within the financial system in Turkey. Participation banks are also one of the institutions which collect deposits within the financial system. Conventional banks and participation banks become the most crucial intermediary institutions of the financial system by lending loans to those with fund deficits out of deposits collected from those with excess funds in the economy (Çağlarırnak Uslu, 2012, p. 14-15). Located in Turkey as well as all around the World with steady growth, participation banks are very important funding sources. Participation banks reserve distinct means of collecting such funds. Participation banks obtain these funds through private current accounts, participation accounts, and some interest-free financing options.

The utilization of funds in participation banks, in other words, credit originates from the Latin term “*credere*” meaning trust, respect, and belief. The practice of giving credit to any person on behalf of him/her or accepting to give him/her money on condition that he/she receives the money later or the application to guarantee a service to be purchased, to guarantee the fulfillment of a service to be performed is defined as opening a loan (Parasız, 2011: 191). It is possible to perform all commercial transactions with the funds of participation banks. The basic constraint in the structure of these institutions is to avoid interest for religious purposes and not to involve in interest (Battal, 1999: 187). In this sense, they provide fund utilization differently than conventional banks. If they gain revenues out of the fund utilization, these funds are called production loans. In the loans extended, instead of a creditor/debtor relationship, the participation bank acts as a partner with the individuals or institutions utilizing the loan. The participation

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bank receives its share from the profit to be obtained due to its partnership with the people utilizing the funds. Since the participation bank is the seller of the goods it sells, it designates the profit margin on the price of goods to be sold at the rate they agree on and this constitutes the profit of the participation bank. The profit obtained is shared with the customers who provide funds to the bank commensurate with the rates agreed on the date when the fund is deposited in the bank (Özsoy, 2012: 64). The viewpoint of Muslims on interest is that it is forbidden not only to receive interest, but it is also forbidden to pay interest. For this reason, people who have interest sensitivity and request funds prefer participation banks to avoid receiving/paying interests. In this study, funding and utilization methods of participation banks are considered.

FUNDING METHODS OF PARTICIPATION BANKS

Private Current Accounts

Current accounts, known as drawing accounts, are accounts that can be opened by both real and legal entities that allow deposits and withdrawals on demand and do not provide any monetary return to the account holder (Ata, Buğan, & Çiğdem, 2016, p. 19). These accounts are also known as demand accounts in conventional banks. Demand deposit refers to the money deposited into the bank by the institution or individuals and can be withdrawn by the depositor upon request (Karaşin, 2009, p. 141). They are utilized to store money for commercial enterprises, control the payments and receivables of the businesses, and use other banking services with the bank's money. For individual customers, these accounts serve to keep money safe. Almost 20% of the funds collected by the participation banks are gathered under the current accounts in Turkey (Şağbanşua to 2016, p. 42). Participation banks accept the deposit collected from their customers as debt via this account. In conventional banks, a small amount of interest can be deposited into demand accounts, whereas no interest is accrued through deposit collected by participation banks (Ustaoglu, 2014: 44). There are two opinions about these accounts in participation banks: *Qard al-Hasan* (benevolent loan) and safe custody. According to the *Qard al-Hasan* (benevolent loan) view, since the bank makes use of the deposits deposited by the customers as interest-free debt, the bank can utilize the deposit as desired without obtaining permission from the customer, and since the bank does not reflect anything to the customer in case of loss or profit is merely responsible for the principal. On the other hand,

according to the safe custody view, the deposited money in the bank cannot be used without the consent of the customer, and the owner of the account must give his/her permission for the use of the account (Şahin, 2007, p. 52). With these accounts, the bank can generate gain as well as loss. Nonetheless, account owners do not incur this loss. In summary, the profit or loss stemming from the operation of these accounts are under the responsibility of the participation bank. Customers holding current accounts do not participate in losses or gains (Aktepe, 2010, p.72). Although the bank does not pay any revenues or earnings to the customer in the current accounts, it gains revenue by utilizing the current accounts. Therefore, current accounts are important items in participation banks as well as in conventional banks. Current accounts share common features such as no interest, no restriction on the number and amount of deposits and no payable returns to the bank customers.

Participation Accounts

Although it resembles the time deposit accounts in conventional banks in terms of its form, the operation of the account is completely different from the time deposit accounts. In this regard, it is defined as “accounts created by funds that result in the participation of profit or loss arising from the utilization of funds deposited in participation banks by these institutions, and in return, the account holder is not paid any pre-determined return and the money is not guaranteed to be repaid in exact amount” (Banking Law, 2005). Participation accounts refer to as, in general, the types of accounts that have profit/loss partnership between participation banks and their customers. They do not promise the account holder any predetermined and guaranteed yield, not even the principal amount. The most basic feature of participation banks that distinguish participation accounts from interest-bearing accounts of other banks is that they do not have a certain return commitment. The individual who opens the participation account by depositing his/her savings in the participation bank cannot have any idea about the amount of the profit share he/she will receive at the end of the maturity (Bayındır, 2005, p.57). The probability of incurring a loss from this transaction approximates to zero since the experts who manage the funds linked to the participation accounts act sensitively as much as possible while utilizing these funds (Aktepe, 2010, p.72-74). In these account types, there is a lower limit application determined by banks. When customers apply to participation banks to gain returns at certain periods, they are provided with the latest information on the dividend rates distributed at the

time. Participation accounts are the most important credit sources of participation banks (Kalav, 2014, p. 37). Shares entitled by participation banks from profit or loss arising from participation accounts are determined by legal regulations. If the bank makes profits at the end of the due date, the determined share is allocated between the bank and the customer (Babuşcu and Hazar, 2017, p. 180).

These accounts can be opened in Turkish lira, as well as US Dollar, Euro, and precious metals. Features of participation accounts are as follows;

Funds operated by the participation bank are distributed to the customer as profit or loss.

Since the profit or loss cannot be determined in advance, the return of the deposit cannot be known.

Yield can only be known at the maturity date.

The principal amount cannot be assured since it is a profit/loss partnership.

***Sukuk* (Islamic Bond)**

Sukuk has been recognized as an Islamic financial instrument in the realm of participation banks. In participation banks, many financial instruments have restrictions due to interest sensitivity. *Sukuk* has been issued to eliminate these restrictions especially in financial leasing products and to offer the securities model in the medium- or long-term to those with such sensitivity. The share of *Sukuk* in banking assets and funds in participation banks is 15% (Anderson, 2014, p.1). *Sukuk* differs in terms of the revenue it provides to its investors from traditional financial instruments (Alpaslan, 2014, p.16). *Sukuk* indicates the right to benefit from or possess an asset (Yardımoğlu, Ayrıçay & Coşkun, 2014, p.159).

Freely traded *Sukuk*, in general, covers not only cash flows and liquidity, but also the right of ownership and the right of benefit. This basic difference distinguishes *Sukuk* from other debt instruments and bonds. While bonds are borrowing instruments with a certain interest and maturity, *Sukuk* holders have the right to full savings on assets (Aktaş, 2017, p. 4; Kasımoğlu, Yetgin, and Küçükçolak, 2018, p. 8). There are various *Sukuk* according to their field of use. These *Sukuks* are as follows (Bilen, 2016, p.257-258; Dede, 2017, p.48- 49);

Sukuk Istisna' (Manufacturing Sale): These are the certificates of equal value and distributed by the certificate holders for the manufacturing of products.

Sukuk Salam (Forward Sale): *Salam* is to make payment for a good that will be purchased in the future. In other words, it is the purchase of goods with advance payment. This *Sukuk* type is used to activate *salam* capital. Basically, the goods to be delivered become the property of the certificate holders.

Sukuk Musharakah: The *Sukuk* type called *Musharakah* is used to create a new project or to mobilize the funds in order to advance the existing project or to obtain commercial finance through a partnership agreement. In fact, there is not much difference between the law of the *Mudarabah*. The only difference involves the relationship between the certificate holder and the issuer.

Sukuk Murabahah (Mark-up Sale): The organization that issues this type of certificate becomes a *Murabahah* seller. The recipient of the certificate is the *Murabahah* buyer. *Murabahah* owners have the right to set the price when it comes to the resale of the property.

Ijarah Sukuk: In this *Sukuk* type, the certificate holder is granted ownership of the property. It also gives the right to receive its rent. It also gives the opportunity to dispose of the lessor's rights in an unaffected way.

Other Funding Methods

Equity capital is one of the funding methods besides the participation banks' private current accounts and participation accounts. Sometimes the funding of various projects can be financed from the bank's equity. Another funding method is syndication loans consisting of foreign *Murabahah* (Gönen, 2017, p.40).

FUNDING METHODS OF PARTICIPATION BANKS

Murabahah (Corporate Finance Support)

Regarding corporate finance support in the Regulation on Banks' Credit Transactions (2006); "Within the contract to be concluded between the participation bank and the entity that will utilize the fund, a copy of the document regarding the purchase and sale of the document related to the funds to be used by this method, provided that all the commodity, securities, real estate, rights and services required

by the business is paid to the seller and kept by the participation bank (BRSA, 2006). It is important to note that the payment will be paid to the person or organization that offers goods or services to the business, and not to the company using the fund. In corporate finance support, critical details such as the cash price of the material to be purchased, the quality of the material and the vendor can be determined by the customer. In the “*Murabahah*” method, the product is sold with the addition of a profit agreed with the buyer on the cost price to the institution. The company purchases the apparent property on behalf of the customer, pays the price to the seller, and sells it to the customer at the agreed maturity and price (Bilgili and Demirkapı, 2016: 82).

In this application; the firm itself can determine the properties of the goods to be purchased (cash price, the goods to be purchased, the quality of the goods) by the firm that will utilize the funding. As a result of the transaction, sales are realized at the maturity determined between the bank and the customer using the fund. The bank purchases the goods on behalf of the customer and pays the price of goods to the seller. While the cost of the sold product remains fixed, it can be borrowed in foreign currency, thus flexible payment advantage is attained, hence the import cost is included in the cost of the purchased goods (Kaya, 2013: 54).

Individual Financing Support

These are the funds utilized by participation banks for individual customers. With this funding, bank customers can be provided with funds in many areas such as housing, vehicle, education, pilgrimage, umrah, health, marriage, vacation and so on. In this method, which is used to meet the individual needs of the customers, the participation bank pays the price of the goods to be purchased directly to the seller and re-adds a profit to the customer in term (Bilgili, Demirkapı, 2016: 85).

In this type of financing, the goods or services to be purchased must be determined, as in all participation bank loans. For instance; an individual customer who wishes to purchase a house applies to the participation bank. The housing that will be allocated to the customer is purchased after the necessary examinations are made by negotiating with the owner. At the time of this purchase, the customer who purchases the house is contacted and the participation banks receive a power of attorney for the house in order for the applications to be suitable. After this power of attorney, the bank purchases the relevant property from the owner, and after

the completion of the purchase, it completes the necessary sales transactions to the customer who will purchase the house since the bank has to profit from this trade. This example alone can act as an indication of other loans to be extended. There is absolutely no practice of the participation banks such as lending cash to the customer, meeting the cash needs by lending cash. The customers are obligated to notify their needs by a document of proforma indicating price, model, etc. Then, the bank can help the customer in meeting their needs (Özen, 2019, p. 37).

Financial Leasing

Financial leasing, which is also signed with the customer, includes the provision of products or services according to the leasing contract. Throughout this process, the legal owner of the property or the finance company rents the property, but the owner continues to own the property for the duration of the lease. It is also possible to agree on the transfer of the property to the lessee at the end of the contract (Döndüren, 1993, p.115). As a rule, the lease agreement must be established on an asset or operating control (interest) owned by the lessor. However, the customer requests the lease from the interest-free financial institution and demands that the interest-free financial institution purchase or obtain the operating control of the asset (AAOIFI, 2017, p. 238).

Advantages of financial leasing for the lessee (Albaraka Türk Participation Bank, 2017);

Since the financial leasing company finances the entire investment amount, there is no cash outflow from the lessee.

The lessees can make cash management easier.

The lessee enjoys the asymmetric information of the leasing company.

If more than one supplier is involved, the lease is signed under a single contract

It provides the opportunity to borrow in USD and EUR in addition to the Turkish Lira in the medium and long term.

Installment payments do not vary throughout the lease contract

Provides VAT benefits

A payment plan is made in accordance with the lessee's request.

The amount that is paid to the bank as the dividend is tax-deductible with the invoices issued.

Many goods can be financed through financial leasing. These are land and air vehicles, construction equipment, sea vehicles, tankers, agricultural machinery, CNC machines, optical devices, computing devices, power plants, cranes, textile, printing house, construction and production machinery, medical equipment, production, complete factory, hospital, hotel, computers, office equipment, and communication equipment (Fider, 2017).

There are different types of applicable leasing as follows (Özen, 2019, p. 40):

Leasing Ended with Purchase: In this type of contract, the lessee will purchase the leased asset at the end of the period. Moreover, the lessee may possess the asset through a unilateral contract. The price of the asset is decided according to the market value at that time.

Operational Leasing: There is no purchase at the end of this lease type. The lessee can only use the property during the leasing period.

Future Leasing: This type of contract is a forward-looking lease model. As can be understood from the sentence, it is a model in which the terms of the lease contract are predetermined for the future.

Mudarabah (Labor-Capital Partnership)

It involves a profit partnership based on labor and capital sharing. It is an interest-free funding method used by participation banks as a method of bringing inactive funds to the economy by getting the individuals and parties that have the savings but not the experience or ability to use such savings, and the individuals and parties with the necessary equipment and experience, but who are deprived of the necessary capital together (Kallek, 2005, p. 359). In this model, participation banks are the party that manages the capital and carries out these cash funding transactions through its own investment banking (Abdul-Rahman, 2015, p.167).

There are two parties in this system. On the one hand, there is an entrepreneur who is an expert in the business with the ability to best utilize his/her capital, and on the other hand, there is a bank that can support this expert entrepreneur in terms of capital and money. There is a profit and loss partnership between two parties. According to the signed contract, both parties are entitled to their shares of the profit. The entrepreneur takes the profit of his labor, whereas the capital owner, the bank, receives some of the profit arising from labor. In other words, the bank can intervene only by investing its own capital. In this case, as mentioned, the profit that is likely to be earned is agreed on with the parties at certain ratios (Terzi, 2013: 62). Once the parties agree on a general framework agreement or a memorandum of understanding, they agree on specific and successive *Mudarabah* agreements and implement it later (AAOIFI, 2017, p.366).

Mudarabah, in other words, venture capital, is a funding method that has been widely used since the 1970s, especially for the funding of the latest technological inventions in the USA. The emergence of the method called Venture Capital: Following the 1950s, the scientists in the United States and some developed countries utilized their inventions (with patent rights) by establishing a joint venture (labor/capital partnership) instead of selling them for money. By constantly developing the projects of the inventive scientist such as the engine, computer, white goods, electronic device, computer program, the scientists undertook the labor side in the partnership and the capital owners were in the capital side in this partnership. Thus, this model has become a very important financial model that develops and supports high technology in countries such as the USA, Canada, England, Germany, and Japan (Döndüren, 2008, p. 10-11). According to the conditions of *Mudarabah* partnership (Tabakoğlu, 2013, p. 349), it is imperative that the capital is money, the capital is delivered to the person who will supply the labor at the time of the contract, and the rate of profit to be distributed is determined proportionally.

Participation banking is usually based on partnership principles. Since labor and capital are included into this system as partners, it has developed an Islamic economic morality that combines material values and spiritual merits. With the application of *Mudarabah*, the principles of such economic morality would inflict its impact (Mannan, 1980, p. 315).

***Musharakah* (Profit-Loss Partnership)**

Musharakah means being the partner of business by joining at the capital of a business. By investing the capital more or less, the parties would determine the rates of the probable profit that will arise, via *Musharakah* contracts. It refers to the partnership of two or more people aiming at trading and splitting the profit, where all parties are partnered with a certain amount of capital or both capital and labor, and the division of net profit is based on free contracts (Bayındır, 2004, p. 67; Bakkal, 2016: 14): This method is a full partnership in which the labor and capital of each party are put forward. Since the capital and labor are actively put out in *Musharakah*, there is a full partnership. The functioning of *Musharakah* financing (Bulut and Er, 2012, p. 151-152):

Participation banks and entrepreneurs conduct studies on their businesses and invest capital on the profit rates they agree on.

After the partnership is established, they manage the activities of the enterprise according to the terms of the agreement.

If the activities yield profit, it is shared by the bank and the entrepreneur at predetermined rates.

If the activity incurs a loss, the loss is shared between the bank and the entrepreneur according to the capital rates they invested.

The funds extended by participation banks with this method cover less than 10% of the total extended funds (Canbaz, 2014, p. 223). The main difference between *Musharakah* and *Mudarabah* involves the fact that the loss is shared between two partners in *Musharakah*, whereas in *Mudarabah* the entire loss is incurred by one of the partners, namely, the participation bank. Nevertheless, the partner who provides the capital in *Musharakah*, but does not interfere with the management, can ensure that certain conditions are desired in the contract (Bakkal, 2016: 14).

***Salam* (Forward Sale)**

It is the process of individuals or institutions that have difficulty in finding the cash to meet the cash requirement by selling the goods in cash on the condition of delivering a specified product in a certain term (Aktepe, 2010, p. 61). With this contract, the seller promises to supply a certain good at a future date. The delivery of the purchased goods would be deferred when the price is fully paid in advance (Usmani, 1998, p. 128). It is a funding method used by enterprises to provide production capital. The bank purchases the product to be produced by paying the price in advance. The price agreed on should not exceed the market price of the goods at the time of the agreement. The bank cannot sell the products unless they are in physical possession of the goods. The duration of these transactions is generally either up to or less than a year (Ahmad, 1993, p. 57; Bayındır, 2007). Conditions for making *Salam* contract (Usmani, 1998):

Payment must be made to the seller in advance at the time of effecting the sale. Only those goods whose quality and quantity can be specified would be sold. Everything about product quality should be clearly stated. For example, precious stones cannot be sold with *salam* contract. Because their size, weight, and quality cannot be determined precisely.

Salam cannot be effected on a designated good or a commodity. For example, if the seller promises to supply the crop of a particular field or fruits of a particular tree, *salam* contract would not be valid since there is a change that the crop of that field or the fruits of that tree may have been destroyed. The same rule applies to any good the supply of which is uncertain.

Delivery place and date must be specified in the contract.

***Istisna'* (Order-Based Sales)**

Istisna' is a sale contract in which the price is finalized and the goods to be manufactured or constructed are made according to accepted conditions. In other words, it is a form of contract that allows the delivery of the goods at a later time by paying money in advance or in installments for production. The assets to be purchased must be a commodity that can be manufactured or constructed. In *Istisna'*, the participation bank issues two contracts, one with its customer and the other with the manufacturer. Payments to be made by the bank to the manufacturer or

the customer who purchases the goods can be paid in installments or in advance. Participation banks in Turkey generally use this method in residential projects. The long-term funding nature of *Istisna'* is one of the main problems faced by participation banks. Conventional banks provide long-term funding by securitizing their housing financing, whereas participation banks provide long-term funding by converting this transaction into a lease certificate combined with a forward lease arrangement (Çetin, 2017, p. 120-121). *Istisna'* contracts can be terminated prior to the production of the commodity (BRSA, PBAT, 2014, p. 41).

Istisna' differ from *Salam* in terms of the fact that the date of delivery of the goods is not certain and there is no condition to pay the price of the goods in advance. In practice, the customer enters the order for the asset to the participation bank, and the participation bank transmits this order to the manufacturer. If the assets/goods are not manufactured/constructed or the desired product is not realized, the customer notifies the bank and the bank notifies the manufacturer. In such a case, the bank may apply to procure the product from another manufacturer (Bayındır, 2007, p. 261). *Istisna'* application is mostly used in funding the construction of buildings, warehouses, shopping centers, especially in the construction industry. The prepayment is made by the bank to the construction company before the construction is commenced, and the purchaser is expected to make installment payments within a certain term. In fact, *Istisna'* application is combined with the leasing model after a while (Özen, 2019, p.43).

Teverruk

It is a method used by participation banks to make use of idle funds (Yeşilyaprak, 2012, p. 37). It is the process of selling the goods purchased forward in cash at a price lower than its value. It is a disposition of funds methods used by participation banks only for customers in distress (Yurtadur ve Yıldız, 2017, p. 15). In the event that the loans extended by the participation banks to their customers are not paid on time or cannot be repaid in the exact amount, it is the purchase/sale transaction that is compulsorily applied to these customers. It is a product that is used to minimize the loss of the bank by restructuring the loan extended in return for the customer in default due to the credit debt. The aim here is to give the customer, who has a problem in payment, instead of legal follow-up, an opportunity to pay the debt by restructuring the existing credit debt. In order to perform this transaction, there is a need for a commodity to

be traded (Dede, 2017, p. 123). The functioning of the *Teverruk* system is as follows (Aktepe, 2010, p. 99);

The customer who has difficulty in repaying the loan; notifies the bank regarding the difficulty in payment under current conditions. The Bank proposes to the customer that the transfer procedure can be made after making the necessary examinations based on the customer's situation. If the customer approves of the transaction, the transaction would commence.

Following the approval of customers, the participation bank purchases precious metal on commodity exchanges at the amount up to the customer's current loan (participation banks in Turkey usually serves *Teverruk* on the London Metal Exchange).

The precious metal purchased on behalf of the credit customer is sold to a different person other than the seller immediately after purchasing on the same exchange.

The purchased precious metal is sold to the credit customer in installments with cost-plus profit. (The sale here is in the form of improving the existing credit line. In other words, the installments of the credit that the customer has had payment difficulties have been reduced, the maturity has been extended or both the installment and the maturity improvement have been made).

***Qard al-Hasan* (Benevolent Loan)**

Qard al-Hasan is the withdrawal of the loaned money in the same exact amount without the benefit or income expectation of the participation bank (Çetin, 2017, p. 122). *Qard al-Hasan* means to lend money without interest, and it was intended to be used as an alternative to interest (Gürsoy, 2011, p. 21). *Qard al-Hasan*, which can be used by participation banks, is an indicator of the social side of these banks (Güngör, 2009, p. 238). With *Qard al-Hasan*, which is used individually and institutionally, bank customers have the opportunity to meet their needs in accordance with the working principles of the bank. In this fund allocation method, which is paid in installments, the bank provides convenience since there is no income expectation from the customer. If the customer fails to repay or cannot repay the loan, the bank can offset it from the *zakat* fund (Aktepe, 2010, p. 55).

Conventional banks offer cash deposits for their customers via their overdraft accounts and debtor current accounts. Participation banks, on the other hand, try to meet their customers' interest-free the needs with *Qard al-Hasan* to meet the urgent cash needs of their customers (Çetin, 2017, p. 122). *Qard al-Hasan* is used by participation banks for social purposes such as; marriage, education, illness, and disbursements such as loans extended to support small industrial enterprises for production in two ways (Aktepe, 2010, p. 55). Due to the fact that participation banks are established for profit, the use of *Qard al-Hasan* is quite limited (Şağbaşı, 2016, p. 42).

Financing Commodity Against Documents

“It is the process of utilizing funds in return for commodities against documents within a written contract between the participation bank and the fund user” (BRSA, 2006, p. 19). Within the scope of a foreign trade and foreign exchange legislation, it is based on an agreement between the participation banks and the real/legal person using the funds, the purchase of the commodity against documents and the sale by the participation bank and selling it to the fund user at a higher price. In the funding made possible with this method, a loan is borrowed upon submission of the documents representing a good (Yılmaz, 2010, p.30). Participation banks' credit allocation approach for the purchase and sale of goods in advance requires the participation bank to be active during the purchase phase of the goods. No loan can be extended by the participation bank after the phase of import/export of the goods. This method can be used in a functional way after the participation banks are transformed into a form that complies with the working rules (Yahşi, 2014, p. 44).

CONCLUSION

Participation banks offer the services provided by conventional banks as interest-free, based on Islamic rules. Participation banks in Turkey and the rest of the world, are very important funding providers for fund users. There are distinct methods to be used by participation banks in collecting these funds. Participation banks are able to obtain these funds through various interest-free funding options such as private current accounts, participation accounts, and loans, etc.

Participation banks extend these funds they collect in accordance with the customers who expect to utilize them. Funding transactions in participation banks are conducted in accordance with interest-free financial methods. No matter how diversified the products and services in the participation banks are, the main methodology in the system infrastructure is interest-free, although it offers continuous innovation to its customers. Upon considering the names of the funding methods, the concepts of Arabic origin emerge since they are based on Islamic law. In practice, it is thought that it would be a more accurate approach to utilize the provisions used in conventional banking in order for the bank customers to understand these concepts and choose the right method. Furthermore, it is considered that individuals and institutions with Islamic sensitivities would analyze the methods of fundraising and utilization of participation banks accurately and choose the right methods that correspond to their needs will help to achieve financial stability and success.

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18

VOLATILITY TRANSMISSION MODEL USING DCC-GARCH REPRESENTATION

Yakup ARI¹

INTRODUCTION

The growth in the world economy and the increase in trade cause financial products to affect each other in international markets. Because of globalization, integrated markets emerged and common movements in asset prices were observed in these markets. The volatility of financial assets traded in different markets and the shock changes in their prices affect each other. Changes in the prices of financial assets and volatility caused by the changes may cause changes and volatility in the prices of the assets traded in another market. The measurement and analysis of the interconnection or linkage between these markets are becoming an important issue for international finance and asset pricing. Particularly, it is important to model the fluctuations that affect the returns of assets traded in stock markets by estimating second moments. In this case, the nonlinear, stochastic volatility model or conditional variance models play an important role, and these models are assumed as the basis of volatility transmission. Moreover, the volatility transmission process has importance since their determinant consequences on monetary policy and asset valuation. Another feature of these models is that they are very successful in modelling and estimating big data with high frequency.

There are various methodologies and models for analyzing the reciprocal relationship between financial markets in the literature. However, these methods can be summed up under six main titles, which are cross-correlations, VAR and VARMA models, cointegration analysis (Johansen Cointegration, ARDL model), GARCH model and its dozens of extensions, Regime Switching models and Stochastic Volatility Models. This chapter will be focused on multivariate GARCH (M-GARCH) which are extensions of univariate GARCH model.

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The ARCH model (Engle, 1982), the groundbreaking work of the Nobel Prize-laureate Engle on conditional variance, forms the basis of the models used in volatility transmission. Later, GARCH model, a univariate autoregressive conditional variance model, which was generalized by Engle's student Bollerslev (1986), was widely used in the literature and many studies and applications have been made on the extensions of this model. Again, the study examining the volatility transmission between the money markets in which Engle is involved (Engle et al. (1990)) led the studies examining the volatility transmission between the international stock markets. In addition to the studies of Hamao et al. (1990), Koutmos and Booth (1995), the study of Booth et al. (1997) can be given as examples of prior studies for volatility transmission.

Bollerslev (1990) was the first to categorize the MGARCH model called VECH, which is very general in subsequent modeling. These investigators expressed the VECH model as a function of lagged values of conditional variance, covariances involving cross-product returns, and all delayed conditional variances. However, the constraints on the fixed variance are provided by more specific parameterization of the model. Another M-GARCH model, Asymmetric BEKK - GARCH (1, 1) method was developed by Engle and Kroner (1995). This model includes two equations, the first equation contains the average return equations, the second equation contains return variance.

Many multivariate generalizations of GARCH models have been proposed in the literature. There exist several representations of multivariate GARCH models, being the most commonly used the VECH, Diagonal, CCC, DCC, EWMA, BEKK and Cholesky Decomposition representations and moreover, Copula and the multiple asymmetric multivariate GARCH versions. The large number of parameters to be estimated is a common problem in M-GARCH models. However, this problem disappears in the sample sizes that are sufficiently large. therefore, M-GARCH models give very good results in high frequency and multidimensional data sets. The maximum likelihood method is used in the estimation of these models by making some restrictions on the parameters. These constraints on parameters are used to ensure that the covariance matrix is positive. One can see the studies of Asai, McAleer, and Yu (2006) and Bauwens, Laurent, and Rombouts (2006), which reviewed the literature in a wide view. Furthermore, the handbook of volatility by Bauwens, Hafner, and Laurent (2012) and the well-written book of Tsay (2014) are the reference sources for the multivariate models. The main purpose of this

chapter can be defined as to introduce some multivariate volatility models that are applicable in practice for volatility transmission. Therefore, instead of covering all multivariate volatility models available in the literature, the DCC-GARCH that are used in the volatility transmission process will be discussed.

This chapter will be organized according to the following outline; a brief introduction to the volatility and the features of a k -dimensional multivariate time series which have uncorrelated and have zero mean and positive-definite covariance matrix. In the third section, The parameter estimation methods for M-GARCH models. In this subsection, only the quasi-maximum likelihood estimation method is covered where the innovations of the multivariate time series follow the multivariate student- t distribution. The diagnostics checks of a volatility model to verify the adequacy of a fitted multivariate volatility model is explained via Ling and Li Statistics (1997) and Tse Statistics (2002). In this part, the Dynamic Conditional Correlation (DCC) models which are introduced by Engle (2002) is discussed briefly. Moreover, a procedure will be given for building the DCC models. In the last section, there is a given example for illustrative purposes: The real-life data is used to apply and illustrate the M-GARCH models for volatility transmission. For this purpose, the R-packages `quantmod`, `rmgarch` and `MTS` will be used to analyse the data.

THE VOLATILITY AND THE MULTIVARIATE GARCH MODELS

The risk measurement of a financial product is usually performed by a standard deviation measurement of price changes over a specified time interval. Volatility measures how high the change in prices occurs and the magnitude of the difference between price movements of a financial product. In short, we can say that the risk of a financial instrument with a high volatility is high and the risk level of a financial instrument with a low volatility is low. Volatility measures changes in either direction, up or down.

The first step in volatility theory is to determine the general characteristics of price time-series data. These characteristics include the existence of a unit root, the existence of a long-term equilibrium relationship between individual price series known as cointegration, that is, the long-term equilibrium relationship of the prices of markets in which co-movements are concerned. Product or commodity

prices tend to vary over time and exhibit cluster behaviour. A mean equation is specified which is the first step of multivariate GARCH models.

When there is a positive relationship between expected return and expected volatility, rational risk buyers want to achieve higher returns in a more volatile period of the index. However, in the majority of applied studies with GARCH-M models, strong evidence has been obtained for the existence of a negative relationship between volatility and expected return. The reason for this is that when there is an unexpected big shock in the return process, which may be bad or good news, a high degree of volatility is expected in the future. If the relationship between expected return and expected volatility is positive and future money flow is not affected, the instantaneous index value will decrease. Similarly, small shocks occurring in the index will simultaneously increase the index value. This is known in the literature as volatility feedback. This theory is based on two assumptions: there will be a positive relationship between the expected return and the expected volatility and at the same time the volatility will be continuous. Another explanation for asymmetric volatility is the leverage effect. The leverage effect, which suggests that negative shocks increase more volatility than positive shocks, was first proposed by Black (1976) and Christie (1982).

In other words, an unexpected decrease in prices in the stock market increases volatility more than an unexpected increase of similar size. By this, it is stated that the effect of bad news on volatility is greater than the effect of good news on volatility (Nelson, 1991). If the leverage effect is accompanied by the volatility feedback effect, the bad news increases the volatility, but the net effect of the good news is not clear.

The acceleration of financial integration in the last two decades and globalizing financial markets have led investors to understand how the financial shocks have spread and the volatility of the markets. The volatility relationship and the direction of this relationship gained importance as the volatility of financial asset returns increased in addition to the basic analyzes in crisis environments. In parallel with this, the studies examining the volatility interaction increased. In this context, the properties of multivariate time series models used in the analysis gain importance.

In this study, the innovations of a multivariate time series is denoted by a_t , where multivariate time series is denoted by z_t . The main assumptions of M-GARCH models are; i) the innovations are serially uncorrelated, ii) the innovations have

zero mean and positive-definite covariance matrix and iii) the covariance matrix of the innovations is time-invariant. These assumptions are also valid for the univariate case. These assumptions lead to conclusion that $E(a_t|F_{t-1}) = 0$ and $E(a_t a_t' | F_{t-1}) = \Sigma_a > 0$ where F_{t-1} is an information matrix and Σ_a is a constant matrix. Whereas the financial time series have conditional heteroscedasticity that is an evidence for volatility. Therefore, $\Sigma_t = \text{Cov}(a_t|F_{t-1})$ is conditional volatility matrix, which is positive-definite. M-GARCH process consists of two parts that are conditional mean, obtained using the Vector Autoregressive process, and conditional variance-covariance. So; the multivariate time series can be written as

$$z_t = \mu_t + a_t \quad (2.1)$$

and the shocks or innovations obtained from equation 2.1 are

$$a_t = \Sigma_t^{1/2} \epsilon_t \quad (2.2)$$

where ϵ_t is a sequence of independent and identically distributed (i.i.d.) random vectors such that $E(\epsilon_t) = 0$ and $\text{Cov}(\epsilon_t) = I_k$ which is $k \times k$ dimensional unique matrix. Furthermore, $\Sigma_t^{1/2}$ denotes the positive-definite square-root matrix of Σ_t .

DYNAMIC CONDITIONAL CORRELATION GARCH MODELS

Engle (2002) proposed DCC process to estimate the GARCH parameters. The next step of this approach is to estimate the conditional correlation. Let $\Sigma_t = [\sigma_{ij,t}]$ be the volatility matrix of innovations a_t obtained from equation 2.1. Then, the k -dimensional correlation matrix under given information set is

$$\rho_t = D_t^{-1} \Sigma_t D_t^{-1} \quad (3.1)$$

where D_t is the diagonal matrix of the volatilities with k -dimension. The advantage of DCC model can be mentioned that it is easier to deal with correlation matrices than covariance matrices. After obtaining the volatility series, the second step is to model dynamic dependence of correlation matrices. Tsay (2014) showed that the innovations should be marginally standardized as

$$\eta_t = (\eta_{1t}, \dots, \eta_{kt})^T$$

where $\eta_{it} = a_{it} / \sqrt{\sigma_{ii,t}}$. Then, the ρ_t correlation matrix of η_t according to the proposal of Engle (2002) is

$$Q_t = (1 - \theta_1 - \theta_2)\bar{Q} + \theta_1 Q_{t-1} + \theta_2 \eta_{t-1} \eta_{t-1}^T \quad (3.2)$$

$$\rho_t = J_t Q_t J_t \quad (3.3)$$

\bar{Q} denotes the unconditional covariance matrix of the marginally standardized innovations in equation 3.2. $\theta_1, \theta_2 \in \mathbb{R}^+$ satisfy that $0 < \theta_1 + \theta_2 < 1$ and J_t is a diagonal matrix that contains the inverse of root of diagonal elements of Q_t such as $J_t = [q_{11,t}^{-1/2}, \dots, q_{kk,t}^{-1/2}]$ where $q_{ii,t}$ denotes the (i,i)th element of Q_t . J_t can simply be considered a normalization matrix. The parameters θ_1 and θ_2 in equation (3.2) show the dynamic dependence structure of the correlations.

There is another type of DCC model in the literature that is proposed by Tse and Tsui (2002). One can show the model as following

$$\rho_t = (1 - \theta_1 - \theta_2)\bar{\rho} + \theta_1 \rho_{t-1} + \theta_2 \psi_{t-1} \quad (3.4)$$

where $\bar{\rho}$ is the unconditional correlation matrix of η_t , $\theta_1, \theta_2 \in \mathbb{R}$ are satisfying $0 < \theta_1 + \theta_2 < 1$, and ψ_{t-1} is a local correlation matrix depending on the m-lag values of standardized innovations for $m > 1$ (Tsay, 2014).

It can be said that the parameter m which is the source of the difference between the two models is the smoothing parameter of Tse and Tsui (2002) DCC model. In a situation where there are k financial assets, the greater the parameter m, the more accurate the correlations that appear. At the same time, the selection of $m > k$ allows the local correlation matrix ψ_{t-1} to be positive-definite.

In general, the DCC model can be applied in three steps. The first step is to model the conditional mean, like using the VAR model, to obtain the residual series. In the second step, univariate volatility model can be applied to the series obtained from the first step. If there is an ARCH effect in the residual series, the conditional variance is modelled using GARCH or extensions of this model. In the last step, innovations are standardized and DCC model is fit.

ILLUSTRATION

The stock market indices used in this study for an application of volatility transmission. The data used are NASDAQ Composite Index, NYSE Composite Index, S&P 500 Index and BIST-100 Index. The daily log-returns of these indices are used for analysis. Since the way to make the variables stationary by eliminating the trends

and seasonality in the financial time series is to use log-returns, Augmented Dickey-Fuller and Philips-Perron stationarity tests have been performed after obtaining log-returns on data. According to the results of mentioned stationarity tests, log-return of all indices are stationary with $p < 0.01$. The period of data is between the dates 2010-01-01 and 2019-01-01 and it is downloaded from Yahoo Finance using “quantmod” package of R. The summary descriptive statistics of log-return data are given in the Table 1. Looking at Skewness values, the distribution can be said to be symmetrical, but Kurtosis values indicate that the distribution is not normal. This is supported by the Jarque-Bera normality test with $p < 2.2e-16$. Although the log-returns of the indices are not normally distributed, they do not follow multiple normal distributions.

Table 1. Summary Statistics

Index	NASDAQ	NYSE	S&P 500	BIST-100
Min. :2010-01-05	-0.0720745	-0.073399	-0.069408	-0.1110425
1st Qu.:2011-12-05	-0.0047369	-0.004174	-0.0038051	-0.0076524
Median :2013-11-13	0.0003214	0.000268	0.0001431	0.0004453
Mean :2014-01-09	0	0	0	0
3rd Qu.:2016-03-09	0.0058147	0.004993	0.0046354	0.0085708
Max. :2018-02-09	0.0553323	0.05089	0.0526631	0.0685459
Skewness	-0.39	-0.52	-0.45	-0.66
Kurtosis	3.94	4.93	5.09	5.29

Depending on the multivariate ARCH test results with zero hypotheses “there is no heteroskedasticity”, ARCH effect appears in the data set. According to the results which have $p < 0.01$ are stated in Table 2, M-GARCH models can be applied to the data set.

Table 2. Multivariate ARCH test on $Q(m)$ of Squared Series

Test	LM test	Rank-based Test	Robust Test
Test Statistic	484.9143	628.8648	798.1236

The first step of DCC M-GARCH is to fit univariate GARCH model to corresponding time series. In this study, GARCH(1,1) model with student-t distributed innovations is fitted to data. The estimation results for univariate

GARCH and DCC M-GARCH are given in Table 3 with log-likelihood 29119.58 . The estimated coefficients of the model are persistent and satisfy the stationarity conditions. The total of the coefficients of DCC, the joint parameters $dcca1$ and $dccb1$, is less than 1 and both of them are jointly significant.

Table 3. Univariate Student-t GARCH and DCC – GARCH estimation results

Parameter	Estimate	Std. Error	t value	Pr(> t)
NASDAQ.omega	0.000004	0.000004	1.196353	0.231559
NASDAQ.alpha1	0.133898	0.022196	6.032579	0
NASDAQ.beta1	0.844947	0.032164	26.270088	0
NASDAQ.shape	4.52538	0.456258	9.918462	0
NYSE.omega	0.000002	0.000037	0.046741	0.96272
NYSE.alpha1	0.138284	0.695708	0.198768	0.842444
NYSE.beta1	0.859773	0.603972	1.423531	0.154582
NYSE.shape	4.863928	7.367623	0.660176	0.509141
S&P-500.omega	0.000002	0.000004	0.618648	0.536148
S&P-500.alpha1	0.167706	0.080011	2.096044	0.036078
S&P-500.beta1	0.831294	0.06777	12.266379	0
S&P-500.shape	4.196086	0.629155	6.669397	0
BIST-100.omega	0.000004	0.000003	1.164027	0.244413
BIST-100.alpha1	0.040364	0.010395	3.883056	0.000103
BIST-100.beta1	0.941853	0.01001	94.090432	0
BIST-100.shape	4.9854	0.53383	9.338933	0
[Joint]dcca1	0.036358	0.005892	6.170309	0
[Joint]dccb1	0.920648	0.015493	59.423907	0
[Joint]mshape	5.76664	0.127868	45.098492	0
Information Criteria	Akaike	Bayes	Shibata	Hannan-Quinn
	-31.217	-31.143	-31.218	-31.19

The conditional variances of stock markets obtained by univariate Student-t GARCH is shown in Figure 2. The variances of NASDAQ, NYSE and S&P-500

have similar pattern. The shock effect of the 2008 global financial crisis on the US stock market is clearly observed. The conditional variance of shocks in all three US stock markets is very similar in size and they follow similar paths. In the same period, the risk observed on the Istanbul Stock Exchange is lower than that of the American markets. When the conditional variance values are considered, it can be said at first glance that the expected correlation coefficients for the US stock markets are high since they have same the pattern.

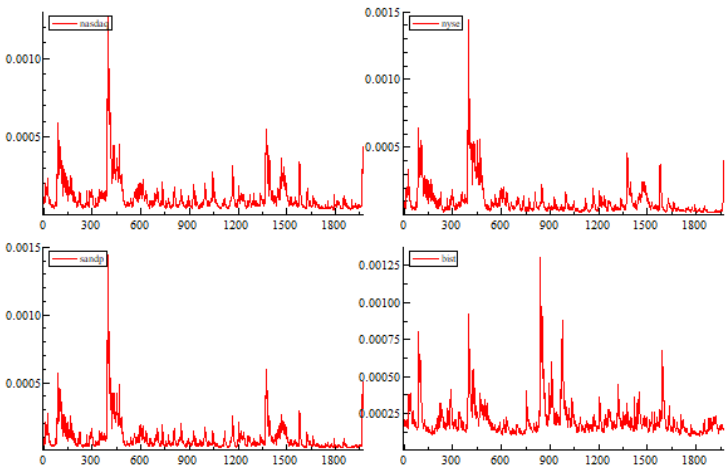


Figure 1. The Conditional Variances of NASDAQ, NYSE, S&P and BIST-100 Indices

According to Turkish Capital Markets 2018 Annual Review while BIST was the world's second most-losing stock market, in 2019 has been one of the most profitable stock exchanges. This is one of the signs of high volatility in BIST. Considering the results of the study, it is an expected result that the conditional correlation between American stock exchanges are high moreover the correlation between BIST and US stock markets is low because of the high volatility in BIST.

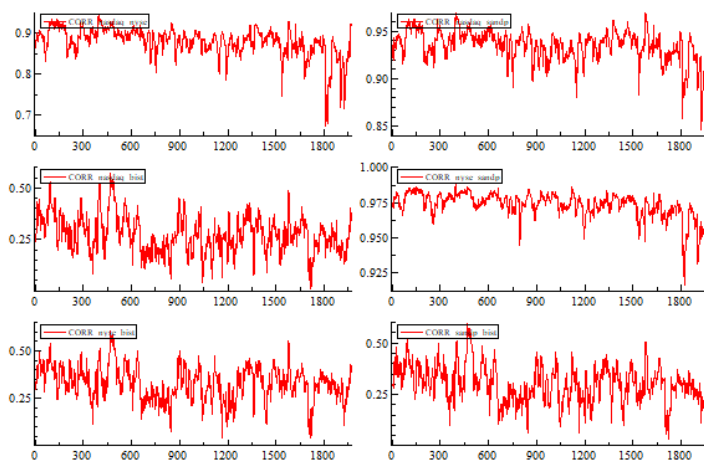


Figure 2. The Conditional Correlations between NASDAQ, NYSE, S&P and BIST-100 Indices

Although the vector normality is not provided, the Hosking and Li-McLeod tests on the standard residuals show that the heteroskedasticity problem does not appear.

Table 3. Diagnostics Test

Vector Normality test: $\chi^2(8) = 761.40$ [0.0000]**	
Hosking's Multivariate Portmanteau Statistics on	
Standardized Residuals	Squared Standardized Residuals
Hosking(5) = 139.918 [0.0000394]	Hosking(5) = 151.125 [0.0000014]
Hosking(10) = 210.082 [0.0048284]	Hosking(10) = 210.729 [0.0032134]
Hosking(20) = 358.860 [0.0662849]	Hosking(20) = 365.876 [0.0331159]
Li and McLeod's Multivariate Portmanteau Statistics on	
Standardized Residuals	Squared Standardized Residuals
Li-McLeod(5) = 139.883 [0.0000397]	Li-McLeod(5) = 151.073 [0.0000014]
Li-McLeod(10) = 210.088 [0.0048242]	Li-McLeod(10) = 210.749 [0.0032044]
Li-McLeod(20) = 358.951 [0.0658565]	Li-McLeod(20) = 365.953 [0.0329130]

DISCUSSION

The direct modelling of conditional variances and correlations using conditional covariances has taken place in the literature as a relatively new approach. Conditional correlation models have come to the forefront as a more useful alternative for predicting and interpreting parameters. The Dynamic Conditional Correlation GARCH (DCC-GARCH) model is more realistic than the Fixed Conditional Correlation GARCH (CCC-GARCH) model as it provides grounds for the conditional correlations to change over time. The effects of the shocks such as the 2008 global crisis and the exchange rate fluctuation in August 2018, which had a high impact on Turkish financial markets, present in the example in the previous section affect dynamic conditional correlations. The DCC-GARCH model proved to be successful in capturing such situations. Since structural breaks can affect the co-movement of financial markets, the existence of structural breaks should be tested and then added to the model. Even the shocks that occur in the markets can be included in the model and the model can be made more successful. One of the advantages of this model is that it is used for weighting financial products in the portfolio.

As can be understood from the definitions given in equations (3.2) and (3.4), DCC models explain the dynamic structure of conditional correlations with only two parameters such as θ_1 and θ_2 , regardless of the number of financial assets. While this facilitates parameter estimations, it is the weakness of the model to conclude that all correlations develop in the same manner regardless of the number and characteristics of financial assets.

Although DCC representation has many advantages, Caporin et al. (2013) have brought many criticisms to the model. In their work titled “Ten Things You Should Know About DCC”, they concluded that “DCC represents the dynamic conditional covariances of the standardized residuals, and hence does not yield dynamic conditional correlations; DCC is stated rather than derived; DCC has no moments; DCC does not have testable regularity conditions; DCC yields inconsistent two-step estimators; DCC has no asymptotic properties; DCC is not a special case of the Generalized Autoregressive Conditional Correlation (GARCC), which has testable regularity conditions and standard asymptotic properties; DCC is not dynamic empirically as the effect of news is typically extremely small; DCC cannot be distinguished empirically from diagonal BEKK in small systems, and DCC may be a useful filter or a diagnostic check, but it is not a model.”

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GOOGLE TRENDS AND INVESTOR SENTIMENT RELATIONSHIP AT BORSA ISTANBUL

Orhan Emre ELMA¹

INTRODUCTION

Worldwide, almost 90% of online searches are made at Google search engine and most of the businesses want to be at the top of the search results (Harford, 2017). Turkey's household internet accessibility rate is around 88.3%, while internet usage rate between 16-74 age groups is at 75.3%, and Google is the nations' most visited internet page and search engine with users averaging 8:43 minutes every day with daily unique page views around at 12.57. Because of Turkey's internet penetration rate is at satisfactory levels and getting bigger every single year and Google is the leading search engine in the country.

Google search is the leading search engine on the internet, and it has enormous data about search terms which can be maintained via Google Trends. Some researches to date, have been implemented this historical data on their researches about health care issues (Ginsberg et. Al., 2008; Pelat et. Al., 2009), consumer confidence (Choi and Varian, 2012), or fuel prices (Molnar and Basta, 2017). Because of its predicting capability, some analysts used Google search history, to find correlation between capital markets and Google Trends data. At a research, it has been found that, if a portfolio transaction is made over a 7 year time period, according to Google search data for certain keywords, this portfolio can beat the market by 310% (Preis et. Al., 2013). At another study, the Wikipedia page visit numbers of the companies listed in Dow Jones, are used to build a portfolio that can outperform the market (Moat et. al., 2013). A scientific paper that focused on the investor attention, found that investor sentiment has a strong correlation with the stock market and also it can predict volatility on the capital markets (Dimpfl and Jenk, 2016).

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When analyzed with behavioral finance perspective, prospect theory and its proposed outcomes should be considered (Lougran and Ritter, 2002). Investors are more prone to risks and losses rather than benefits and gains (Kahneman and Tversky, 1979).

With an unprecedented speed and ease of internet use, it has become a general principle for investors now-a-days to conduct research on online tools before making an investment decision. The search queries of previous users on the same subject, and other related topics they are interested in are important dataset for investors. Considering the recent studies in this respect, forecasts of unemployment (Nagao et al., 2019), energy sector (Park and Kim, 2018), automobile sales (Choi and Varian, 2012) and financial series (Smith, 2012; Bleher and Dimpfl, 2019; Kim et al., 2019) are also conducted with Google trend analysis at an increasing rate.

GOOGLE TRENDS

Google is the most preferred and popular search engine worldwide by internet users. Since 90% of the searches performed on the internet are made only by this search engine, many companies develop strategies just to be listed higher in this search engine to attract more potential customers (Harford, 2017).

While smartphones are becoming an inseparable part of our lives, internet usage is getting more and more popular everyday. People nowadays, look for everything they find useful or interesting on search engines. With this evolving trend, some search engines stock all search data to show individuals' reflection on internet, according to their location.

Google Search Trends is a service in the form of time series that indexes the searches and volumes that Google users make, considering their specific geographic area where the search process has took place. Search frequency is obtained by dividing the value searched in a certain geographic location into all search results performed in that location. The normalized query index is created by defining the status of no queries as zero and the most queries as 100.

With the development of quantitative behavioral finance, Google search volume is now used as a tool to analyze the emotions and interests of investors. In their study, Da et al. (2011) identified shares that would rise in two weeks and fall

within a year. Vozlyublennaiia (2014) also observed the effect of investor attention on bonds and stocks at financial markets.

When previous studies on Google searches and financial markets are analyzed, it is noteworthy that most of these studies are conducted in the US markets. Apart from those studies, researches conducted on the German stock exchange also showed that the increase in search volume affected the trading mobility of the shares (Bank et al., 2011). Fink and Johann (2014) found that a search items are predicting trading activity movements at German stock exchange. In the study conducted on Japanese stock exchange, it has been shown that the search frequency is in a weak relationship with stock returns and a strong relationship with transaction volume (Takeda and Wakao, 2014). Also on the French stock market there is a similar situation, increasing investors attention can explain volatility and transaction volume (Aouadi et al., 2013).

Theoretical studies in the field of finance reveal that investor attention and interest have a vital impact on investors' learning and commercial behaviors, and investors' lack of information can be felt on the stock exchanges (Peng, 2005; Mondria et al., 2010). The common result of these studies is that investor interest interacts with investors' cognitive biases. Generally, investors can deal with only a limited number of stocks. Therefore, it can be said that share prices are not immediately affected by new information.

Google Trends is a data service that provides location-based frequency of searched words in real time in the region where the search is made. Real-time data makes estimation models more sound. Some studies state that it is more accurate to make short-term forecasts today than to make future predictions with Google Trends data. Since it will have many variables that affect the demands and needs of societies in the long term, it is preferred to use Google search data to forecast today rather than future (Choi and Varian, 2012). In this study, whether there is a relationship between Turkey based real time Google search data and Borsa Istanbul 100 Index have been analyzed. At Figure 1, the closing charts of Borsa Istanbul 100 Index is shown.

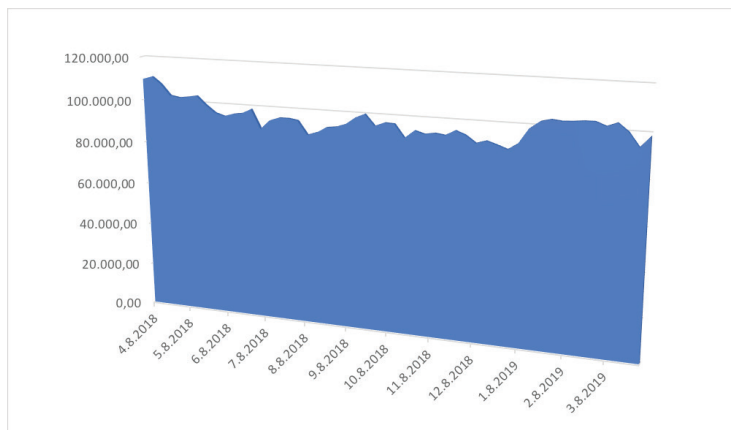


Figure-1: BIST100 Index closing chart between April 2018 and April 2019.

INVESTOR SENTIMENT ANALYSIS WITH GOOGLE TRENDS ON BORSA ISTANBUL

At this research, the search data between April 2018 and April 2019 were taken from Google Trends and used to analyze if there is a connection between related search items and Borsa Istanbul 100 (BIST100) Index movements. This period is specifically preferred because there was a decline in Borsa Istanbul, partly stemming from the tense international trade relations between USA and Turkey at the time, and also there was a local election in Turkey.

Google Trends' Finance section is not preferred at this study, because this section usually brings search data of related keywords with '0' values, hence doesn't improve search results. This criteria in this research is in line with the study of Bijl et al. (2016). At their study, they didn't use the finance filter, and they came into the understanding that the finance section of Google Trends does not give any improvements over the unfiltered searches in terms of financial analysis.

There are 12 search items that have been implemented to this study which are; risk, trust, hope, happy, fear, worry, angry, anxious, upset, positive, negative and BIST. All keywords have been put in to the analysis in their respective Turkish translations, only when the search has been made in Turkey, at the given time

period. These keywords are selected according to the social media analysis literature about financial markets (Bollen et al., 2011; Zhang et al., 2011; Porshnev et al., 2013). The BIST100 Index closing prices are provided from the FINNET BIST Terminal. At Figure 2, the search query frequencies of aforementioned keywords at Turkey in the given time period is shown.

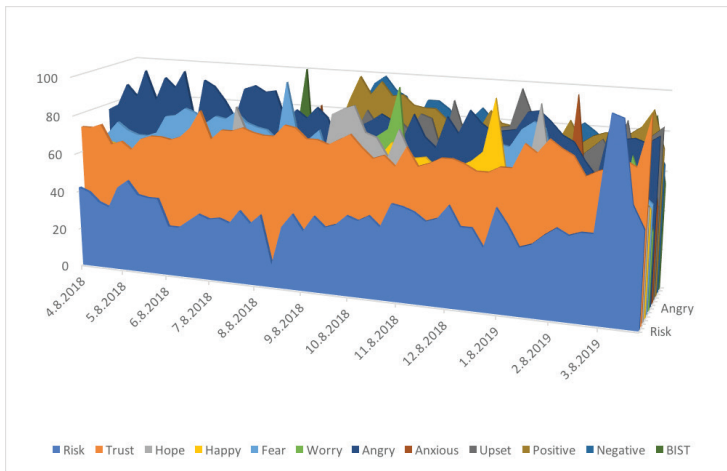


Figure-2: Google search frequencies of the selected words between April 2018 and April 2019.

On the way to the local election the most used keywords are 'risk' and 'trust'. Also, after US Presidents' tweets about possible economic sanctions on Turkey, the most used search term is 'fear' and 'angry'. In addition, BIST100 has one of its lowest points with 88,734 at the time. At this study the keywords searched at the cornerstones of this critical period are analyzed if there is a relationship between Google search queries and Borsa Istanbul 100 Index.

As shown in Table 1, 'Trust' is positively correlated with BIST growth rate around 30.1% and statistically significant at 0.05 level. 'BIST' search volume is negatively correlated with BIST growth rate and has a degree of -35.6% and statistically significant at 0.01 level. 'Happy' search volume is negatively correlated with BIST100 Index with a degree of -40.9% and statistically significant at 0.01 level.

Table-1: Correlations Between Significant Keywords and BIST100

		Trust	BIST100 Growth	Happy	BIST100 Index	BIST
Trust	Pearson Correlation	1	.301*	-.236	.109	.188
	Sig. (2-tailed)		.030	.092	.444	.182
BIST100Gro.	Pearson Correlation	.301*	1	.003	.136	-.356**
	Sig. (2-tailed)	.030		.982	.335	.010
Happy	Pearson Correlation	-.236	.003	1	-.409**	-.266
	Sig. (2-tailed)	.092	.982		.003	.056
BIST100Index	Pearson Correlation	.109	.136	-.409**	1	-.272
	Sig. (2-tailed)	.444	.335	.003		.052
BIST	Pearson Correlation	.188	-.356**	-.266	-.272	1
	Sig. (2-tailed)	.182	.010	.056	.052	

In order to analyze which mood-related search parameters can explain BIST100 Index movements more, a regression analysis has been implemented.

$$\text{BIST100Index} = \beta_0 + \beta_1 * \text{Trust} + \beta_2 * \text{Happy} + \beta_3 * \text{BIST} + \beta_4 * \text{Risk} + \beta_5 * \text{Hope} + \beta_6 * \text{Fear} + \beta_7 * \text{Worry} + \beta_8 * \text{Angry} + \beta_9 * \text{Anxious} + \beta_{10} * \text{Upset} + \beta_{11} * \text{Positive} + \beta_{12} * \text{Negative} + \varepsilon$$

According to Tables 2 and 3, five search items which are; 'happy', 'BIST', 'positive', 'upset' and 'negative' are found to be explain BIST100 Index movements with a degree of 71.7%. These findings are in line with the previous studies of Bollen et al. (2011), Zhang et al. (2011) and Porshnev et al. (2013).

Table 2. Regression Models and their Explanatory Powers on BIST100 Index

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.409	.167	.150	4887,35482
2	.568	.323	.295	4451,59960
3	.618	.382	.343	4296,71824
4	.686	.470	.425	4020,74316
5	.717	.515	.462	3888,58427

This study contributes to the previous studies which show that the mood of a nation can reflect the capital markets. At the time of the study the foreign affairs between Turkey and US weakened compared to before, and in addition to that, there was a local election. Users' emotional searches at this critical time frame were found to be in line with the fluctuations of BIST100 Index as shown especially on Model 5 at Table 3.

Table 3. Coefficients of 5 Regression Models with Keywords on BIST100 Index

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
3	(Constant)	123975,386	7079,381		17,512	,000
	Happy	-433,756	90,624	-,581	-4,786	,000
	BIST	-169,758	45,903	-,438	-3,698	,001
	Positive	118,956	55,486	,251	2,144	,037
4	(Constant)	133565,054	7460,103		17,904	,000
	Happy	-404,279	85,456	-,542	-4,731	,000
	BIST	-185,842	43,338	-,480	-4,288	,000
	Positive	183,445	56,816	,387	3,229	,002
	Upset	-212,374	75,967	-,336	-2,796	,007
5	(Constant)	133792,321	7215,737		18,542	,000
	Happy	-406,729	82,656	-,545	-4,921	,000
	BIST	-193,476	42,077	-,499	-4,598	,000
	Positive	342,581	94,759	,723	3,615	,001
	Upset	-221,137	73,593	-,350	-3,005	,004
	Negative	-159,503	77,379	-,391	-2,061	,045

At this study, Google Trends analysis have been implemented on Turkish users with keywords to demonstrate if there is a relationship with Borsa Istanbul 100

Index and search queries, between the period of April 2018 and 2019, especially because there was a turmoil in trade relations between US and Turkey. 'Trust' and 'happy' search numbers are in a significant relationship with BIST growth rate and BIST 100 Index respectively. Also a regression analysis with stepwise method have been implemented. 'Happy', 'BIST', 'positive', 'upset', and 'negative' keywords can explain 71.4% of BIST100 Index behaviour. It is evident that, reaction to the news by investors in Turkey effected their Google search queries, so this situation painted the picture of investors perception about Turkish financial markets. These findings are in line with the previous results (Bollen et al., 2011; Mao et al., 2011).

DISCUSSION AND CONCLUSION

With the increase in the use of ADSL modems and smartphones, the frequency of internet access and internet usage has increased significantly, especially since the last millennium. As smart applications become a part of our lives, the time spent by the average person on the internet during the day is constantly increasing. With this change and transformation, search engines have gained an indispensable status. In order to meet the expectations of the changing world and take characteristic photos of the societies, search engines create real-time datasets. Google search is the most preferred search engine on the internet with the preference rate of 90% worldwide, and its dataset is called Google Trends. Social media analyses have been used as a forecasting tool in medical, energy, business, and economics sectors on account of its predicting power. The search frequency of investors are also used to analyze investor behaviors and their relation with capital markets at recent researches.

Surveys and studies to identify investors' feelings were more costly and more time consuming, and also could only be done on a more limited sample. With the increase of online users, people started to share their feelings more on the internet. When evaluated from this point of view, it can be seen that these social media researches can potentially show if a society is in a positive or negative mood at any given time of the day (Mislove et al., 2010).

Many models on investor behavior specifies that uninformed investors perform a very important task in the stock markets. Rational and irrational investors give an idea of the structure of financial markets. There are two criterias in the behavioral finance literature that explain investor behavior. These are direct survey

methods and indirect market data analysis. Until the process of the emergence and penetration of social media, the survey method was generally preferred although it was very costly and time consuming. The question that behavioral finance is trying to explain now is not whether the investor feeling affects the stock market, but how much it affects (Baker and Wurgler, 2007).

In the stock markets, the reaction of investors to new information, news and trends has significant effects on prices. In the information age, news can reach from one to the other end of the world at the speed of light. If these news, search queries and social media interactions can be interpreted with correct models, they can be used in predicting stock markets as well as other forecasts. There is complex information on a wide range of subjects online, and Google Trends and Twitter are shown as the most up-to-date and fastest response platforms. Here, investors search or share political and economic last-minute developments. With the help of these millions of data, special analysis can be made for stocks or emotional elements that can be used to estimate the direction of the stock markets.

Quantitative behavioral finance studies are on the rise since the last century. Social media analyses are a big part of behavioral researches, and these are generally based on Twitter and Google Trend analysis. Estimating the investors' feelings and creating a portfolio accordingly is one of the most trending topics that behavioral finance desires to answer. In order to be able to observe the investors' reactions better, the relationship between Google Trends, Twitter and financial news websites with Borsa Istanbul could be examined as a whole.

This study demonstrates that BIST100 Index is affected by investors attention in Turkey at the period of trade turmoil with US. Happy, BIST, positive, upset and negative keyword searches on Google explain BIST100 by 71.7%. Also 'happy' keyword search is negatively correlated with BIST100 at 40.9%, with the significance of 0.01. These results are in line with the previous literature about social media analysis (Bollen et al., 2011; Da et al., 2011; Mao et al., 2011).

For further research, cross country analyses could be implemented in order to see how search trends and social media channels effect capital markets worldwide. Longer time frame could be taken with different platforms to see the bigger picture of how investors sentiment affect capital markets at different countries. In addition to that, later studies can investigate investor sentiment and financial markets relationship on share prices.

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MODELING AND FORECASTING VOLATILITY OF BITCOIN

Mustafa Can SAMIRKAŞ¹

INTRODUCTION

Cryptocurrencies have been one of the most popular subject for investors and researcher in last decade . Cryptocurrency refers to the virtual currency used through the internet, which does not depend on any central authority or intermediary institution. They are called as cryptocurrencies because they are used from virtual wallets by using only certain passwords.

Cryptocurrency is innovative digital currency that came out in 2009 and first crypto currency is Bitcoin which is still has the largest market capitilaziation volume. Then many cryptocurrencies have entered the market in a short time(Gültekin and Bulut, 2016:82). Although Bitcoin is seen as a simple digital currency, it has a chain technology like blockchain, a production and protection line with high electricity and cooling costs such as bitcoin mining, and a complex algorithm called hash function (Şamiloğlu and Kahraman, 2019:180).

As of February 2020 the cryptocurrency market capitilization volume has exceeded 280 billion dollars, approximately %63 of this market dominated by Bitcoin. And 5.140 cryptocurrencies are traded in 20.680 different markets (coinmarketcap. com, 21.02.2020) However, these cryptocurrencies are still not treated as money we use in daily life, they are considered as an investment instrument and a kind of financial asset also (Ertuğrul, 2019:60).

In this study, we aimed to analyze the volatility characteristics of bitcoin, that have such a large market volume in the short term, by GARCH, TGARCH and EGARCH models. Volatility is defined as a measure of the variation in the price of an asset over time. Higher volatility is basically related to greater potential for big losses. The desire to manage the volatility or the distribution of asset returns has been met by financial markets with investment products that can price this

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risk using forward looking measures of volatility. Volatility has been one of the most active areas of research in empirical finance and time series econometrics during the past decade (De Silva et al., 2017:365).

METHODOLOGY

The comparison of the models was made using the Single Volatility Models (GARCH, TGARCH and EGARCH) in the volatility estimation of bitcoin, which is considered as alternative investment instruments for financial investors. In traditional econometric models, variance is assumed to be constant in measuring volatility. However, due to the excessive flatness, volatility clustering and leverage effect seen in the financial time series, the variance is not constant and varies depending on time (Evcı et al. 2017:367). For this reason, symmetrical and asymmetrical GARCH models are used in the study, which allow measurement of variance.

The GARCH model developed by Bolerslev (1986) is expressed as follows,

$$Y_t = a + b'X_t + \varepsilon_t, \quad \varepsilon_t | \Psi_{t-1} \sim N(0, h_t) \quad (1)$$

$$h_t = \alpha_0 + \sum_{i=1}^q \alpha_i \varepsilon_{t-i}^2 + \sum_{j=1}^p \beta_j h_{t-j} \quad (2)$$

In the equation above, Y_t and h_t are conditional mean and conditional variance, respectively; ε_t , zero mean and constant variance error term; q is the lag length of the error squares; p is the lag length of the conditional variance; X_t argument vector; b is the parameter vector; α_i and β_j represent ARCH and GARCH effects on conditional variance respectively, and α and α_0 coefficients represent constant values of conditional variance equation.

One of the major shortcomings of the GARCH models is that it assumes that volatility reacts symmetrically to positive and negative shocks. However, it is also possible that this assumption is not valid, volatility reacts asymmetrically to shocks especially in financial market. Instead of the GARCH models that are insufficient in modeling the leverage effect in the financial time series, exponential GARCH (EGARCH) and Threshold GARCH (TGARCH) models were developed to overcome this deficiency. These two model consider the leverage effect of the volatility shock. The difference between the TGARCH model and the EGARCH

model is that the leverage effect in the TGARCH model is quadratic and exponential in EGARCH (Özden, 2008:343-344).

DATA AND EMPIRICAL RESULTS

To investigate the volatility of the bitcoin return, daily time series data of bitcoin logarithmic returns of 04/29/2013 to 11/21/2019 (a total of 2398 observations) were employed. The sample period was divided into two order to estimate volatility of the Bitcoin return. The 04/29/2013-11/21/2018 period which is called in-sample period, used for estimating the GARCH, TGARCH and EGARCH models. The out of sample (11/21/2018-11/21/2019) was used to evaluate the estimation performance of the models and to determine the most suitable model based on the error statistics. It is seen the logarithmic return of bitcoin graph to the Fig. 1 for all period.

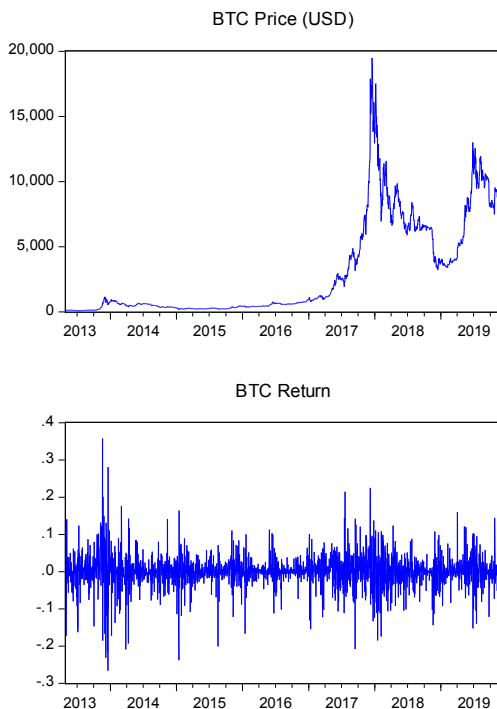


Fig. 1: Daily closing prices and price returns of the Bitcoin (US Dollars).

MODELING AND FORECASTING VOLATILITY OF BITCOIN

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Table 1 shows the descriptive statistic of Bitcoin return series. According to the information in Table 1, the average daily return in the bitcoin market is very close to zero and the standard deviation is 0.042928. The fact that the skewness coefficient for the bitcoin return series is lower than zero means that the series is skewed to the left side and the kurtosis coefficient is greater than three means that the series exhibits an overly flattened distribution. This reveals that the series is not normally distributed. In addition, Jarque-Bera test statistics also show that the null hypothesis, which indicates that the bitcoin return series is normally distributed, is rejected at 1% significance level.

Table 1: Descriptive Statistic of Bitcoin Return Series

Bitcoin	
Mean	0.001686
Median	0.001847
Maximum	0.357451
Minimum	-0,266198
Std. Dev.	0.042928
Skewness	-0.158951
Kurtosis	10.66499
Q(5) (Probability)	7.6197 (0.1785)
Q(10) (Probability)	25.846 (0.0040*)
Q ² (5) (Probability)	381.94 (0.0000*)
Q ² (10) (Probability)	497.27 (0.0000*)
Jaque-Bera (Probability)	5880.405 (0.000000*)
ADF - Intercept (Probability)	-48.87927 (0.0001*)
ADF - Trend and Intercept (Probability)	-48.86951 (0.0000*)
PP - Intercept (Probability)	-49.04531 (0.0001*)
PP - Trend and Intercept (Probability)	-49.03601 (0.0000*)

*, **, *** Statistically significant at the 1%, 5% and 10% significant level

-Q(I) (Q²(I)) is the Ljung-Box Q statistics for the null hypothesis that there is no autocorrelation up to order I lag for standardized residuals (standardized squared residuals)

-The optimal lag number for the ADF test was determined according to the Schwarz Information Criterion (SIC) and the Newey-West Bandwidth criterion for the PP test.

ADF (Augmented Dickey Fuller) and PP (Phillips Peron) unit root test are used to analysing the stationarity. ADF and PP statistics calculated using fixed term and trend models exhibited that the series does not have a unit root at 1% significance level and the series is stationary.

The ARCH effect tested by ARCH-LM test which was improved by Engle (1982). The rejection of the null hypothesis of no ARCH effect indicates the fact that the series varies over time and suggests that the GARCH approach should be used instead. Lagrange Multiplier (LM) and F-tests were used to test the null hypothesis of no ARCH effect to the ARCH LM Test. The null hypothesis is rejected at 5% level of significance when probability values lower than 0.05. It means that the volatility varies over time (Jordaan at al.2007:314). The results for the ARCH-LM tests are presented in Table 2.

Table 2. ARCH-LM Test Results for Return of Bitcoin

Return of BTC		
LM(5)	Obs*R-squared	246.2284*
	Prob. Chi-Square (5)	0.0000
LM(10)	Obs*R-squared	277.5954*
	Olasılık değeri	0.0000

* Statistically significant at the 1%

According to the ARCH-LM test results the null hypothesis is rejected. GARCH, EGARCH and TGARCH conditional variance models were set up to three lag. Among these models, the most appropriate models were determined according to significance and positive parameters, stationary of the model, high Log likelihood and small AIC, SIC and HQ values criteria. Conditional variance models that meet these criteria for return of bitcoin series and parameter estimates for these models are shown in Table 3. In model selections, Student-t distribution was used considering the conditional variance distribution structure of residues (Zhu and Galbraith, 2010).

Table 3. *Conditional Variable Variance Models Related to the Series of Bitcoin Return Series*

	GARCH (1,2)	TGARCH (1,1,2)	EGARCH (1,1,1)
α_0	2.14E-05**	2.36E-05**	-0.351078*
α_1	0.360966*	0.564536*	0.431904*
α_2	-		
γ	-	-0.160392	0.035730
β_1	-	0.350802*	0.980377*
β_2	0.832401*	0.426297*	
AIC	-	-4.049.289	-4.053.716
SIC	-	-4.029.948	-4.037.138
HQ	-4.047141	-4.042.193	-4.047.634
Log likelihood	-4.033326	4.123.103	4.126.603
Q(5)	20.751	18.821	18.388
Prob.	0.001*	0.002*	0.002*
Q(10)	49.147	45.907	45.384
Prob.	0.000*	0.000*	0.000*
ARCH -LM(5)	5.242390	5.651283	6.299229
Prob.	0.3870	0.3416	0.2782
ARCH-LM(10)	11.92829	1.278.645	9.570.511
Prob.	0.2899	0.2359	0.4789

*, **, *** Statistically significant at the 1%, 5% and 10% significant level

$-Q(I)$ ($Q^2(I)$) is the Ljung-Box Q statistics for the null hypothesis that there is no autocorrelation up to order I lag for standardized residuals (standardized squared residuals). ARCH-LM (5) and ARCH-LM (10) are Obs*R-squared values for the 5th and 10th lag.

According to the results in Table 3, GARCH (1,2) and EGARCH (1,1,1) and TGARCH (1,1,2) models are determined as suitable models that can be used to estimate the volatility of return of bitcoin. Ljung-Box Q statistics and ARCH-LM test results show that the autocorrelation problem which observed in the error

terms and heteroscedasticity have been disappeared. The fact that the predicted β parameters total of the models are smaller than one, it means that the models meet the stationary condition. And the total of the parameters are close to one, indicates that the volatility permanence is high. In this case, it shows that the shocks experienced in bitcoin returns in the previous period, were effective on volatility in the current period.

The γ parameter of the EGARCH and TGARCH models are statistically insignificant. This reveals that the positive and negative news have no different effect on volatility in the bitcoin return series.

Table 4. *Error Statistics Regarding Models*

	GARCH (1,2)	TGARCH (1,1,2)	EGARCH (1,1,1)
Root Mean Squared Error (RMSE)	0.042919	0.037871	0.037870*
Mean Absolute Error (MAE)	0.027068	0.025282	0.025281*

* *Minimum values*

RMSE and MAE error statistics were calculated using out of sample observation to evaluate the predictive performance of GARCH (1,2), TGARCH (1,1,2) and EGARCH (1,1,1) models to be used in estimating volatility. The error statistics regarding the models are given in Table 4. The small RMSE and MAE values increase the predictive power of the models. In this context, since the student-t distributed EGARCH (1,1,1) model has the lowest RMSE and MAE value, its prediction performance is better than other models.

CONCLUSIONS

As the bitcoin, which is the most famous and lead cryptocurrency, is used as a popular investment instrument, although its main purpose of creation is to establish a cost-free and intermediary interpersonal value transfer system. This new and innovative financial instrument can be regarded as very volatile and uncorrelated with other traditional assets such as stocks, bonds and currencies. Hence, it is very important to estimate the volatility of cryptocurrency for investors. With this study, it is aimed to model and predict the volatility of bitcoin returns with the student-t distribution GARCH, TGARCH and EGARCH models.

To investigate the volatility of the bitcoin return, daily time series data of bitcoin logarithmic returns of 04/29/2013 to 11/21/2019 were used. The 04/29/2013-11/21/2018 period used for estimating the GARCH, TGARCH and EGARCH models. The out of sample (11/21/2018-11/21/2019) was used to evaluate the estimation performance of the models and to determine the most suitable model based on the error statistics.

Suitable models that can be used to estimate volatility are GARCH (1,2), TGARCH (1,1,2) and EGARCH (1,1,1). RMSE and MAE error statistics were calculated to estimate the predictive performance of these models and determine the most suitable model. According to these models' parameters indicate that the volatility permanence is high. In this case, it shows that the shocks experienced in bitcoin returns in the previous period were effective on volatility in the current period. In addition, since the student-t distributed EGARCH (1,1,1) model has the lowest RMSE and MAE value, it is concluded that the prediction performance is better than other models.

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SOCIAL PSYCHOLOGICAL AND ECONOMIC FOUNDATIONS OF HERD BEHAVIOR IN STOCK MARKETS¹

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INTRODUCTION

Herd behavior can be defined as the revising of personnel thoughts with reference to the included group and making decisions parallel to this group. Accordingly, herd behavior in capital markets means making capital investment decisions similar to other investors. Herd behavior in capital markets is a research area in Behavioral Finance. Unlike the Efficient Markets Hypothesis, Behavioral Finance argues the investors may not be rational constantly. There is a great deal of literature on herd behavior in capital markets (see. Bikhchandani & Sharma, 2000; Devenow & Welch, 1996; Bikhchandani, Hirshleifer & Welch, 1998; Brunnermeier, 2001; Scharfstein & Stein, 1990; Borensztein & Galos, 2000; Lakonishok, Schleifer & Vishny, 1992; Christie & Huang, 1995; Chang, Cheng & Khorana, 2000; Hwang & Salmon, 2004; Wylie 2005; Puckett & Yan, 2008; Gleason, Mathur & Peterson, 2004; Chiang & Zheng, 2010; Yao, Ma & He, 2013; Caparrelli, D’Arcangelis & Cassuto, 2004; Amirat & Bouri, 2009; Lucey & Handley, 2011; Altay, 2008; Çoban, 2009; Kapusuzoğlu, 2011; Ergün & Doğukanlı, 2015; Doğukanlı & Ergün, 2015). The main purpose of this study is to reveal the foundations of herd behavior in stock markets in terms of social psychology and economics with the intention that this may provide an infrastructure to the researchers of herd behavior in capital markets.

1 This study is derived from the Ph.D. thesis titled “Hisse Senedi Piyasalarında Sürü Davranışı: Türkiye Örneği”.

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HERD BEHAVIOR IN SOCIAL PSYCHOLOGY

Herd behavior, or its more common name in social psychology, conformity behavior, was a research area of sociology and social psychology before its emergence in the finance and economics sciences. Herd behavior has been studied under the group and conformity subtitles of social psychology. Owing to that, it is required to refer to social psychology in order to understand herding in capital markets.

Social psychology studies how people think, how they interact and how they contact each other (Myers, 2002, p. 5). Man (1969) argues that conformity means obeying the group pressure. This group pressure may be observed in the forms of physical violence, persuasion, mockery, or criticism (McLeod, 2007).

Conformity behavior, which is a subgroup of social psychology and behavioral sciences, is changing one's own opinion and thought according to the opinion and thought of the group as a whole (Güney, 2009, p. 162). In other words, conformity can be defined as changing or conforming, due to group pressure, behaviors, and sometimes opinions and thoughts, because of real or fictive pressure. The term 'pressure' refers to social influence. Social conformity brings the loss of some personal characteristics in its wake. Within this framework, the conformist is the person that behaves differently when s/he is alone. So one can claim that conformity is behaving properly as to the social norms, principles, and thoughts, whatever their own beliefs. This is the main reason of similar behavior when people are together (Usal & Kuşluvan, 2000, p.205). For example, people behave and answer more similarly if they are together when asked their opinions on perfumes (Hogg & Vaughan, 2007, p.279). The effect of social influence continues for life. If a person or group impels revision in the behavior of an individual or individuals, directly or indirectly, it is social influence (Güney, 2009, p. 160). In addition to human behaviors, primates also develop conformity quickly (Mason, Dyer & Norton, 2009, p. 152).

The experiment of Sherif (1936) is fundamental in the explanation of the creation of decision dynamics and group norms when people are alone or in a group. The researcher used an illusion named the Autokinetic Effect. The Autokinetic Effect is the deceptive movement of a single still item, typically a stationary pinpoint of light, employed in psychology researches in dark rooms. As the subject stares at a fixed point of light, her/his eye muscles become tired, and this causes a slight eye movement. Without the usual reference points available in the everyday environment,

the movement of the image on the retina is perceived as its actual movement in space (Britannica). The experiment was conducted on people who had never met or been in the same group before. Firstly, the subjects were informed they were going to have a visual perception test and taken into the laboratory individually. The spot of light was shown periodically in the dark laboratory. Then the subjects were asked to answer these questions: in which direction and how far the light had moved. In this first part of the experiment, it was observed that the subject answered the question with a high standard of deviation but after a while, they decided on an average answer and the answers converged. In fact, the light never moves in the experiment. In the second part of the experiment, the subjects were taken into the laboratory in groups instead of individually. In addition to this, they were asked to answer the questions aloud. The most vital observation of this experiment is that the subjects that developed different individual standards when they were alone created new ones, thus giving up these individual standards, when they are in a group. In other words, they replaced individual standards with group standards. In the third phase of the experiment, the procedures were again prescribed individually. Interestingly, they did not use the standards developed in the first phase but used the group standards of the second phase. The researcher intentionally prepared this ambiguous physical atmosphere as, with this, he could observe the replacement of physical truth with social truth (Silah, 2005, p.164-165).

In addition to the experiment of Sherif (1936), the experiment of Asch (1955) shows how the group's decision affects the behavior of the individual even if the group decision is not true. The experiment showed that the individuals conformed to the wrong group behavior at a rate of one-third, even if they knew the decision was not true (see Ergün, 2013, p.19).

Groups affect their members in various ways. If the standards and rules are not visible, the behavior of individuals can be affected by the behaviors of other members (Güney, 2009, p.159).

Cognitive effect (desire to be correct) and normative effect (need to be loved) are the two main reasons for human conformation to the groups with which they are involved, and in general, other members of the group may provide useful information. The magnitude of this tendency is directly related to the opinion and belief of the individual as to how much this group is well-informed and how much the individual trusts his/her own decisions. The researches show that if

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uncertainty and the difficulty of understanding increase, the conformation also increases. In other words, individuals do not trust their own decisions in these circumstances. Secondly, the need for social approval and exclusion avoidance is also related to conformation. People need the approval and love of the group and they desire that the group is nice to them (Güney, 2009, p.163).

According to Man (1969), the main subsets of conformation can be listed as; normative conformity, informational conformity, compliance, and internalization (McLeod, 2007):

Normative conformity: the main reason for this kind of conformity is the fear of being rejected by the group. Here, compliance may be observed. On the one hand, these group members seem to obey the group power, but on the other hand, they may not actually interiorize it.

Informational conformity: if the individual has a lack of information on a special topic and s/he trusts the information level of the group, this type of conformation exists. Informational conformity contains interiorized conformation. The individual accepts the group behavior and adapts her/himself to this decision.

Compliance: the conformity observed in the experiment of Asch (1955) is a good example of compliance. The individual does not agree with the group decision, but conformation is observed.

Internalization: Internalization means behaving the same as the group by interiorizing it, even if the individual used to think differently from the group decision.

Conformation behavior is linked to the processes of obeying, identification, and interiorizing. Obeying is about being accepted by others; identification is about resembling a valuable person or group, while interiorizing is about understanding the truth (Silah, 2005, p.166).

Conformity leads to similar individual behavior, and this contributes to preserving the social order. Some studies reveal that some of the groups reject the divergent members, in addition, the members of these groups may reject, misbehave or do not like the convergent ones (Schachter, 1951). So obeying the group norms is a form of conforming behavior with the purpose of acceptance, being rewarded and not being punished (Silah, 2005, p. 169-170).

One of the main topics in social psychology is about decision making within the group. The scientists show the behavior of individuals may markedly differ when they are alone and when they participate in a group. In line with that, the roots of herding in stock markets stretch away to social psychology. Moreover, in order to be able to understand herding behavior in stock markets thoroughly, its importance in social psychology should be explored first.

HERD BEHAVIOR IN ECONOMICS

The main focus of this paper is herd behavior in behavioral finance and its roots. In this section, the reflection of conformity (or herd behavior) on the economic science itself and to its branches will be discussed.

Rational Expectations Theory asserts that individuals do not make systematic mistakes and use all available information effectively. This perspective resulted in the ignorance of psychological and sociological effects in economics. But psychology, feelings, and social impacts were used as the main basis of many economic analyses until the emergence of Rational Expectation Theory. For example, Keynes argued that the main reason for financial instability is these psychological and sociological effects, especially for the stock markets. In other words, these effects are not only related to consumption or cash holding but also to the optimistic and pessimistic tendencies that affect stock markets (Keynes, 1936, 1937). Keynes also touches on some sociological effects that force the speculator into believing and making what the others believe and make, in uncertain environments (Keynes, 1930, 1936, 1937). Following Keynes, Minsky (1975) and Kindleberger & Aliber (2005) reveal the Speculative Happiness concept which emerges among investors as an important catalyst in the manic phases of economic and financial booms. By conceptualizing this, they studied the socio-psychological effects of emotional contagion. However, these socio-psychological effects were ignored by modern economists (Baddeley, 2010, p.281).

Herd behavior phenomenon is one of the first topics studied by social psychology. From the beginning of the 1900s, some economists and social psychologists used herd behavior to explain immediate price changes, such as with fashion. Both of these disciplines try to explain herding, but economics tries to reveal the utility, which emerges from involving a group by focusing on its long-term effects.

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Moreover, the main questions are “how” and “how much” for the psychologists, whereas “why” and “when” for the economists (Rook, 2006, p.75-76).

Economists first integrated herding into the science of economics. Then, the concepts of diffusion of innovations, social contagion, leadership process, and collective behavior studies under economics and its sub-branches, in the light of herd behavior, were integrated (Rook, 2006, p.77).

Social interaction may have an influence on investments, product preferences, and job searching, in addition to the level of pain perception, the tendency to litter, voting preferences, cooperation, and preconceived ideas (Mason, Dyer & Norton, 2009, p. 152).

How a preference for conformity can explain herding in consumers or the occurrence of fashion, fads, and customs has been studied in the literature on social interactions. These may be helpful in understanding the process of acceptance by consumers of a new product. The usage or contagion of a new product or invention in a social network follows in a stepwise way. At first, a small group of consumers uses it; after that, other consumers who are in touch with this small group begin to use it. In this way, the use of the product grows and finally, this interaction relation may reach the most conservative member of the group. If the contagion reaches the majority of the group, then it is called a “cascade.” The emergence of such a cascade is a commercial success for the newly developed product. Similarly, the new products, which cannot create such a cascade, generally become a business failure (Alkamade & Castaldi, 2005, p.4). Understanding the dynamics of these cascades has substantial importance. Moreover providing the necessary conditions to these cascades, via advertisements and other instruments, is generally vital. In this context, in the forms of consumer behavior and advertisement, herd behavior is important.

Firms may imitate the behavior of others in competitive environments. This behavior has two reasons. First, a firm may imitate another firm that produces better products with better methods. This imitation is called “information-based imitation.” The second is “competition based imitation” which increases the competition level in the market. Sometimes this imitation may include cheating. In addition, imitation on the organizational level focuses on the adaptation of organizational innovations and implications. The adaptation of these innovations

causes an increase in capacity, research and development as well as fixed assets investments (Lieberman & Asaba, 2004, p. 29-31).

In this section, herd behavior was explained from a broad economics aspect. The extensiveness of herd behavior makes it important not only in daily life but also in business life.

CONCLUSION

Herd in stock markets has been a field of study for scientists, especially in finance, since the emergence of Behavioral Finance. Unlike irrational investors that has been introduced by Behavioral finance; Efficient Market Hypothesis argues that investors are rational agents. But as we learn from the vast behavioral finance literature, there are lots of behavioral factors that cause investors to deviate from being rational. One of these factors is herd behavior, which means behaving parallel to the involved group even if the thoughts were different. In this herd behavior literature, the reasons and consequences have been studied. Unlike the previous studies this paper aimed to discuss the origins of herd behavior in social psychology and economics sciences. The present study is expected to be useful for the researchers on herd behavior in stock markets by providing a framework for the foundations.

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ARE THE SECTORAL DISTRIBUTIONS OF BANK LOANS IN TURKEY CONSISTENT WITH SECTORS' ADDED VALUE AND CREDIT RISK?

Arzu ŞAHİN¹

INTRODUCTION

Empirical evidence from the broad literature that investigated the interrelationship between financial development and economic growth confirmed either the demand-following or the supply-leading hypotheses. Demand-following view suggests that financial sector meets the fund needs of real sector so bank loans follow the demand of real economy. Supply-leading view argues that financial developments have a power to stimulate output (added value) level thus funds supplied by financial markets lead to growth in real economic activity. According to the demand-following phenomenon, financial intermediaries channel funds more to fast growing industries while in the supply-leading phenomenon, funds are transferred to modern (or growth-inducing) sectors from traditional sectors (Patrick, 1966: 74-175). Researchers (given under the background heading) studying the Turkish aggregated or sector basis data came to similar mixed conclusions about the causality of the relationship flow between financial markets and the economy. In this study, adhering to the demand-following view and accepting the sustainable relationship should be from output to loans, an analysis was built to explore whether banks allocate loans to sectors in consistent with sectors' added value and sectors' credit risk. Four papers that focused on the concentration level in Turkish Banking Sector (TBS)'s loan portfolio used diversification measurement methods accepting current sectoral loan distribution on banking sector (or on bank basis) as ideal sectoral credit portfolio. In this research, an optimal sector

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structure that reflects each sector's contribution to gross domestic products is thought consistent with the aim and scope of this research. Besides, comparing the sector's share of total credit with its own output as an external benchmark apart from the credit market itself fits more to sector basis evaluations. Furthermore, this analysis investigated whether high credit risk sectors accessed less bank loans.

BACKGROUND TO BUILD ANALYSIS

Schumpeter's (1912) argument on the necessity of efficient financial system for economic development provided a basis for supply-leading view. The insight of Robinson's (1952) and Patrick's (1966) about the requirement of real demand for financial development shaped the demand-following approach (Ak, Altuntaş & Şimşek, 2016: 152; Demirci, 2017: 44; Apaydın, 2018: 16; Erkişi, 2018: 2; Avcı, 2017: 172-173). Demand-following phenomenon suggests that financial system develops as a response to real economy. As the national income grows, fund demand of enterprises raises and the need for financial services increases. Supply-leading phenomenon offers that financial services and innovations are generated before demand to encourage entrepreneurs to grow (Patrick, 1966: 174-175). King and Levine (1993) and De Gregorio and Guidotti (1995) provided cross-country evidences for supply leading approach. More recently, under lending channel framework Driscoll (2004) for 48 states in the U.S. by a weak evidence and Capiello, Kadareja, Kok and Protopapa (2010) for Euro Area found evidence against the supply-leading view. On sectoral level data from Nigeria, John and Terhemba (2016) for manufacturing sector and Oyelade (2019) for agriculture sector obtained positive relationship between commercial bank loans and mentioned sector outputs.

Among the empirical studies conducted in the last years (after 2014) with data from Turkey to analyse the financial development-economic growth relationship, three papers (Ak, Altuntaş & Şimşek, 2016; Manga, Destek & Düzakın, 2016; Turgut & Ertay, 2016) documented one-way causality, two of them (Avcı, 2017; Çonkar, Canbaz & Arifoğlu, 2018) provided two-way causality and Erkişi (2018) was not certain to confirm any view. Ak, Altuntaş and Şimşek (2016) supported demand-following view while Turgut and Ertay (2016) confirmed supply-leading view and Manga, Destek and Düzakın (2016) uncovered evidences that make supply-leading view valid after 1998. Avcı's (2017) results differed for financial development indicators. Yiğitbaş (2015) who aimed to investigate the determinants

of private sector credits found that private sector business loans are affected by economic activity level.

Among the latest studies focused on the sector-specific interrelations between sectoral loans and sectoral output or general output of Turkey, three studies (Yalçinkaya, 2018; Apaydın, 2018; Hacıevliyagil & Ekşi, 2019) offered supporting findings for the supply-leading view, one (Demirci, 2017) confirmed the demand-following view and one (Kandemir, Arifoğlu & Canbaz, 2018) provided causality fitting to both views for different sectors. Yalçinkaya (2018) found that loans extended to agricultural sector were the reason for agricultural GDP growth but non-performing rates in this sector were not the reason for agricultural credits. Apaydın's (2018) results showed that the importance of bank loan usage of industry and agriculture sectors as the most productive sectors with the greatest contribution to economic growth declined. On the other hand importance of loan share of service sector that contributes less to GDP and, credit share of construction sector that reduce economic growth in the long-run increased in overtime and, the author evaluated these findings as the ineffectiveness of the sectoral distribution of bank credit in Turkey. Hacıevliyagil and Ekşi (2019) showed that a rise in bank credit leads to growth in industrial production in six manufacturing sub-sectors. Empirical evidence by Demirci (2017) showed causality from production to bank loans on the manufacturing industry sector and a long-term relationship between these variables. Kandemir, Arifoğlu and Canbaz (2018) found a causality from GDP to Islamic bank credits on four sectors and found a causality from Islamic bank sectoral loans to GDP for three sectors. Acar (2019) evaluated the development of sectoral loan usage in Muş city of Turkey.

By investigating the impact of sectoral loan portfolio of selected banks sample or TBS on performance and credit risk, Gönenç and Kılıçhan (2004) and Turkmen and Yiğit (2012) provided evidence that credit diversification reduced bank performance. Tunay (2015) and Sarı (2019) found that sectoral loan concentration raised the credit risk of banks. In these four research, Herfindahl-Hirschman Index (HHI) or Herfindahl Index (HI) measured credit diversification and, Gönenç and Kılıçhan (2004) also used an alternative measurement called as Loan Volume Based Model. Özker (2008) theoretically evaluated sectoral bias in credit allocation as a credit control mechanism known as selective credit policies.

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Six studies examined that investigated the connections between sector loans and repayment performance achieved different relationships. Cifter, Yilmazer and Cifter (2009) found that sectoral credit defaults were affected from industrial productions by a different time scale. Koyuncu and Saka (2011) concluded that non-performing loans had a reducing impact on domestic private sector credits. Related findings of Şahbaz and İnkaya (2014) showed that non-performing loans had long term integration, two-way causality and short-term (negative) connection with domestic credit volume. Under the asymmetric information framework Tari, Yiğitbaş and Kurt (2012) stated that default rates did not directly affect the commercial bank loans but affected indirectly through interest rates and, lending behaviours of commercial banks affected the real sector production. Kara and Baş's (2019) analysis results revealed that growth in the banking sector loans caused an increase in non-performing loans. Researchers explained this positive connection with random and careless credit allocations after expansionary monetary policies. One of the findings of Yalçınkaya (2018) offered that non-performing rate in agricultural sector was not the reason for agricultural credits.

METHOD AND VARIABLE CONSTRUCTION OF THE ANALYSIS

To explore whether bank loans were distributed to sectors in compliance with sectors' historical added value and credit risk, I constructed a sample of 15 sectors over 20 years (1999-2018) and specified three main variables² (one dependent and two independent) and two control variables. I applied dynamic panel data method to estimate the regressions in which one lagged value of the dependent variable becomes explanatory variable and used generalized method of moments (GMM) estimator and preferred difference (or standard) GMM version that fits with a sample having longer time ($T=20 > N=15$). As a second analysis method required to offer sector specific explanations for the GMM estimates and, to make more detailed evaluations, I interpreted the correlation coefficients between basic variables. Furthermore, developments of sectors' bank loan, added value and default rate within the analysis period of 20 years (seen in Table 1) and, their graphics versions (presented in Table 2) contributed to the overall assessments.

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- 2 In the related literature financial development was generally proxied by bank credits to private sectors as the significant financing source and sometimes proxied by stock or debt market or money supply. Real economic growth (or output) was generally indicated by GDP or less frequently by industrial production index.

Interpretations were built on the overall discussions about regression and correlation findings as well as the 20-years development of core data.

Annual sectoral bank loans data used in the analysis were gathered from the Central Bank of the Republic of Turkey (CBRT) Statistics (Banking Data, Data Transferred to The Banks' Association of Turkey-Risk Center) for the period of 1999-2012 (www.tcmb.gov.tr) and from The Banks Association of Turkey (BAT) Risk Center Statistical Reports (Distribution Banks Loans by Sector Code) for the period of 2013-2018 (www.tbb.org.tr). December figures for each year were used to represent the annual loan data. These reports include gross loans, cash loans and non-performing loans. Sector bank loans share (SBLS) is the ratio of gross loans given to each sector over the total gross loans. Lagged value of sector bank loans share (L_SBLS) was entered in the regressions to control sector's intensity³ in the economy and also in the bank loan market. Sector non-performing loans rate (SNPLR) that proxied for credit risk was calculated by dividing non-performing loan amount of each sector to the sector's gross loan amount. Annual sectoral GDP or output that represents the added value of sectors to GDP, expressed as sector GDP share (SGDPS) in the analysis, was obtained from the "gross domestic product at current prices by kind of economic activity" report shared by Turkish Statistical Institute (TSI). The ratio of private non-financial sector credit to GDP (RSLTGDP) was used to control reel sector loans. The GDP growth rate (GDP) was used to control overall economic growth. Related data of RSLTGDP and GDPG were also obtained from TSI and EVDS (CBRT electronic data distribution system) central statistics.

3 The loan amount used by a sector signals the importance and intensity of that sector in the economy (Çamoglu & Akıncı 2012: 193).

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Table 1. Development of Sectors' Gross Bank Loans Share, Sectors' Non-Performing Loans Rate, GDP by Sectors' in Percentage Terms, During 1999-2018

Sector Bank Loans Share (SBLS)	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	Ave.
Manufacturing	55.4	49.5	49.3	48.4	42.7	38.9	33.9	29.4	27.1	26.9	24.4	24.4	24.4	22.8	21.3	20.9	20.4	18.7	18.8	19.9	30.9
Wholesale and retail trade	12.7	12.8	9.8	10.9	10.4	12.3	14.3	17.0	13.9	13.2	12.4	12.4	12.7	13.7	13.6	13.8	14.0	13.9	14.9	14.1	13.1
Construction	9.5	8.1	7.5	6.9	5.5	4.7	4.9	4.8	5.9	6.8	6.9	6.5	6.6	6.9	7.0	7.3	8.0	8.7	9.4	9.7	7.1
Transport and storage	3.5	5.4	8.7	6.7	6.1	4.3	4.2	5.8	5.9	5.8	5.7	5.0	5.8	5.6	5.5	5.0	5.9	5.4	5.1	5.4	5.5
Electric, gas and water resources	1.0	2.0	6.9	7.1	5.3	4.0	2.8	3.8	2.8	3.5	4.0	4.0	4.0	5.0	5.3	5.3	5.9	6.9	6.6	7.9	4.8
Financial and insurance activities	4.2	3.7	3.5	4.4	5.2	5.6	5.0	4.5	5.2	4.8	4.9	5.2	4.7	4.8	4.7	4.8	4.9	2.9	2.8	2.3	4.4
Agriculture, forestry and fishing	3.7	6.5	3.7	3.7	4.6	4.2	3.6	3.6	4.0	3.8	3.7	3.9	4.3	4.0	3.3	3.3	3.6	4.2	4.0	4.0	4.0
Real estate activities	1.6	1.4	4.1	4.8	2.8	2.8	2.5	2.2	2.1	2.6	2.6	3.0	3.6	3.5	3.3	4.1	4.8	4.9	5.4	5.9	3.4
Accommodation and food service activities	3.3	3.0	2.5	2.2	2.1	2.2	2.3	2.5	2.2	2.5	2.7	2.5	2.8	2.7	2.5	2.9	3.0	3.3	3.3	3.4	2.7
Other public, social and personal services	2.8	4.0	1.7	2.6	2.7	2.4	2.7	2.5	3.3	3.4	3.7	3.3	2.9	2.8	2.5	1.8	1.9	1.8	1.5	1.6	2.6
Mining and quarrying	1.6	2.5	1.4	1.2	1.3	1.6	1.3	1.2	1.2	1.3	1.2	1.1	1.2	1.1	1.2	1.2	1.4	1.2	1.3	1.2	1.3
Public administration and defence	0.1	0.0	0.0	0.7	0.7	1.4	1.3	0.7	0.9	1.1	1.0	1.1	0.9	0.9	0.8	1.9	1.7	2.0	1.9	2.0	1.1
Human health and social work activities	0.3	0.3	0.7	0.3	0.3	0.4	0.6	1.0	1.0	0.9	0.9	0.8	0.8	0.8	0.7	0.7	0.8	0.8	0.8	0.9	0.7
Education	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3
Activities of household as employers	0.2	0.4	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1
Sector Non-Performing Loans Rate (SNPLR)	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	Ave.
Activities of household as employers	2.4	0.3	13.2	1.4	2.3	2.0	5.9	3.4	3.2	5.3	6.2	5.7	3.5	4.9	4.0	8.0	10.7	10.2	12.1	16.6	6.1
Accommodation and food service activities	7.2	12.8	20.2	17.9	13.1	5.9	3.1	2.4	2.4	2.6	3.1	2.5	1.5	2.8	3.0	3.0	3.1	3.4	3.9	5.3	6.0
Wholesale and retail trade	5.6	5.4	7.3	26.1	15.5	5.2	3.9	2.3	3.3	4.0	5.8	4.3	2.7	2.9	2.7	2.8	3.3	4.6	4.4	5.9	5.9
Manufacturing	10.0	11.0	9.8	13.7	10.0	5.9	5.0	4.1	4.4	3.8	5.0	3.5	2.7	2.9	2.5	2.6	2.4	3.6	3.4	4.1	5.5
Construction	5.5	13.4	10.4	11.9	7.0	4.9	4.3	4.0	2.4	2.6	4.2	3.4	3.1	3.3	3.7	3.7	3.1	4.0	3.6	5.0	5.2
Mining and quarrying	4.5	9.7	14.9	7.8	8.6	4.3	3.8	2.4	1.5	1.5	2.0	1.8	1.4	1.4	2.5	3.9	4.1	4.2	4.4	5.8	4.5

Agriculture, forestry and fishing	8.7	3.4	6.3	8.9	6.6	4.8	3.5	3.2	3.2	4.2	6.0	4.7	2.9	3.3	3.4	3.0	2.3	2.7	2.7	4.1	4.4
Other public, social and personal services	1.1	5.1	12.2	12.9	7.4	5.1	3.3	4.1	3.0	2.2	3.7	2.2	1.2	1.5	1.4	2.1	2.5	3.1	3.2	3.5	4.0
Transport and storage	9.4	11.4	11.3	7.3	3.6	2.1	3.4	1.3	1.2	1.7	2.5	2.0	1.3	1.6	1.5	1.3	1.2	1.9	2.0	2.3	3.5
Real estate activities	3.9	5.4	1.9	9.9	6.0	7.6	5.8	3.4	2.6	1.8	2.9	1.8	1.0	3.3	1.1	1.2	0.9	1.2	1.1	4.5	3.4
Education	17.9	5.6	2.6	6.2	3.5	1.4	1.4	1.0	1.3	2.0	2.2	1.7	1.1	1.1	0.6	0.7	1.2	5.2	4.3	5.0	3.3
Human health and social work activities	10.3	3.1	2.0	6.1	3.0	1.8	1.9	1.5	2.0	1.3	2.4	1.7	1.1	4.0	2.6	2.5	2.1	2.6	2.3	4.0	2.9
Financial and insurance activities	2.3	6.9	4.9	8.4	3.4	1.8	1.2	0.7	0.5	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.5	0.3	0.5	1.6
Public administration and defence	4.9	6.4	0.1	0.0	0.2	0.8	0.2	0.3	0.4	0.2	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.2	0.1	0.1	0.7
Electric, gas and water resources	0.8	2.4	0.6	0.3	0.2	0.3	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.8	1.0	0.9	0.7	3.4	0.6
Sector GDP Share (SGDPS)	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	Ave.
Manufacturing	20.1	18.8	17.8	16.9	17.1	16.9	16.9	17.1	16.8	16.3	15.2	15.1	16.5	15.9	16.2	16.8	16.7	16.6	17.6	19.0	17.0
Wholesale and retail trade	11.6	12.1	11.5	11.9	12.1	12.5	12.2	12.4	12.1	12.2	10.7	11.1	11.6	11.2	11.2	11.5	11.5	11.4	11.8	12.1	11.7
Transport and storage	8.3	8.8	9.5	10.2	9.9	9.7	9.5	9.5	9.5	9.6	8.8	7.9	7.4	8.1	7.9	7.9	7.9	7.6	7.7	8.2	8.7
Real estate activities	6.9	8.4	8.5	8.0	7.9	8.1	8.5	8.9	9.6	9.7	10.5	9.9	9.0	8.6	8.2	8.0	7.7	7.7	7.1	6.8	8.4
Agriculture, forestry and fishing	10.5	10.1	8.9	10.3	9.9	9.4	9.3	8.2	7.5	7.5	8.1	9.0	8.2	7.8	6.7	6.6	6.9	6.2	6.1	5.8	8.1
Construction	5.6	5.3	4.6	4.5	4.6	5.3	5.6	6.3	6.8	6.8	5.6	6.1	7.2	7.5	8.1	8.1	8.2	8.6	8.6	7.2	6.5
Other public, social and personal services	3.9	4.0	4.2	4.9	5.1	4.9	4.9	5.3	5.8	6.0	6.3	6.2	6.2	6.4	6.6	6.8	7.1	7.2	7.3	7.0	5.8
Public administration and defence	5.6	5.2	5.5	5.4	5.4	5.3	4.7	4.6	4.6	4.5	5.0	4.8	4.5	4.7	4.5	4.5	4.3	4.6	4.3	4.8	4.8
Education	2.9	2.7	2.8	3.1	3.2	3.1	3.2	3.3	3.4	3.4	3.9	3.9	3.8	3.9	3.9	4.1	4.1	4.4	4.1	4.2	3.6
Financial and insurance activities	7.2	5.0	6.2	3.3	2.6	2.5	2.5	2.1	2.2	2.4	3.7	2.9	2.7	2.9	3.1	2.9	3.0	3.3	3.2	3.0	3.3
Accommodation and food service activities	2.1	2.3	2.3	2.2	2.0	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.6	2.7	2.8	2.9	2.8	2.6	2.7	3.1	2.4
Human health and social work activities	1.8	1.7	1.7	2.0	2.1	2.1	2.4	2.5	2.7	2.7	2.9	2.8	2.7	2.6	2.6	2.5	2.4	2.6	2.4	2.5	2.4
Electric, gas and water resources	2.0	1.9	2.3	2.3	2.2	2.0	1.8	1.8	1.9	2.0	2.2	2.3	2.2	2.3	2.3	2.4	2.2	2.2	2.2	2.3	2.1
Mining and quarrying	0.8	0.9	0.9	0.8	0.9	0.9	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.9	0.8	0.9	1.0	1.0
Activities of household as employers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: BAT Risk Center, CBRT Statistics. Note: Sectors are ranked according to the average of each variable.

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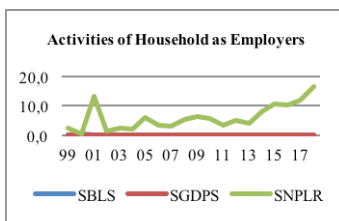
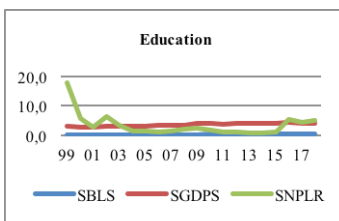
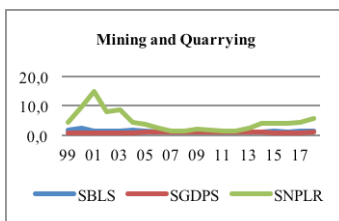
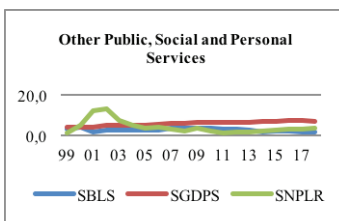
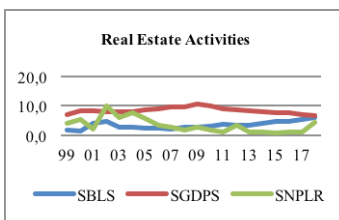
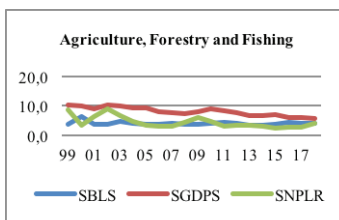
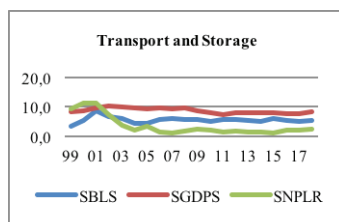
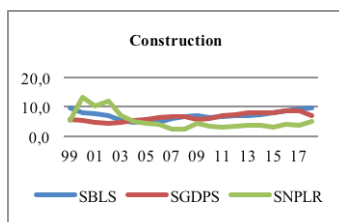
Arzu ŞAHİN

Table 2. Sector-Specific Graphics for Bank Loan %, NPL% and Added Value %



Source: BAT, CBRT, EVDS and TSI.

Note. Accommodation sector is added with two versions with NPL line and without NPL line and second version was required to make remaining lines clear.



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BAT (or CBRT) sectoral loan reports contain 31 main sectors (including consumer loans) and 21 subsectors. By excluding consumer loans that are irrelevant to the GDP, 14 industries belong to the manufacturing sector and the remaining 16 sectors are non-manufacturing sectors. On the other hand, TSI sector classification comprises 20 main sectors without manufacturing sub-industries. Because the TSI's economic activity classification differs from the BAT Risk Center's and because the necessity of combining the bank loan variables per sector and gross domestic product of each sector in the analysis, I was compelled to harmonize the two sector classifications⁴ and this process produced a sample of 15 sectors.

Table 3. Explanations and Descriptive Statistics of Variables

Variable %	Abbr.	Calculations of Variables	Data Sources	Mean	St.Dev
Sector Bank Loans Share	SBLS	Gross Bank Loans Per Sector/Gross Bank Loans	BAT, CBRT	5.46	8.16
Sector GDP Share	SGDPS	Sector GDP/Total GDP	TSI	5.73	4.47
Sector Non-Performing Loans Rate	SNPLR	NPL Per Sector/Sector's Gross Bank Loans	BAT, CBRT	3.85	3.76
Reel Sector Loans to GDP	RSLTGDP	Private Non-Financial Sector Credit/GDP	CBRT, EVDS	51.13	24.25
GDP Growth Rate	GDPG	GDP Annual Growth Rates	CBR, TSI	4.69	4.62

Source: Source: BAT Risk Center, CBRT Statistics, EVDS and TSI.

Note: Abbr: Abbreviation, St. Dev: Standard Deviations, NPL: Non-Performing Loan.

⁴ To ensure the sector group compliance, BAT sectors were generally harmonized with TSI sectors. BAT manufacturing sub-industries were merged as manufacturing sector. "Agriculture, hunting, forestry" and "fishery" sectors were merged. For a few instances of non-compliance, TSI sectors were compliance with BAT sectors. "Electricity, gas, steam and air conditioning supply" and "water supply, sewerage, waste management and remediation activities" sectors were combined into the sector of "electric, gas and water resources". Similarly four related TSI sectors were aggregated to represent the BAT's "other public, social and personal services" sector. Since the equivalent of the TIS's "information and communication" was not seen in the BAT reports, this sector was excluded.

FINDINGS OF THE ANALYSIS

The regression coefficients in all GMM specifications displayed in Table 4 indicate that sectoral loan distribution related closely to bank loans of the previous years, but was almost not affected by value added, non-performing loans rate and other two factors. The exception is the weak relationship (10% levels) with added value in only two regression specifications. The opposite directions of sector-based correlations between the loan share and key variables presented in Table 5 explain the insignificance of the regression estimates partly. While six sectors' GDP contribution had significant positive correlations with loan shares, the bank loans of four sectors were negatively correlated to GDP shares. Similarly, bank loan in four sectors reacted negatively to their non-performing loan rates as expected, but the loans of two sectors showed significant positive correlations with non-performing loan rates. To examine the correlations for each sector, I went back to the development of variables in Table 1 and benefited from the graphics presented in Table 2 constructed on Table 1.

According to the demand-following hypothesis that shaped the regression equations and sign expectations of sector's outputs (SGDPS), banks are expected to allocate loans to sectors in consistent with sectors' added values. Thus I expected sector loans had related positively to their GDP shares. Firstly I examined the six sectors (1. manufacturing, 2. construction, 3. electric, gas and water resources, 4. accommodation and food service activities, 5. human health and social work activities, 6. education) having significant positive correlations (as expected) between loan shares and GDP shares in Table 5. The manufacturing sector and the electric sector had bank loans at higher rates than their GDP contributions, but the manufacturing sector experienced a continuous declining loan share, and the bank loan share of the electric sector had an increasing trend since 2005. The manufacturing sector had the all-time greatest added value at around 17%, and the electric sector's GDP share remained around an average of 2.1%. We can say that credits were allocated disproportionately to the manufacturing and the electric sectors. The movements of the relevant curves for the construction sector and accommodation sector appear to be similar but with increasing loan shares and GDP shares. Added value curves rose slightly above the 20-year averages, especially after 2011 and, shares of loans were sometimes above the GDP share

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and sometimes below. Construction and accommodation sectors' bank loans and added value shares moved more closely than in manufacturing and electric sectors, or in other words bank loan distributions to these sectors seem to be made more proportionally. With the bank loans used at lower rates than added values, the human health and education sectors displayed another disproportionate loan distribution situation.

Significant negative correlations between SBLS and SGDPS led me to focus on four sectors (1. real estate activities, 2. other public, social and personal services, 3. public administration and defence, 4. activities of household as employers). Other public services sector, real estate sector and public administration sector all benefited less from bank credits compared to their GDP contributions while households' activities sector's loan usage was over its GDP up to 2017. As seen in Table 1 and related graphs in Table 2, after 2008 GDP share of other public services sector increased however its credit usage declined. Oppositely, in the real estate sector, a negative correlation was realized with risen loans in spite of reduced GDP contribution. Public administration sector's loan and GDP share behaved like real estate sector but households' credit level was generally above their domestic production. These four sectors whose bank loan usage correlates negatively with their value added provided some grounding about insignificant coefficients in regression analysis.

Table 4. GMM Estimation Coefficients

Dependent Variable: Sector Bank Loans Share (SBLS)	One-Step Difference GMM		Two-Step Difference GMM	
Independent Variables:	Lag (1 2)	Lag (2 3)	Lag (2 3)	Lag (2 3)
Lag_Sector Bank Loans Share (L_SBLS)	0.864*** [74.74]	0.888*** [37.40]	0.857*** [85.73]	0.870*** [40.47]
Sector GDP Share (SGDPS)	0.132* [1.760]	0.122* [1.729]	0.119 [1.521]	0.126 [1.641]
Sector Non-Performing Loans Rate (SNPLR)	0.000 [0.002]	-0.004 [-0.285]	-0.005 [-0.360]	-0.007 [-0.548]
Reel Sector Loans to GDP (RSLTGDP)	0.002 [0.991]	0.002 [1.073]	0.002 [0.869]	0.001 [0.767]
GDP Growth (GDPG)	-0.008 [-0.362]	-0.008 [-0.362]	-0.005 [-0.221]	-0.002 [-0.074]
Number of observations	270	270	270	270
Number of instruments	6	6	6	6
P_chi2	[0.000]	[0.000]	[0.000]	[0.000]
P_AR(2)	0.418	0.425	0.419	0.413
P_Sargan*	0.306	0.002	0.306	0.002
P_Hansen	0.532	0.413	0.532	0.413

Source: BAT, CBRT, EVDS and TSI.

Note. The coefficients of standard GMM estimations for a panel sample with 15 sectors and 20 years are presented in Table 4. One-step difference GMM estimations with lag (1 2) and lag (2 3) produce first two regressions. Two-step difference GMM estimates with lag (1 2) and lag (2 3) generate the other two regression specifications. SBLS is the dependent variable and one lagged SBLS is the first independent variable for each regressions. Z-Statistics that refer to robust standard errors are in brackets. *, ** and *** imply 10%, 5% and 1% significance level. Probability statistics for Wald Test (P_chi2), autocorrelation (P_AR [2]) and endogeneity tests (P_Sargan and P_Hansen) are given at the bottom part of the Table 4. Arellano-Bond tests (Ho: no autocorrelation), Sargan test and Hensen test (Ho: no endogeneity, instruments are exogenous or valid) are generally accepted but Sargan test is rejected at high lag versions. "Since Sargan test cannot be measured on GMM with robust standard error (Tataoglu, 2012: 85) and since robust and non-robust standard errors produce almost the same results, Sargan test reports the test statistics for GMM with normal standard errors.

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Table 5. Correlations between Loan Shares and GDP Shares and Non-Performing Loan Rates on Sectoral Basis

			Correlation Coefficients	
			Loan Share and Added Value	Loan Share and NPL Rate
	Sectors	Abbreviations	SBLS and SGDPs	SBLS and SNPLR
1	Manufacturing	Manufacturing	0.54**	0.92***
2	Wholesale and retail trade	Trade	0.18	-0.61***
3	Construction	Construction	0.40*	0.12
4	Transport and storage	Transport	0.30	0.25
5	Electric, gas and water resources	Electric	0.71***	0.24
6	Financial and insurance activities	Finance	-0.35	-0.13
7	Agriculture, forestry and fishing	Agriculture	0.32	-0.10
8	Real estate activities	Real estate	-0.49**	-0.18
9	Accommodation and food service activities	Accommodation	0.62***	-0.21
10	Other public, social and personal services	Other Public	-0.40*	-0.15
11	Mining and quarrying	Mining	-0.35	0.45**
12	Public administration and defence	Public adm.	-0.64***	-0.55**
13	Human health and social work activities	Human health	0.79***	-0.58***
14	Education	Education	0.88***	-0.34
15	Activities of household as employers	Household	-0.63***	-0.50**

Source: BAT, CBRT, EVDS and TSI.

Note. *, ** and *** indicate 10%, 5% and 1% significance level for correlation coefficients.

Typically as repayment performance of a sector decline, loans made to this sector is expected to decrease and, reasonable relationship between sector loan shares (SBLS) and NPL (SNPLR) rates is negative. NPL rate and loan usage ratio correlations are significant for six sectors but four sectors' (1. wholesale and retail trade, 2. public administration and defence, 3. human health and social work activities,

4. activities of household as employers) correlation signs are significantly negative as expected. The trade sector was ranked as second in both added value averages and bank loan share averages, and was ranked third according to averages of non-performing loan rates. This relatively high NPL average of trade sector depends on the huge NPL rates of early years up to 2005 and other years' rates that were higher than real sector for each year except 2006. Oppositely, NPL average for household activities having the first ranking in NPL list is depend on its enormous NPL rates seen after 2015. Sectors having bank loans share that were positively correlated (as opposite to expectations) to their own non-performing loan rates (SNPLR) are manufacturing sector (%1 significance level) and mining and quarrying sector (%5 significance level). NPL rates of the manufacturing sector were mostly higher than or near around total real sector NPL rates and forth greatest NPL averages of 20 years belonged to the manufacturing sector. Mining sector had relatively acceptable NPL rates lower than total averages between 2006 and 2013, but default rates before 2006 and after 2013 augmented its all year NPL averages that is 4.5%. We may interpret these positive correlations that the bank loans were continued to be distributed to the manufacturing sector and mining sector even if their repayment capacity weakened.

Three sectors that do not have significant correlations for both variables in Table 5 and thus were not interpreted are transport, agriculture and finance sectors. Transport and agriculture sectors had less access to bank loans than their national production proportions. While the value added ranking of the transportation sector was three, its share of the total bank loans was listed as fourth sector. Similarly, while the agricultural sector contributed to national income as the fifth valuable sector, it ranked seventh in the share of bank loans. These two sectors took place in the seventh and ninth rankings of NPL. Unlike these two sectors, the finance sector with a lower NPL average (1.6%) than NPL average of the real sector (4.7%) accessed to bank loans at higher rates than its output share.

CONCLUSION

By following the idea behind the demand-following view that bank loans follow the economic output and by taking credit risk into account, in this study I investigated whether bank loans in Turkey were allocated to sectors according to their GDP contributions and the default rates. When I gathered regression results, sector-specific correlations and historical movements in core variables for 15 Turkish

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sectors over 1999-2018 periods, I concluded that bank loans in Turkey were generally allocated to sectors disproportionately to sectors' added value and credit risk. This conclusion contradicts with the demand-following view and high risk avoidance perspective. GMM estimates signal that sector's outputs and sectoral NPL rates had hardly any influence on sectoral distributions of bank loans. Sector-specific evaluations made on correlations and core data trends showed that the disproportionate distribution of the bank loans with respect to output level and NPL rates emerged in different ways for each sector. Manufacturing, electric and household activities sectors used more bank loans than their GDP contribution, but manufacturing sector had a declining loan trend, electric sector had an increasing loan trend. Real estate, public services, public administration, human health and education sectors benefited less from bank loans than they deserved according to their outputs. Loans distributed to construction and accommodation sectors appear relatively proportional to their outputs. Shares of bank loans given to trade, public administration, human health and household activities sectors were negatively correlated to sectors' NPL ratios however manufacturing and mining sectors were positively correlated to NPL ratios.

Further studies with bank and if possible firm level data are needed to strongly verify the sectoral disproportionate distribution of the bank loans in Turkey with respect to output level and default rates and to find out what characteristics of sectors are related to banks' lending attitude.

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THE CLASH OF THE STOCK MARKETS: ON THE VOLATILITY DYNAMICS AND THE VOLATILITY SPILLOVER EFFECTS BETWEEN DEVELOPED AND FRAGILE COUNTRIES

Gönül YÜCE AKINCI¹, Merter AKINCI²

INTRODUCTION

Capitalism, which constitutes the most dynamic network of economic systems, has pioneered the acceleration of finance capital as a result of a new wave of economic evolution since the 1980s. Finance capital, which links the economic relations among countries with the motto of *there is no alternative*, has reshaped the materialistic connections between production means and production relations in the context of capital markets. The new capitalist order, which uses financial transactions instead of production and trade relations, makes the peripheral countries dependent on the central countries and therefore it has reorganized the world economic system in the light of mutual interdependence. In particular, quantitative changes have easily caused qualitative changes as a result of the rapid development of finance capital, and economic fluctuations in one country have spread to another country as an economic crisis. The transformation of quantity to the quality which is also called as *the butterfly effect* has accelerated the spillover of crises, and the spillover effects have mainly stem from the integrated structure of financial markets. In today's world, financial transactions taking the place of production and consumption relations have changed the structure of the economic crises and as a necessary result of the financial globalization process economic

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crises have generally occurred in the form of stock market crises, foreign exchange crises and banking crises.

Capital, which has become an independent power in the world with the financial globalization process, has accelerated the internationalization of financial markets and therefore capital has gained the ability to gain unlimited access to the markets with the highest profit opportunities. This interaction in capital markets because of the perfect mobility of capital has started to make markets dependent to each other and with the deregulation of financial markets, the effects of the volatility dynamics in one country appear simultaneously in other country or country groups. Regardless of development level, capital stock that suddenly enters in a country or exits from a country causes excessive volatility in financial markets and this volatile structure in financial markets can be transmitted to real economy. In this context, on the one hand intense capital movements distort the financial structure of a country where it leaves, and on the other hand, inflate the financial markets of a country where it enters. This rapid spread of capital is a direct result of the unlimited integration of world financial markets and the contagion effect of the volatile structure of capital is one of the main causes of economic instability. Undoubtedly, the devastating effects of financial fluctuations are more dominant in developing and less-developed countries with limited capital stock than developed countries.

In this respect, stock markets are one of the largest and most liquid markets which integrate limitlessly to each other. Due to large trade volumes, the interdependence linkages among stock markets have gained a much more important dimension than that of among other markets. Capital, whose main purpose is to maximize its profit, can deeply affect the interdependence linkages among stock markets, especially in times of financial crisis. In order to avoid excessive losses, investors tend to shift their investments from risky markets to safer markets in the period of financial crisis. Although this situation, known as *flight to quality*, increases the investor's benefit, it causes capital running-off from markets in crisis and accelerates the contagion effect. However, following the elimination of the periods of financial crisis, investors transfer their investments from safer markets to more risky markets. This situation, known as *flight from quality*, causes the capital to move to the markets emerging from the crisis and reduces the contagion effect (Cheng and Yang, 2017: 2). As it can be understood, depending on the periods of financial crisis and investor decisions, capital transfers from one market to

another market and in any case it leads to the emergence of a volatile structure in the relevant markets. This result can be interpreted as the fact that capital, which has an unlimited inflow capability to enter the markets, can lead to an unstable market structure.

The main motivation of this paper is to investigate the volatility dynamics of the stock market returns in the developed and developing countries. Besides, the volatility spillover effects from the American, European and Asian stock markets to the stock markets of the nine fragile countries are examined using the weekly data set for the period of 2009:06-2020:01. In this manner, Exponential Generalized Autoregressive Conditional Heteroscedasticity (EGARCH) model is employed to analyze the asymmetric volatility, which refers to the asymmetric effects of positive and negative shocks. The findings of the analysis show the existence of the leverage effect of the stock market returns in both country groups. In other words, the asymmetric effect between good and bad news is revealed. The results of the analysis also point out that the leverage effects, shock effects and volatility persistence effects are higher in the fragile countries than that of in the developed countries. Moreover, it is found that the volatility spillover effect appears from the stock markets of the developed countries to the stock markets of the fragile countries. The rest of the paper is organized as follows. In the second section a brief literature review on the interdependence linkages and spillover effects among stock markets is presented. In the third section, methodology of the analysis is introduced. In the fourth section, the findings of the analysis are represented and in the final section, we present general discussions and policy implications of the work.

LITERATURE REVIEW

With the acceleration of financial globalization movements, the interdependence linkages between stock markets have become a major focus of interest among economists and numerous applied researches have been done to understand the nature of the interdependence and spillover linkages among financial markets. In this context, it can be seen that the topic of interdependence between stock markets covers an extensive field in the literature of economics and therefore Table 1 presents a brief summary about the issue. A large majority of the studies in the literature have shown that high degree interdependence linkages are valid among stock markets and volatility spillover effects occur over time.

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Table 1. The Literature Review Summary

Author	Country	Time Span	Method	Result
Wong <i>et al.</i> (2004)	The Stock Markets of the USA, the United Kingdom, Japan, Malaysia, Thailand, Korea, Taiwan, Singapore and Hong Kong	1981:01-2002:12	Time Series Analysis	
Lim (2009)	The Stock Markets of Indonesia, Malaysia, the Philippines, Singapore and Thailand	1990:01-2008:12	Time Series Analysis	
Bensafra and Gervasio (2011)	11 Stock Markets of Europe, North America and Asia	1985:01-2007:12	ICSS-MGARCH Model	
Dajcman (2013)	The Stock Markets of Germany, Austria, France and the United Kingdom	1997:04-2010:05	MODWT Wavelet Analysis	The results of the analysis show that the interdependence linkages among stock markets increase regardless of the region they are located in, and the volatility spillover effects occur over time. In addition, it is stated that the volatility spillover effects exacerbate during financial crisis periods, and it is also noted that stock market crashes accelerate in the times of crises. Besides, the findings of the analysis emphasizing that leverage effects occur indicate that the shock effects are strong and the volatility persistence continues to increase.
Natarajan <i>et al.</i> (2014)	The Stock Markets of Australia, the USA, Brazil, Germany and Hong Kong	2002:01-2011:12	GARCH-M Model	
Gaio <i>et al.</i> (2014)	The Stock Markets of Brazil, the USA, Japan and the United Kingdom	2000:01-2008:12	Unit Root and Granger Causality Tests	
Paramati <i>et al.</i> (2015)	The Stock Market of Australia and The Stock Markets of Its Trading Partners	1993:01-2014:04	GARCH Models	
Deltuvaite (2016)	The Stock Markets of Baltic Countries	2000:01-2014:06	ARDL Analysis	
Rocchi <i>et al.</i> (2017)	The Stock Market of the United Kingdom	2000:01-2015:05	Time Series Analysis	
Zhang <i>et al.</i> (2017)	27 Markets from Three Continents, including Asia, America and Europe	2006:01-2015:12	Time Series Analysis	
Shahzad <i>et al.</i> (2016)	Greece and 12 European Stock Markets	2004:01-2015:4	ARMA-GARCH Models	
Yüce Akıncı and Mumcu Küçükçaylı (2018)	12 European and 8 Asian Stock Markets	2001:01-2017:04	Time Series Analysis with Structural Breaks	
Aamir and Shah (2018)	8 Asian Stock Markets	2001:01-2015:12	Time Series and Panel Data Analysis	
Correa <i>et al.</i> (2018)	The Stock Markets of 4 Latin America and 4 Developed Countries	2008:06-2015:05	VAR-MGARCH Model	
Badr and Khallouli (2019)	The Stock Markets of MENA Countries	1998:01-2002:12	Error Correction Model	
Hung (2019)	The Stock Markets of China, Vietnam, Thailand, Singapore and Malaysia	2000:07-2018:07	GARCH-BEKK Model	
Rafiq and Hassan (2019)	The Stock Markets of China, Pakistan, Indonesia, India, Malaysia, Brazil, Mexico, the Philippines, Hungary and South Africa	2010:01-2017:05	DCC-GARCH Model	
Yola <i>et al.</i> (2018)	The Stock Markets of Nigeria, South Africa and Egypt	2008:05-2016:12	Time Series Analysis and Toda-Yamamoto Causality Test	The results of the analysis show that there are not any co-movements and interdependence linkages among the stock markets.

DATA SET, METHODOLOGY AND ECONOMETRIC MODEL

The main motivation of this paper is to investigate the volatility dynamics of the stock market returns in the developed and developing countries. Besides, the volatility spillover effects from the American (the US, Mexico, Canada), European (Germany, the United Kingdom, France, Spain, Italy, Switzerland, Portugal, Belgium, Austria, Sweden) and Asian (Japan, Australia, China, Hong Kong, South Korea, Taiwan, Sri Lanka) stock markets to the stock markets of the nine fragile countries (Brazil, India, Indonesia, South Africa, Argentina, Pakistan, Egypt, Qatar, Turkey) are examined using the weekly data set for the period of 2009:06-2020:01. In this manner, EGARCH model is employed to analyze the asymmetric volatility. The main reason for choosing the mentioned time period is the availability of the data set. In order to calculate the weekly returns of the stock markets, the data set consisting of weekly closing prices for the stock markets are used. The data set are available at <https://tr.investing.com/indices/world-indices>. The weekly return series of the relevant stock markets can be defined as follows:

$$R_t = \ln(P_t) - \ln(P_{t-1}) \quad (1)$$

where R_t indicates the return of the stock market on day t , $\ln(P_t)$ shows the natural logarithm of the closing price of the stock market on day t and (P_{t-1}) represents the natural logarithm of the closing price of the stock market on day $t-1$.

One of the most important deficiencies of GARCH models is the assumption that volatility is symmetrical in response to positive and negative shocks and therefore GARCH process fails to identify the asymmetric linkages in variance structure. However, there can be some other situations where such an assumption is not valid, in other words, where volatility is asymmetrical in response to shocks (Özden, 2008: 344; Songül, 2010: 18). For this reason, instead of GARCH models that are insufficient in modeling leverage effects, EGARCH models introduced by Nelson (1991) are applied to determine the asymmetric effects of the shocks in the stock markets. In general, EGARCH models are widely used to examine the asymmetric or leverage effects in stock markets. Besides, EGARCH models are generally employed when asymmetric effects of good and bad news on stock markets are wanted to determine and they are also preferred since they are highly flexible models in terms of coefficient constraints. Therefore, it can be said that EGARCH analysis where the asymmetry effects in the volatility structure are taken into account is an econometric technique in which the conditional variance is modeled based on both magnitudes and signs of lagged error terms.

EGARCH model introduced by Nelson (1991) can be described as follow:

$$\ln(\sigma_{Turkey,t}^2) = \omega + \sum_{k=1}^p \beta_1 \ln(\sigma_{t-1}^2) + \sum_{i=1}^q \alpha_i \left| \frac{\varepsilon_{t-1}}{\sigma_{t-1}} \right| + \sum_{s=1}^r \gamma_s \frac{\varepsilon_{t-1}}{\sigma_{t-1}} + \psi_1 \ln(U_{theUS,t}) \quad (2)$$

Considering the regression equation numbered (2), since the model takes into account the logarithm of variances and positive or negative shocks is exponential, it is guaranteed that the conditional variance will be positive. In addition, the equation also points out that there are no restrictions on the parameters, ω , α , β and γ . In the regression equation numbered (2), σ_t^2 represents the following period predicted variance depending on past period information and it is called as the conditional variance. γ refers to the effects of the past period shocks on the current period conditional variance. β indicating the volatility resistance points out the persistence of past period shocks on the current period conditional variance. In general, leverage effect refers to the impact of good or bad news on future volatility. If γ parameter, the leverage effect, is equal to zero ($\gamma_s = 0$), a symmetrical relationship is valid between the variables. Therefore, an asymmetric linkage occurs when γ is not equal to zero ($\gamma_s \neq 0$). If γ is positive, the effect of shocks on conditional variance is expected to be $\alpha + \gamma$ and if γ is negative, in other words the leverage effect exists, the effect of shocks on conditional variance is expected to be $-\alpha + \gamma$ (Enders, 2015: 156 ; Korap, 2010: 106). The term $U_{theUS,t}$ represents the squares of error terms derived from the EGARCH analysis for the US. The volatility spillover effect is determined by taking into account the statistical significance of ψ coefficient. If the coefficient of ψ is statistically significant, it is decided that there is a volatility spillover effect from one stock market (for instance the US) to another (for instance Turkey). Finally, ε represents the white-noise error term, *i.i.d.*

THE FINDINGS OF THE ECONOMETRIC ANALYSIS

In order to test the volatility dynamics of the returns of the stock markets with the help of EGARCH analysis, stationary information of the return series is needed. For this purpose, Table 2 shows the results of ADF unit root test belonging to the return series of the stock markets. The findings of the analysis reveal that the return series of the stock markets are stationary at level and their significance levels differ.

Table 2. The Results of ADF Unit Root Test

The Results of ADF Unit Root Test at Level						
Variable	Intercept		Trend & Intercept		None	
American Stock Markets						
RUS (S&P 500)	-25.733(0)***	[0.000]	-25.717(0)***	[0.000]	-25.373(0)***	[0.000]
RMexico (S&P/BMV IPC)	-26.011(0)***	[0.000]	-26.119(0)***	[0.000]	-25.952(0)***	[0.000]
RCanada (S&P/TSX)	-25.390(0)***	[0.000]	-25.371(0)***	[0.000]	-25.334(0)***	[0.000]
European Stock Markets						
RGermay (DAX)	-24.812(0)***	[0.000]	-24.810(0)***	[0.000]	-24.696(0)***	[0.000]
RUK (FTSE 100)	-24.683(0)***	[0.000]	-24.698(0)***	[0.000]	-24.633(0)***	[0.000]
RFrance (CAC40)	-25.150(0)***	[0.000]	-25.127(0)***	[0.000]	-25.114(0)***	[0.000]
RSpain (IBEX 35)	-24.942(0)***	[0.000]	-24.919(0)***	[0.000]	-24.964(0)***	[0.000]
RIItaly (FTSE MIB)	-23.838(0)***	[0.000]	-23.824(0)***	[0.000]	-23.855(0)***	[0.000]
RSwitzerland (SMI)	-25.075(0)***	[0.000]	-25.054(0)***	[0.000]	-24.996(0)***	[0.000]
RPortugal (PSI 20)	-23.031(0)***	[0.000]	-23.012(0)***	[0.000]	-23.043(0)***	[0.000]
RBelgium (BEL 20)	-26.653(0)***	[0.000]	-26.640(0)***	[0.000]	-26.586(0)***	[0.000]
RAustria (ATX Prime)	-23.845(0)***	[0.000]	-23.825(0)***	[0.000]	-23.833(0)***	[0.000]
RSweden (OMX S30)	-26.360(0)***	[0.000]	-26.355(0)***	[0.000]	-26.266(0)***	[0.000]
Asian Stock Markets						
RJapan (Nikkei 225)	-23.077(0)***	[0.000]	-23.058(0)***	[0.000]	-23.017(0)***	[0.000]
RAustralia (S&P/ASX 200)	-26.115(0)***	[0.000]	-26.091(0)***	[0.000]	-26.051(0)***	[0.000]
RChina (China A50)	-23.512(0)***	[0.000]	-23.547(0)***	[0.000]	-23.527(0)***	[0.000]
RHong Kong (Hang Seng)	-23.585(0)***	[0.000]	-23.564(0)***	[0.000]	-23.584(0)***	[0.000]
RSouth Korea (KOSPI)	-24.475(0)***	[0.000]	-24.498(0)***	[0.000]	-24.454(0)***	[0.000]
RTaiwan (Taiwan Weighted)	-25.007(0)***	[0.000]	-24.984(0)***	[0.000]	-24.949(0)***	[0.000]
RSri Lanka (CSE All-Share)	-17.275(0)***	[0.000]	-17.580(0)***	[0.000]	-17.185(0)***	[0.000]
Stock Markets of the Fragile Countries						
RBrazil (Bovespa)	-24.122(0)***	[0.000]	-24.147(0)***	[0.000]	-24.080(0)***	[0.000]
RIndia (BSE Sensex)	-24.101(0)***	[0.000]	-24.079(0)***	[0.000]	-23.936(0)***	[0.000]
RIndonesia (IDX Composite)	-26.824(0)***	[0.000]	-26.966(0)***	[0.000]	-26.572(0)***	[0.000]
RSouth Africa (FTSE/JSE)	-24.126(0)***	[0.000]	-24.197(0)***	[0.000]	-23.953(0)***	[0.000]
RArgentina (S&P/BYMA)	-22.396(0)***	[0.000]	-22.376(0)***	[0.000]	-22.076(0)***	[0.000]
RPakistan (Karachi Meezan 30)	-22.153(0)***	[0.000]	-22.306(0)***	[0.000]	-21.785(0)***	[0.000]
REgypt (EGX 30)	-21.668(0)***	[0.000]	-21.648(0)***	[0.000]	-21.646(0)***	[0.000]
RQatar (Doha All-Share)	-22.301(0)***	[0.000]	-22.304(0)***	[0.000]	-22.396(0)***	[0.000]
RTurkey (BIST 100)	-25.128(0)***	[0.000]	-25.176(0)***	[0.000]	-25.079(0)***	[0.000]
Critical Values	1%	-3.442	1%	-3.974	1%	-2.569
	5%	-2.866	5%	-3.418	5%	-1.941
	10%	-2.569	10%	-3.131	10%	-1.616

Note: *R* indicates the return of the relevant stock market. In the ADF test, the values in parenthesis reflect the optimum lag lengths for the variable, which are obtained using the AIC over a maximum of 18 lag lengths. Besides, the values in square brackets point out the probability value of the coefficient. *** indicates the stationarity of the variable at the significance level of 1%.

Following the obtaining of the stationary information of the variables, the optimum ARIMA model should be determined and the conditional mean equation should be estimated. For this purpose, the optimum models for the whole stock market returns are estimated and the diagnosis results of the analysis of the conditional mean and variance equations are shown in Table 3. The findings of the analysis showing no autocorrelation in the models reveal the existence of the ARCH effect in the residuals of the return series.

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Table 3. The Diagnosis Results of the Conditional Mean Equation

Stock Market	Optimum ARMA and EGARCH Models	The Diagnosis Tests		AIC Value of ARMA
American Stock Markets				
RUS	ARMA(1,1) / EGARCH(3,3)	BG(5): 3.662 (0.599) BG(10): 13.359 (0.204)	ARCH(5): 54.139 ^{***} (0.000) ARCH(10): 68.555 ^{***} (0.000)	-5.085
RMexico	ARMA(1,1) / EGARCH(2,3)	BG(5): 4.219 (0.518) BG(10): 5.416 (0.861)	ARCH(5): 19.666 ^{***} (0.001) ARCH(10): 22.235 ^{***} (0.013)	-4.986
RCanada	ARMA(1,1) / EGARCH(2,3)	BG(5): 2.245 (0.814) BG(10): 7.824 (0.645)	ARCH(5): 44.314 ^{***} (0.000) ARCH(10): 55.800 ^{***} (0.000)	-5.359
European Stock Markets				
RGermany	ARMA(1,1) / EGARCH(3,1)	BG(5): 0.753 (0.979) BG(10): 8.630 (0.567)	ARCH(5): 48.895 ^{***} (0.000) ARCH(10): 55.777 ^{***} (0.000)	-4.461
RUk	ARMA(1,1) / EGARCH(2,3)	BG(5): 1.666 (0.893) BG(10): 10.018 (0.438)	ARCH(5): 21.730 ^{***} (0.000) ARCH(10): 31.620 ^{***} (0.000)	-5.033
RFrance	ARMA(1,1) / EGARCH(1,3)	BG(5): 1.021 (0.960) BG(10): 6.592 (0.763)	ARCH(5): 41.820 ^{***} (0.000) ARCH(10): 55.273 ^{***} (0.000)	-4.492
RSpain	ARMA(1,1) / EGARCH(1,1)	BG(5): 2.808 (0.729) BG(10): 8.744 (0.556)	ARCH(5): 28.424 ^{***} (0.000) ARCH(10): 46.626 ^{***} (0.000)	-4.192

Table 3. The Diagnosis Results of the Conditional Mean Equation (Continue)

Stock Market	Optimum ARMA and EGARCH Models	The Diagnosis Tests		AIC Value of ARMA
European Stock Markets				
RItaly	ARMA(1,1) / EGARCH(1,3)	BG(5): 2.043 (0.843) BG(10): 7.858 (0.642)	ARCH(5): 33.610 ^{***} (0.000) ARCH(10): 48.144 ^{***} (0.000)	-4.126
RSwitzerland	ARMA(1,1) / EGARCH(3,3)	BG(5): 3.002 (0.699) BG(10): 3.844 (0.954)	ARCH(5): 14.115 ^{***} (0.084) ARCH(10): 20.252 ^{***} (0.080)	-4.980
RPortugal	ARMA(1,1) / EGARCH(1,1)	BG(5): 2.650 (0.753) BG(10): 7.858 (0.642)	ARCH(5): 27.056 ^{***} (0.000) ARCH(10): 29.396 ^{***} (0.001)	-4.415
RBelgium	ARMA(1,2) / EGARCH(1,3)	BG(5): 0.252 (0.998) BG(10): 4.926 (0.896)	ARCH(5): 17.578 ^{***} (0.003) ARCH(10): 25.791 ^{***} (0.004)	-4.735
RAustria	ARMA(1,1) / EGARCH(1,3)	BG(5): 1.596 (0.901) BG(10): 10.378 (0.407)	ARCH(5): 30.706 ^{***} (0.000) ARCH(10): 50.342 ^{***} (0.000)	-4.411
RSweden	ARMA(1,3) / EGARCH(2,2)	BG(5): 2.991 (0.736) BG(10): 7.775 (0.633)	ARCH(5): 52.710 ^{***} (0.000) ARCH(10): 54.987 ^{***} (0.000)	-4.686
Asian Stock Markets				
RJapan	ARMA(3,3) / EGARCH(1,1)	BG(5): 2.352 (0.798) BG(10): 3.837 (0.954)	ARCH(5): 15.428 ^{***} (0.008) ARCH(10): 16.539 ^{***} (0.085)	-4.397
RAustralia	ARMA(3,3) / EGARCH(2,3)	BG(5): 7.722 (0.172) BG(10): 13.569 (0.193)	ARCH(5): 16.622 ^{***} (0.005) ARCH(10): 30.402 ^{***} (0.000)	-5.129
RChina	ARMA(2,1) / EGARCH(3,3)	BG(5): 3.138 (0.678) BG(10): 6.107 (0.806)	ARCH(5): 51.264 ^{***} (0.000) ARCH(10): 62.840 ^{***} (0.000)	-4.055
RHong Kong	ARMA(1,1) / EGARCH(3,3)	BG(5): 5.877 (0.318) BG(10): 11.091 (0.350)	ARCH(5): 27.874 ^{***} (0.000) ARCH(10): 34.134 ^{***} (0.000)	-4.521
RSouth Korea	ARMA(1,3) / EGARCH(2,3)	BG(5): 0.878 (0.971) BG(10): 1.646 (0.998)	ARCH(5): 31.963 ^{***} (0.000) ARCH(10): 50.913 ^{***} (0.000)	-4.985
RTaiwan	ARMA(3,3) / EGARCH(2,3)	BG(5): 3.291 (0.665) BG(10): 4.243 (0.935)	ARCH(5): 16.949 ^{***} (0.004) ARCH(10): 30.909 ^{***} (0.000)	-4.962
RSri Lanka	ARMA(2,3) / EGARCH(3,1)	BG(5): 6.882 (0.229) BG(10): 10.118 (0.113)	ARCH(5): 53.066 ^{***} (0.000) ARCH(10): 69.915 ^{***} (0.000)	-5.292

<i>R</i> Brazil	ARMA(1,1) / EGARCH(3,3)	BG(5): 2.912 (0.713) BG(10): 9.234 (0.510)	ARCH(5): 34.298 ^{***} (0.000) ARCH(10): 51.442 ^{***} (0.000)	-4.234
<i>R</i> India	ARMA(1,1) / EGARCH(1,3)	BG(5): 8.965 (0.110) BG(10): 15.098 (0.103)	ARCH(5): 27.134 ^{***} (0.000) ARCH(10): 42.355 ^{***} (0.000)	-4.809
<i>R</i> Indonesia	ARMA(1,3) / EGARCH(1,3)	BG(5): 6.126 (0.294) BG(10): 10.443 (0.402)	ARCH(5): 19.572 ^{***} (0.001) ARCH(10): 23.926 ^{***} (0.007)	-4.867
<i>R</i> South Africa	ARMA(1,1) / EGARCH(2,3)	BG(5): 6.314 (0.276) BG(10): 8.502 (0.579)	ARCH(5): 19.123 ^{***} (0.001) ARCH(10): 25.307 ^{***} (0.004)	-5.067
<i>R</i> Argentina	ARMA(3,3) / EGARCH(3,3)	BG(5): 0.927 (0.968) BG(10): 12.894 (0.224)	ARCH(5): 15.443 ^{***} (0.008) ARCH(10): 24.881 ^{***} (0.006)	-3.427
<i>R</i> Pakistan	ARMA(2,1) / EGARCH(1,3)	BG(5): 1.507 (0.912) BG(10): 4.702 (0.910)	ARCH(5): 40.949 ^{***} (0.000) ARCH(10): 42.344 ^{***} (0.000)	-4.534
<i>R</i> Egypt	ARCH(3,2) / EGARCH(2,3)	BG(5): 1.668 (0.892) BG(10): 3.789 (0.956)	ARCH(5): 10.617 [*] (0.059) ARCH(10): 21.866 ^{**} (0.018)	-3.823
<i>R</i> Qatar	ARMA(3,1) / EGARCH(1,1)	BG(5): 3.767 (0.583) BG(10): 11.065 (0.325)	ARCH(5): 63.074 ^{***} (0.000) ARCH(10): 67.548 ^{***} (0.000)	-4.650
<i>R</i> Turkey	ARMA(1,1) / EGARCH(2,3)	BG(5): 1.080 (0.955) BG(10): 5.254 (0.873)	ARCH(5): 12.114 [*] (0.051) ARCH(10): 19.856 ^{**} (0.022)	-4.060

Note: *R* indicates the return of the relevant stock market. BG reflects the Breusch-Godfrey autocorrelation test and ARCH indicates the autoregressive conditional heteroscedasticity test. AIC implies the Akaike Information Criterion. ^{***}, ^{**} and ^{*} show the significance at 1%, 5% and 10%, respectively.

In general, ARCH and GARCH models are inadequate in determining asymmetry effects in variance structure. In this context, it is necessary to apply EGARCH model proposed by Nelson (1991) in order to determine the asymmetry effects of the shocks on volatility. Table 4 points out the estimation results of optimum ARMA and EGARCH models for the return series of the American, European and Asian stock markets. Table 5 indicates the estimation findings of optimum ARMA and EGARCH models and it also shows the spillover effects from the American, European and Asian stock markets to the stock markets of the nine fragile countries.

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Table 4. The Estimation Results of EGARCH Models

	European Stock Markets					European Stock Markets				
	The US	Mexico	Canada	Germany	The UK	France	Spain	Italy	Switzerland	Portugal
Mean Equation										
Constant	0.001(0.000)	0.001(0.150)	0.001(0.103)	0.001(0.081)	0.001(0.000)	0.001(0.209)	-0.001(0.105)	-0.001(0.148)	0.001(0.069)	-0.001(0.045)
α_1	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
MA(1)	-0.992*** (0.000)	-0.276(0.002)	-0.621*** (0.000)	0.556(0.173)	-0.996*** (0.000)	-0.386(0.344)	-0.890*** (0.000)	0.816*** (0.000)	-0.893*** (0.000)	-0.716*** (0.012)
Variance Equation										
Constant (ω)	-1.423*** (0.000)	-0.994*** (0.000)	-1.421*** (0.000)	-1.498*** (0.000)	-0.848*** (0.003)	-0.754*** (0.001)	-0.332*** (0.007)	-0.719*** (0.004)	-1.032*** (0.000)	-0.870*** (0.001)
α_1	0.278*** (0.000)	-0.001(0.990)	0.046(0.623)	0.138(0.136)	-0.011(0.855)	0.104(0.076)	0.129*** (0.005)	0.168*** (0.021)	0.243*** (0.015)	0.159*** (0.000)
α_2	-0.144(0.120)	0.267*** (0.004)	0.212*** (0.025)	-0.133(0.201)	0.156*** (0.014)				-0.620*** (0.000)	
α_3	0.360*** (0.000)			0.287*** (0.000)					0.505*** (0.000)	
γ	-0.190*** (0.000)	-0.324*** (0.000)	-0.354*** (0.000)	-0.230*** (0.000)	-0.357*** (0.000)	-0.328*** (0.000)	-0.130*** (0.000)	-0.268*** (0.000)	-0.207*** (0.000)	-0.123*** (0.000)
β_1	1.327*** (0.000)	0.603*** (0.000)	0.603*** (0.000)	0.829*** (0.000)	0.193*** (0.000)	0.481*** (0.005)	0.968*** (0.000)	0.391*** (0.024)	1.571*** (0.000)	0.898*** (0.000)
β_2	0.326*** (0.000)	0.000(0.151)	0.000(0.151)	0.000(0.401)	0.000(0.401)	0.000(0.401)	0.000(0.401)	0.000(0.401)	0.000(0.401)	0.000(0.401)
β_3	0.326*** (0.000)	0.000(0.151)	0.000(0.151)	0.000(0.401)	0.000(0.401)	0.000(0.401)	0.000(0.401)	0.000(0.401)	0.000(0.401)	0.000(0.401)
Diagnosis Tests	ARCH(5): 4.447	ARCH(5): 3.357	ARCH(5): 1.033	ARCH(5): 6.704	ARCH(5): 1.853	ARCH(5): 2.701	ARCH(5): 4.341	ARCH(5): 2.276	ARCH(5): 6.331	ARCH(5): 3.582
	ARCH(10): (0.86)	ARCH(10): (0.552)	ARCH(10): (0.959)	ARCH(10): (0.243)	ARCH(10): (0.869)	ARCH(10): (0.745)	ARCH(10): (0.501)	ARCH(10): (0.809)	ARCH(10): (0.610)	ARCH(10): (0.610)
	ARCH(10): 8.705	ARCH(10): 7.771	ARCH(10): 5.325	ARCH(10): 8.982	ARCH(10): 3.140	ARCH(10): 6.665	ARCH(10): 9.381	ARCH(10): 5.745	ARCH(10): 8.808	ARCH(10): 7.287
	(0.560)	(0.603)	(0.868)	(0.533)	(0.977)	(0.756)	(0.328)	(0.856)	(0.550)	(0.698)
	European Stock Markets					Asian Stock Markets				
	Belgium	Austria	Sweden	Japan	Australia	China	Hong Kong	S. Korea	Taiwan	Sri Lanka
Mean Equation										
Constant	0.001(0.218)	0.001(0.375)	0.001*** (0.000)	0.001(0.146)	0.001(0.121)	0.001(0.773)	0.001(0.456)	0.001(0.315)	0.001*** (0.000)	0.001(0.093)
α_1	0.506*** (0.000)	-0.875*** (0.000)	0.958*** (0.000)	-0.058(0.325)	-0.083(0.213)	-0.040(0.735)	-0.201(0.153)	0.827*** (0.000)	0.484*** (0.000)	0.654*** (0.000)
MA(1)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)
MA(2)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)
MA(3)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)	-0.992*** (0.000)
Variance Equation										
Constant (ω)	-1.118*** (0.011)	-0.986*** (0.000)	-1.785*** (0.000)	-2.128*** (0.000)	-1.611*** (0.000)	-2.246*** (0.000)	-0.689(0.205)	-1.603*** (0.017)	-0.724*** (0.004)	-0.115*** (0.011)
α_1	0.207*** (0.006)	0.253*** (0.000)	0.090(0.264)	0.253*** (0.002)	0.134(0.131)	0.358*** (0.000)	0.095*** (0.009)	0.238*** (0.000)	0.020(0.605)	0.384*** (0.000)
α_2	-0.244*** (0.000)	-0.286*** (0.000)	-0.360*** (0.000)	-0.225*** (0.000)	-0.243*** (0.003)	-0.235*** (0.000)	-0.105*** (0.029)	0.105*** (0.059)	0.533*** (0.000)	0.584*** (0.000)
γ	0.788*** (0.000)	0.413*** (0.000)	0.367*** (0.008)	0.772*** (0.000)	0.734*** (0.001)	0.027*** (0.052)	-0.105*** (0.000)	-0.127*** (0.000)	-0.141*** (0.000)	-0.203*** (0.010)
β_1	-0.441*** (0.011)	-0.129(0.192)	0.426*** (0.004)	-0.225*** (0.000)	-0.243*** (0.003)	-0.711*** (0.000)	-0.236*** (0.000)	0.018(0.671)	-0.041*** (0.081)	-0.003*** (0.085)
β_2	0.528*** (0.000)	0.611*** (0.000)		0.727*** (0.000)	0.734*** (0.001)	0.571*** (0.000)	0.212*** (0.000)	-0.011(0.732)	0.098*** (0.000)	0.994*** (0.000)
Diagnosis Tests	ARCH(5): 1.659	ARCH(5): 2.780	ARCH(5): 2.535	ARCH(5): 7.613	ARCH(5): 1.054	ARCH(5): 2.028	ARCH(5): 2.783	ARCH(5): 3.246	ARCH(5): 0.827	ARCH(5): 0.899
	ARCH(10): (0.893)	ARCH(10): (0.713)	ARCH(10): (0.771)	ARCH(10): (0.178)	ARCH(10): (0.958)	ARCH(10): (0.445)	ARCH(10): (0.153)	ARCH(10): (0.662)	ARCH(10): (0.970)	ARCH(10): (0.970)
	ARCH(10): 2.642	ARCH(10): 4.033	ARCH(10): 6.570	ARCH(10): 10.764	ARCH(10): 5.474	ARCH(10): 4.460	ARCH(10): 4.197	ARCH(10): 3.789	ARCH(10): 5.621	ARCH(10): 5.014
	(0.988)	(0.945)	(0.765)	(0.376)	(0.857)	(0.900)	(0.504)	(0.956)	(0.830)	(0.890)

Note: ***, **, and * reflect that the coefficients of the variables are significant at 1%, 5% and 10%, respectively. The values in parenthesis point out the probability value of the coefficient. Gaussian error distribution is taken into consideration in the analysis of EGARCH model. In addition, BFGS optimization method and Marquardt step method are used in the estimation process. The models are estimated with a maximum of 500 iterations. The term α , γ and β indicate the shock effect, leverage effect and volatility persistence effect, respectively.

Table 5. The Estimation Results of EGARCH Models and Spillover Effects

Mean Equation	Stock Markets of Fragile Countries									
	Brazil	India	Indonesia	South Africa	Argentina	Pakistan	Egypt	Qatar	Turkey	
Constant	0.001(0.232)	0.001 ^{***} (0.037)	0.001 ^{***} (0.000)	0.001 ^{***} (0.000)	0.005 ^{***} (0.003)	0.003 ^{***} (0.011)	0.001(0.257)	0.001(0.328)	0.002 ^{***} (0.093)	
AR(1)	-0.831 ^{***} (0.001)	-0.131(0.750)	0.970 ^{***} (0.000)	0.852 ^{***} (0.000)	-1.122 ^{***} (0.000)	0.959 ^{***} (0.000)	-1.226 ^{***} (0.000)	-0.607 ^{***} (0.000)	-0.338(0.465)	
AR(2)					-1.066 ^{***} (0.000)	-0.041(0.349)	-0.818 ^{***} (0.000)	-0.040(0.416)		
AR(3)					-0.860 ^{***} (0.000)		0.101 ^{***} (0.015)	-0.094 ^{***} (0.025)		
MA(1)	0.802 ^{***} (0.004)	0.110(0.790)	-1.112 ^{***} (0.000)	-0.925 ^{***} (0.000)	0.169 ^{***} (0.000)	-0.912 ^{***} (0.000)	1.363 ^{***} (0.000)	0.673 ^{***} (0.000)	0.262(0.380)	
MA(2)			0.172 ^{***} (0.000)		0.159 ^{***} (0.000)		0.999 ^{***} (0.000)			
MA(3)			-0.057(0.183)		0.875 ^{***} (0.000)					
Variance Equation										
Constant (ω)	-0.898(0.131)	-0.979 ^{***} (0.001)	-1.191 ^{***} (0.000)	-2.202 ^{***} (0.003)	-3.665 ^{***} (0.023)	-1.590 ^{***} (0.000)	-1.723 ^{***} (0.000)	-1.922 ^{***} (0.000)	-4.423 ^{***} (0.000)	
α_1	0.149 ^{***} (0.000)	0.197 ^{***} (0.003)	0.346 ^{***} (0.000)	0.317 ^{***} (0.005)	0.433 ^{***} (0.004)	0.157 ^{***} (0.003)	0.432 ^{***} (0.000)	0.277 ^{***} (0.000)	0.101 ^{***} (0.022)	
α_2	-0.083(0.276)				0.005(0.962)		-0.049(0.386)		-0.092 ^{***} (0.014)	
α_3	0.366 ^{***} (0.000)									
γ	-0.163 ^{***} (0.000)	-0.176 ^{***} (0.000)	-0.112 ^{***} (0.000)	-0.308 ^{***} (0.000)	-0.018 ^{***} (0.087)	-0.147 ^{***} (0.000)	-0.166 ^{***} (0.000)	-0.162 ^{***} (0.000)	-0.078 ^{***} (0.002)	
β_1	0.619 ^{***} (0.000)	0.231 ^{***} (0.000)	0.231 ^{***} (0.000)	0.250 ^{***} (0.070)	-0.964 ^{***} (0.000)	1.402 ^{***} (0.000)	0.736 ^{***} (0.000)	0.775 ^{***} (0.000)	0.575 ^{***} (0.000)	
β_2	-0.569 ^{***} (0.000)	-0.293(0.169)	-0.950 ^{***} (0.000)	0.067(0.645)	0.694 ^{***} (0.000)	-0.971 ^{***} (0.001)	-0.635 ^{***} (0.000)	0.775 ^{***} (0.000)	0.464 ^{***} (0.000)	
β_3	0.533 ^{***} (0.000)	0.569 ^{***} (0.000)	0.601 ^{***} (0.000)	0.425 ^{***} (0.001)	0.804 ^{***} (0.000)	0.385 ^{***} (0.028)	0.686 ^{***} (0.000)		-0.838 ^{***} (0.000)	
Diagnosis Tests										
ARCH(5)	4.341 ^{***}	1.906 ^{***}	1.467 ^{***}	1.219 ^{***}	1.427 ^{***}	3.033 ^{***}	2.012 ^{***}	1.170 ^{***}	5.432 ^{***}	
ARCH(10)	6.016 ^{***}	3.061 ^{***}	2.016 ^{***}	1.616 ^{***}	1.616 ^{***}	4.676 ^{***}	3.061 ^{***}	1.616 ^{***}	6.016 ^{***}	
ARCH(10):	5.930 ^{***}	7.499 ^{***}	2.505 ^{***}	1.571 ^{***}	ARCH(10):	5.089 ^{***}	6.287 ^{***}	ARCH(10):	8.904 ^{***}	
	(0.821)	(0.677)	(0.990)	(0.998)	(0.638)	(0.885)	(0.790)	(0.964)	(0.541)	
Spillover Effect										
The US	0.095 ^{***} (0.000)	0.054 ^{***} (0.002)	0.033 ^{***} (0.005)	0.129 ^{***} (0.000)	0.002(0.608)	0.030 ^{***} (0.025)	-0.001(0.974)	-0.012(0.362)	0.064 ^{***} (0.000)	
Mexico	0.093 ^{***} (0.000)	0.041 ^{***} (0.024)	0.069 ^{***} (0.000)	0.108 ^{***} (0.000)	0.018 ^{***} (0.081)	-0.006(0.634)	0.002(0.880)	0.023(0.244)	0.076 ^{***} (0.000)	
Canada	0.137 ^{***} (0.000)	0.061 ^{***} (0.000)	0.019(0.070)	0.131 ^{***} (0.000)	0.089 ^{***} (0.000)	-0.022(0.153)	0.093 ^{***} (0.000)	0.010(0.502)	0.032 ^{***} (0.023)	
Germany	0.091 ^{***} (0.000)	0.054 ^{***} (0.012)	0.008(0.366)	0.171 ^{***} (0.000)	0.069 ^{***} (0.000)	-0.011(0.381)	0.103 ^{***} (0.000)	-0.016(0.291)	0.044 ^{***} (0.014)	
The UK	0.087 ^{***} (0.000)	0.054 ^{***} (0.001)	0.015 ^{***} (0.042)	0.159 ^{***} (0.000)	0.069 ^{***} (0.000)	-0.001(0.974)	0.078 ^{***} (0.000)	-0.001(0.941)	0.076 ^{***} (0.000)	
France	0.087 ^{***} (0.000)	0.054 ^{***} (0.001)	0.015 ^{***} (0.042)	0.144 ^{***} (0.000)	0.069 ^{***} (0.000)	-0.001(0.974)	0.078 ^{***} (0.000)	-0.001(0.941)	0.076 ^{***} (0.000)	
Spain	0.066 ^{***} (0.003)	0.030(0.076)	0.019 ^{***} (0.057)	0.108 ^{***} (0.000)	0.003(0.558)	-0.035 ^{***} (0.013)	0.035 ^{***} (0.013)	-0.037 ^{***} (0.043)	0.067 ^{***} (0.000)	
Italy	0.033 ^{***} (0.068)	0.057 ^{***} (0.001)	0.023 ^{***} (0.039)	0.081 ^{***} (0.000)	-0.001(0.877)	-0.005(0.568)	0.022 ^{***} (0.069)	-0.020(0.214)	0.079 ^{***} (0.000)	
Switzerland	0.080 ^{***} (0.000)	0.048 ^{***} (0.000)	0.053 ^{***} (0.000)	0.133 ^{***} (0.000)	-0.013 ^{***} (0.001)	-0.015(0.124)	0.053 ^{***} (0.000)	-0.012(0.456)	0.063 ^{***} (0.000)	
Portugal	0.092 ^{***} (0.000)	0.035 ^{***} (0.016)	0.019 ^{***} (0.038)	0.076 ^{***} (0.000)	0.036 ^{***} (0.008)	-0.005(0.723)	0.035 ^{***} (0.000)	0.009(0.377)	0.026 ^{***} (0.000)	
Belgium	0.106 ^{***} (0.000)	0.041 ^{***} (0.029)	0.035 ^{***} (0.001)	0.114 ^{***} (0.000)	0.032 ^{***} (0.003)	0.003(0.780)	0.092 ^{***} (0.000)	-0.001(0.981)	0.051 ^{***} (0.000)	
Austria	0.054 ^{***} (0.000)	0.035 ^{***} (0.000)	0.035 ^{***} (0.000)	0.108 ^{***} (0.000)	0.018 ^{***} (0.081)	-0.001(0.974)	0.078 ^{***} (0.000)	-0.001(0.941)	0.061 ^{***} (0.000)	
Sweden	0.075 ^{***} (0.000)	0.045 ^{***} (0.000)	0.029 ^{***} (0.015)	0.087 ^{***} (0.000)	0.036 ^{***} (0.003)	-0.001(0.974)	0.078 ^{***} (0.000)	-0.001(0.941)	0.061 ^{***} (0.000)	
Japan	0.064 ^{***} (0.001)	0.048 ^{***} (0.015)	0.029 ^{***} (0.007)	0.088 ^{***} (0.000)	0.034 ^{***} (0.000)	-0.001(0.974)	0.078 ^{***} (0.000)	-0.001(0.941)	0.061 ^{***} (0.000)	
South Korea	0.075 ^{***} (0.004)	0.046 ^{***} (0.005)	0.051 ^{***} (0.000)	0.085 ^{***} (0.000)	0.012(0.149)	-0.015(0.264)	0.038 ^{***} (0.004)	-0.020(0.147)	0.053 ^{***} (0.004)	
Australia	0.079 ^{***} (0.004)	0.052 ^{***} (0.009)	0.056 ^{***} (0.003)	0.148 ^{***} (0.000)	0.011 ^{***} (0.149)	-0.001(0.974)	0.078 ^{***} (0.000)	-0.001(0.941)	0.061 ^{***} (0.000)	
China	0.031 ^{***} (0.047)	0.037 ^{***} (0.032)	0.035 ^{***} (0.000)	0.057 ^{***} (0.000)	0.040 ^{***} (0.027)	0.001(0.885)	0.051 ^{***} (0.009)	-0.022 ^{***} (0.056)	0.060 ^{***} (0.000)	
Hong Kong	0.033 ^{***} (0.049)	0.097 ^{***} (0.000)	0.119 ^{***} (0.000)	0.147 ^{***} (0.000)	0.045 ^{***} (0.020)	-0.010(0.320)	0.001(0.998)	0.001(0.998)	0.023 ^{***} (0.026)	
Taiwan	0.027 ^{***} (0.061)	0.027 ^{***} (0.141)	0.065 ^{***} (0.000)	0.059 ^{***} (0.002)	0.040(0.528)	0.001(0.113)	0.064 ^{***} (0.000)	0.014(0.377)	0.051 ^{***} (0.000)	
Sri Lanka	0.003(0.761)	0.049 ^{***} (0.002)	0.085 ^{***} (0.001)	0.038 ^{***} (0.067)	0.000(0.109)	0.023 ^{***} (0.069)	-0.036 ^{***} (0.000)	-0.013(0.385)	0.021 ^{***} (0.047)	

Note: ***, **, and * reflect that the coefficients of the variables are significant at 1%, 5% and 10%, respectively. The values in parentheses point out the probability value of the coefficient. Gaussian error distribution is taken into consideration in the analysis of EGARCH model. In addition, BFGS optimization method and Marquardt step method are used in the estimation process. The models are estimated with a maximum of 500 iterations. The term α , γ and β indicate the shock effect, leverage effect and volatility persistence effect, respectively.

THE CLASH OF THE STOCK MARKETS: ON THE VOLATILITY DYNAMICS AND THE VOLATILITY SPILLOVER EFFECTS BETWEEN DEVELOPED AND FRAGILE COUNTRIES

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In Table 4 and Table 5, the coefficients of α parameters which reflect shock effects take mostly positive values and it means that the volatility of the returns of the stock markets is affected by the economic and financial shocks. In this context, it can be said that shocks in the economic and financial system have an effect on stock market volatility. In addition, some of the coefficients of the β parameters indicating the volatility persistence are negative and some of them are positive. Negative volatility persistence shows that the volatility shocks of the previous periods have a negative effect on the current period conditional variance and positive volatility persistence reveals that the volatility shocks of the previous periods have a positive effect on the current period conditional variance. However, being positive of the net effect of the volatility shocks of the previous periods indicates that the volatility shocks of the previous period on the current period conditional variance remain last long. When evaluated together with the shock effects and the volatility persistence, it can be said that the shocks increase the volatility persistence. Furthermore, the negative coefficients of the parameter of γ indicating the leverage effect point out that the shocks have an asymmetric effect on the volatility of the returns of the stock markets. Since the coefficient of leverage parameter is negative and statistically significant, it can be claimed that the bad news (negative information shocks) affect the stock markets' return volatility more compared to good news (positive information shocks). In other words, the validity of leverage effect for stock markets' returns can be noted.

Table 5 also shows the spillover effects of the volatilities in the American, European and Asian stock markets on the stock markets of fragile countries. The results of the analysis point out that any volatility in the American, European and Asian stock markets has a strong spillover effect on the stock markets of fragile countries, except Pakistan and Qatar. This result can be interpreted as the stock markets of the fragile countries are mostly affected by any volatility in the world stock markets and the financial instabilities are easily transferred from one country to another. This result can be demonstrated because the coefficients of the ψ parameters showing the spillover effects are positive and statistically significant. It can also be said that spillover effects arising from American stock markets are generally more dominant. This finding reveals one of the most devastating effects of neoliberal policies that suggest that financial markets should be deregulated. Capital, which tends to find more stable markets by avoiding the devastating effects of volatilities, increases the volatility of the markets in which it goes and in which it leaves. Although this situation is called as *flight to quality*, the capital entering to and

exiting from a country may cause high volume volatilities, especially on financial markets. Therefore, the effect of *flight to quality* is rather short-term, whereas the effect of *flight from quality* remains longer-term. This situation places all financial markets, especially fragile economies, in an unstable order and triggers many types of crises, such as stock market crises, foreign exchange crises and banking crises. This result can also be confirmed from the analysis findings showing high-grade spillover effects. Finally, the results of the analysis also reveal that there is no arch effect in the models.

CONCLUDING REMARKS

The main motivation of this paper is to investigate the volatility dynamics of the stock market returns in the developed and developing countries. Besides, the volatility spillover effects from the American, European and Asian stock markets to the stock markets of the nine fragile countries are examined using the weekly data set for the period of 2009:06-2020:01. The findings of the analysis indicating the existence of ARCH effects (heteroscedasticity) in the return series of the stock markets point out that the conditional variance of the current period returns are affected by the past shocks, and that the volatility shocks of the previous periods can remain last long on the current period conditional variance. In addition, it has been determined that the past period shocks have an asymmetric effect on the current period return volatility and the bad news have been found to affect the volatility of the returns of the stock markets more than the good news. This result reflects the existence of leverage effect on returns. Besides, the findings of the analysis also indicate the validity of the spillover effects of the volatilities from the American, European and Asian stock markets to the stock markets of fragile countries. Therefore, it can be noted that the stock markets of the fragile countries are mostly affected by any volatility in the world stock markets and the financial instabilities can be transferred from one country to another.

The efficient markets assumption, which has been voiced since the 1980s, brought about the deregulation of the financial sector within the scope of financial globalization. Capital, which targets profit maximization, has gained the opportunity to move freely among countries in the context of deregulated financial markets, and has profoundly affected the economic markets of the countries it enters and the countries it exits. Therefore, capital has caused financial volatilities in every country and has been a source of economic instability in itself. These fluctuations

THE CLASH OF THE STOCK MARKETS: ON THE VOLATILITY DYNAMICS AND THE VOLATILITY SPILLOVER EFFECTS BETWEEN DEVELOPED AND FRAGILE COUNTRIES

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has frequently transferred from one country to another through stock markets that form the basis of financial markets, and hence unstable market structures have spread all over the world. Unstable markets, which can be considered as a result of neoliberal policies, have paved the way for spreading the crises from one country to another and the vast majority of crises have manifested themselves in financial markets, such as stock market crises, foreign exchange crises and banking crises. Contagion and spillover effects of crises accelerated in parallel with the flexibility of financial markets and the duration, size, and destructive effects of crises around the world have become more and more severe. International institutions, which are the pioneers of neoclassical economics, have prepared uniform crisis prescriptions regardless of the characteristics of the countries, but these prescriptions have done nothing but increase the severity of the crises. The imperialist movement that integrates with the mainstream economy understanding has become the stability of the unstable order and the whole world has turned to a single poled, where unstable markets have been valid and instability could easily be spread.

In order to eliminate such an unstable economic and financial order, where the shock effects are severe, the volatility persistence are long-term and the spillover effects of volatilities are valid, financial markets need to be regulated and controlled in a sufficient way to ensure they operate efficiently. Since the main goal of each economy is to achieve stable growth rates and make it sustainable, the efficiency of financial markets that directly affect the real economy should be ensured. Ensuring the effectiveness of financial markets should be established not in the framework of the efficient markets hypothesis advocated by the neoclassical school, but in a system that provides regulations to prevent volatile structures. In this context, the business cycles of the financial system should be minimized and excessive financial volatilities should be eliminated. This requires the establishment of regulatory organizations in financial markets and needs basic restrictive and regulatory guidance of these organizations. Failure of regulations and established institutions can lead to increase greed and corruption, make the markets speculative and short-term, eliminate the validity of fair trade conditions and the spread volatility to world markets. It should be noted that as long as the financial markets are stable, real markets gain stability, the economic growth rates reach its steady-state level and welfare gains can be shared fairly. That is why regulation in financial markets is vital.

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VALUATION EFFECT OF CASH CONVERSION CYCLE PANEL EVIDENCE FROM AN EMERGING MARKET

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INTRODUCTION

The core of corporate finance literature -paying relatively little attention to short-term financial management- has traditionally focused on long-term financial management, offering studies about fixed investments, capital structure, dividends or firm valuation (Garcia-Teruel and Martinez-Solano, 2007; De Almeida and Eid, 2014). Though studies on long-term financial management date back to early 1990s, it can be said that modern short-term financial management studies have gained popularity over the past two decades.

In the beginning of the 1970s, the pioneering studies on short-term financial management dealt with the management of interactions among the individual current assets and current liabilities by using accounting information in modelling or focusing on specific activities such as cash, accounts receivables and inventory management, and cash budgeting. Stone (1973; 1975; 1983)'s studies on the integration of cash and credit management, and banking systems in companies; papers of Shapiro (1973) and Schiff and Lieber (1974) on optimal inventory and credit management policies; and Bierman et al. (1975)'s article on the interaction between optimal working capital level and capital structure are among them. However, Gentry (1988) criticizes these early efforts that the knowledge created by them was not inter-related, based on only main financial statement information and far from developing a new theory.

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Thereafter, 1970s and 1980s witnessed remarkable extensions on some major theories of finance such as Capital Asset Pricing Model (CAPM) developed by Treynor (1962), Sharpe (1964), Lintner (1965) and Mossin (1966) independently which was based on the earlier work of Markowitz (1952)'s modern portfolio theory; Arbitrage Pricing Theory proposed by Ross (1976) and Option Pricing Theory of Black and Scholes (1973)³. In almost all these extensions, it was assumed that financial markets are economically efficient and the market value of the firm is determined by a few relatively stable variables ignoring the internal operations of the firm. Therefore, they failed to model uncertainties related to daily operations of the firm in terms of working capital management that may directly or indirectly affect value creation or destruction.

Different from those extensions, Morris (1983)'s study on the role of cash balances in firm valuation has firstly remarked the need for incorporating cash flows into a single period CAPM valuation framework. Though his study (more precisely, the framework he suggested) has some shortcomings that it is not dynamic and fails to explain possible interrelationships among major cash outflows and inflows such as sales/collection and purchasing/payment efficiencies (Gentry, 1988: 44); it concluded that cash flow management (and working capital management though indirectly) plays a crucial role in firm valuation. From similar points of view, Sartoris and Hill (1983), and Gentry and Lee (1986) also emphasized that short-term financial management policies have direct effect on firm value.

Apart from these academic studies, 1970s also witnessed the increasing attention to short-term financial management and especially cash (flow) management practices. Some of the leading causes of this attention can be attributed to the emergence of computer and telecommunications technology providing commercial banks alternate tools in offering cash management services to corporate customers; designing optimal banking systems for credit and non-credit services (Pogue et al., 1977); and access to new financial products for excess cash investments such as Eurodollar certificates of deposits or other instruments discussed in studies of Stigum (1987), and Stigum and Fabozzi (1987).

3 For extensions and critics of these theories, see Friend and Blume (1970); Brennan (1971); Black (1972); Merton (1973); Basu (1977); Roll (1977); Roll and Ross (1980); Miller and Scholes (1982); Shanken (1982); Dybvig and Ross (1985); Fama and French (1992; 1993; 2004); Fama and French.

The other cause is highly related to rapid increases observed in inflation, inflation volatility and interest rates, and consequently financing costs, necessitating firm managers' attention on idle cash balances investments. For instance; in United States, the 1949 and 1950 inflation rates based on the Consumer Price Index were -1.24% and 1.26%, respectively and these rates are lower compared to the average inflation rate of 3.44% per year between 1950 and 2020. Inflation rate fluctuations in emerging markets have been more severe especially in 1980s (see Domaç and Yücel, 2005) compared to advanced economies; though inflation and inflation volatility have trended downward in advanced economies since the mid-1980s and in emerging markets since the mid-1990s (Ha et al., 2019).

Additionally, over the past 50 years from 1970s, financial markets have experienced several episodes of crises such as LatAm sovereign debt crisis in 1982; stock market crash in which global stock markets crashed in 1987; junk bond crash which resulted in a significant recession in the United States in 1989; tequila crisis triggered by sudden devaluation of the Mexican peso in 1994; Asia crisis from 1997 to 1998; collapse of the Long-Term Capital Management hedge fund in 1998; dotcom bubble from 1999 to 2000 and global financial crisis that began in the summer of 2007 and hit the entire world's financial markets in 2008, as considered by many economists to be the most severe crisis since the Great Depression. Among these crises, 2008 global financial crisis is considered as a liquidity crisis differing from the previous ones in at least four aspects in terms of (i) widespread use of complex and opaque financial instruments like never before; (ii) sharp acceleration in the degree of leverage of financial institutions; (iii) central role of household sector and (iv) increase in the interconnectedness among financial markets, nationally and internationally, with the United States at the core in a short time period (Claessens et al., 2010). One and possibly the most striking characteristic of the 2008 liquidity crisis originated in the United States is its speed of spread over the emerging markets. The recession in advanced economies have directly affected emerging markets through trade and financial market channels. During the second half of 2008, global GDP growth slowed to 2% after an average growth rate of 5% over 2003-2007. International trade flows collapsed in the last quarter of 2008, with decline in 2009 for the first time since 1982. This recession through 2008 crisis has once again brought more focus on short-term financial management in advanced economies and -especially- in emerging markets.

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While short-term financial management is of crucial importance to firms of every size in both advanced and emerging markets, it is of paramount importance to business firms operating in emerging markets that have relatively low or middle income, high growth rates, higher gross domain product (GDP) growth and lower GDP per capita using economic liberalization as primary engine of growth. One prominent characteristics of emerging markets is that the significance of small and medium sized enterprises (SMEs) is relatively high in such markets. According to The World Bank, -without taking into account the informal ones- up to 60% of total employment and up to 40% of GDP is contributed by formal SMEs in emerging markets (Ndiaye et al., 2018). SMEs have tendency to be financed by their owners internally, and by trade credit and short-term bank loans externally to meet their short-term financial obligations with limited or no access to capital markets (Saccurato, 1994). Besides, they mostly lack of market power, financial resources and effective strategies to better debtor management (Pais and Gama, 2015); so, their failure and bankruptcy filing rates are very high compared to that of large businesses. Previous studies of Dunn and Cheatham (1993), and Lazaridis and Tryfonidis (2006) indicate that these rates are primary consequences of ineffective short-term financial management and inadequate long-term financing policies. Effectiveness of short-term financial management enable firm to give quick and appropriate responses to unpredictable changes in market variables (such as interest rates, labor costs and raw material prices) resulting in gaining competitive advantages against its rivals (Appuhami, 2008). From this point of view, short-term financial management has important implications not only for (accounting) profitability and risk for survival but also market performance, mostly evaluated by market value (Smith, 1980).

This paper aims to extend the research on the effect of short-term financial management on corporate performance (focusing on firm valuation) providing new empirical evidence, using a panel data set covering seven sub-sectors within the manufacturing industry in Turkey, comprising Borsa Istanbul (BIST) listed firms during the period 1990 to 2018. This paper contributes to the literature in four ways. First of all, as stated before, extant theoretical and empirical research on corporate finance has somehow neglected both theoretical and empirical reflections of short-term financial management practices. Secondly, mostly larger firms operating in advanced economies have been subject to the existing empirical research on short-term financial management (Emery, 1987; Jose et al., 1996; Shin and Soenen, 1998; Wang, 2002; Deloof, 2003; Chiou and Cheng,

2006; Afrifa et al., 2016); while SMEs related studies on emerging markets have been outnumbered except for the studies of Garcia-Teruel and Martinez-Solano (2007), Afeef (2011), and Stephen and Elvis (2011). However, considering global equity investments of international investors, emerging markets have always been attractive. Thirdly, the existing short-term financial management literature has mostly focused the effect of working capital management policies on corporate performance from accounting perspective, considering pure accounting measures -such as return on assets and/or return on equity- that have serious shortcomings regarding market evaluation. Fourthly, the research model of this paper considers uses cash conversion cycle (CCC) as a measure of short-term financial management taking into account the fact that use of static measures of liquidity such as current and quick ratios in empirical analyses fails to consider the interaction among the components of CCC (see Emery (1984) and Soenen (1993), for the criticism of static measures of liquidity).

The rest of the paper is organized along the following lines. The following sections summarize the theoretical foundations and the existing literature, respectively. Later on, in the methodology section; data, variables, research model and related empirical findings are given. Finally, the paper is concluded by discussing empirical findings, presenting the limitations of the study and suggesting for further studies.

THEORETICAL FOUNDATIONS

Theoretical foundations of short-term working capital investment and its effect on corporate performance can be discussed along with two distinct views. Under one view, relatively high working capital investment provides an incentive for firms to increase sales and to acquire higher discounts in case of early payments, leading higher profitability and firm value (Aktaş et al., 2015). Besides, by holding high levels of inventory to prevent interruptions in the production process and loss of business due to scarcity of products, supply costs can be reduced (Blinder and Maccini, 1991); and negative effects of input price fluctuations and losses from sales due to possible stock-outs can effectively be hedged (Corsten and Gruen, 2004). One primary benefit of high short-term investment is that this investment in the form of supply of trade credit to customers is somehow a financial trigger to boost sales. As most firms operating in emerging markets do not have access to predictable capital market funding at scale and lack financial instruments to deploy long-term savings, trade credit serves as probably the easiest and most

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important source of short-term financing for them. Offering trade credit is also an effective tactic to attract new customers and establish long-term relationship with the existing ones (Ng et al., 1999; Wilner, 2000); to minimize transaction costs (Emery, 1987), and to reduce information asymmetry (Banos-Caballero et al., 2012).

Under the opposite view, excess working capital investment destroys firm value, because it directly increases financing expenses and reduces investment return, resulting from a higher probability of insolvency or bankruptcy (Soenen, 1993; Kieschnick et al., 2011). Investing capital in redundant short-term assets can also result from losing higher-yielding long-term investment opportunities with positive net present values. Due to rising level of inventory, inventory holding costs such as rent for warehouse utilities, payments for equipment and building maintenance, and insurance and security expenses increase (Kim and Chung, 1990), and this may cause serious cash flow problems destroying corporate profitability and firm value.

The cost-benefit relationship consistent with these two opposite views suggests an inverted U-shaped relationship between short-term working capital management and corporate performance (Banos-Caballero et al., 2012). Therefore, short-term working capital investment has to be at optimal level considering the trade-off between risk and investment efficiency in accordance with the primary goal of financial management, firm value maximization (Deloof, 2003; Wasiuzzaman, 2015; Chauhan and Banerjee, 2018).

LITERATURE REVIEW

Previous literature regarding the effect of working capital management policies on corporate performance can be categorized into three groups according to (i) whether the research sample consists of firms operating in advanced and well-developed economies or in less developed and emerging markets; (ii) whether the relationship between working capital management and corporate performance is considered as a linear or an inverted U-shaped relationship; and (iii) differences among the variables used as proxies for working capital management.

Considering the first group of studies, it is obviously seen that large body of research studies on short-term financial management has focused on the effect of working capital management policies on corporate performance in advanced and well-developed economies [Burns and Walker, 1991 (United States firms);

Kim et al., 1992 (Japanese firms); Peel and Wilson, 1996 (British firms); Ricci and Morrison, 1996 (Fortune 200 companies); Zhao, 2011 (Australian firms); Laghari and Chengang, 2019 (Chinese firms)]; while paying relatively less attention to less developed and emerging markets [Lazaridis and Tryfonidis, 2006 (Greek firms); Lyrودي and Lazaridis, 2000 (Greek firms); Şamiloğlu and Demirgüneş, 2008 (Turkish firms); Abuzayed, 2012 (Jordanian firms); Baker et al., 2017 (Indian firms)]. The main reason for focusing on especially advanced economies and relatively large firms is due to accessibility of information.

The type of statistical relationship between working capital management and corporate performance is another question of debate. Though predominantly the related literature has declared linear relationship in earlier studies (see, for instance; Jose et al., 1996; Shin and Soenen, 1998; Wang, 2002; Deloof, 2003; Raheman and Nasr, 2007; Falope and Ajilore, 2009); the results of some recent research (Banos-Caballero et al., 2012; Gomes, 2013; Aktaş et al., 2015; Chauhan and Banerjee, 2018; Laghari and Chengang, 2019) have also began to conclude inverted U-shaped (non-monotonic or concave) relationship between working capital management and corporate performance variables. These findings support the existence of an optimal working capital level in a target-following behavior that maximizes financial performance, both in terms of profitability and value.

The third group of studies analyzing working capital management and corporate performance relationship differentiate in selecting variables used as proxies for working capital management. Though the most traditional measures of corporate liquidity are current ratio and quick ratio, many researchers have disagreed arguing that measuring liquidity for an on-going firm should not barely depend on the liquidation value of its assets, but rather on the operating cash flow generated by its assets (see, for instance, Richards and Laughlin, 1980; Emery, 1984; Kamath, 1989). Therefore, instead of using common financial ratios, they have used the cash conversion cycle as a whole (Jose et al., 1996; Kong et al., 2009; Shrivastava, 2017; Ren et al., 2019) or the individual components of it (Deloof, 2003; Falope and Ajilore, 2009) in their research models. Apart from these measures, Gentry et al. (1990)'s weighted cash conversion cycle considering the costs of cash outflows and inflows in different points of time; Shin and Soenen (1998)'s net trade cycle and Nobanee and Al Hajjar (2014)'s optimal cash conversion cycle to identify the optimal points of receivables, inventory and payables can be discussed as recent variations of cash conversion cycle.

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Studies with the aim of analyzing the effects of short-term working capital management on corporate performance, regardless of the group they are categorized in, have yielded two-fold results in accordance with the two distinct views as discussed in theoretical foundations of working capital management investment and its effect on corporate performance. On the one hand, relatively long cash conversion cycle can positively have positive effects on corporate performance (see, for instance, Padachi, 2006; Sharma and Kumar, 2011; Quayyum, 2011; Abuzayed, 2012). The rationale behind this positive effect can be attributed (*i*) to supplying more trade credit to customers, which in turn leads to increase in sales (Long et al., 1993); (*ii*) to mitigating the adverse effects of stock-outs and allowing for economies of scale by holding large amount of inventory (Fazzari and Petersen, 1993; Deloof and Jegers, 1996); and (*iii*) to minimizing reliance on long-term financial instruments by deferring payments to suppliers (Richards and Laughlin, 1980).

On the other hand, longer cash conversion cycle can also have negative effects on corporate performance. Empirical findings from studies of Jose et al. (1996), Deloof (2003), Raheman and Nasr (2007), Quayyum (2011), Karadağlı (2012) and Ukaegbu (2014) confirm the existence of negative relationship between cash conversion cycle and profitability. These studies show that implementing aggressive working capital policies tends to enhance corporate performance (in terms of both corporate profitability and firm value).

ECONOMETRIC METHODOLOGY and EMPIRICAL FINDINGS

Data, Variables and the Research Model

The annual panel data of the study drawn from Borsa Istanbul (BIST) consists of seven different manufacturing sub-sectors (including only SMEs) over the period of 1990 to 2018. These sub-sectors are manufacture of food, beverage and tobacco; manufacture of paper and paper products, printing and publishing; manufacture of chemicals and of chemical petroleum, rubber and plastic products; basic metal; manufacture of fabricated metal products, machinery and equipment; manufacture of non-metallic mineral products and textile, wearing apparel and leather industries sub-sectors, respectively. The reason for obtaining data from BIST is due to availability and reliability of required financial statements and market

information. Definitions regarding the variables used in the research model of the study are briefly given in Table 1.

Table 1: Definitions of Variables

Variable	Calculation	Symbol
Market-to-Book Value	Market Value per Share ÷ Net Book Value per Share	<i>MB</i>
Cash Conversion Cycle	[Days of Sales Outstanding + Days of Inventory Outstanding] - Days of Payables Outstanding	<i>CCC</i>

Market-to-Book value (*MB*) is described as a function of cash conversion cycle in the research model of the study. Accordingly, the empirical model is specified as given in Equation (1):

$$MB_{it} = \alpha_i + \beta_{1i}CCC_{it} + \varepsilon_{it} \quad (1)$$

The dependent variable that measures firm valuation is the market-to-book value, calculated by dividing the market value per share to net book value per share. Though Tobin's Q ratio is used as measure of valuation in some studies of Jose et al. (1996), Himmelberg et al. (1999), Wang (2002) and Garcia-Teruel and Martinez-Solano (2007); it is obvious that *MB* is the predominant valuation measure (see, for instance, Fama and French, 1998; Strischeck, 2003; Faulkender and Wang, 2006; Kieschnick et al., 2008; Kieschnick et al., 2013) in related studies. Therefore, this research model follows the usual.

The independent variable included in the model as a composite and the most extensively used measure of working capital management efficiency is the cash conversion cycle introduced by Gitman (1974). Stewart (1995) describes cash conversion cycle as "the average days required to turn a dollar invested in raw material into a dollar collected from a customer". As cash conversion cycle is mostly calculated by adding days of sales outstanding to days of inventory outstanding and by subtracting days of payables outstanding (for a detailed definition, see Farris II and Hutchison, 2002); it considers the management of both accounts' receivables and inventories, and the trade credit received. Schiff and Lieber (1974) emphasize the importance of considering these three components of cash conversion cycle simultaneously, as the interactions among these components do not only affect firm's on-going activities, but also its profitability and value.

Empirical Findings

The analysis of longitudinal data is invariably called panel data analysis in econometrics. Panel data analysis has several advantages compared to other techniques such as cross-section and time series analyses. The prominent advantage of this analysis is that it allows forming data sets with both time and cross-section dimensions, by compounding cross-section and time series. Compared to cross-section or time series data, the combination of cross-section with time series observations in panel data do not only reduce the likelihood of high linear correlation among explanatory variables, but also enables to better observe and determine impacts. Baltagi (2008: 295) defines another advantage of panel data analysis that it allows to establish and examine more complex behavioral models. Considering these advantages of panel data analysis, data of the research model is an annual panel data drawn from BIST database over the period of 1990 to 2018.

Cross-Section Dependency (CD) and Homogeneity Tests

In econometrics, the existence of no connection between individuals forming the panels and error terms in the model is referred as cross-section independence [see Equation (2)]. From finance perspective, it can be deduced that in a condition in which the panel units forming the panel are not influenced by a shock, the other panel units will also be influenced.

$$y_{i,t} = \alpha_i + \beta_i x_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$\text{Cov}(\varepsilon_{i,t}, \varepsilon_{i,j}) \neq 0$$

In existence of cross-section dependency, estimations based on traditional Ordinary Least Squares (OLS) are inefficient, biased and inconsistent. Therefore, Breusch and Pagan (1980), and Pesaran (2004) emphasize the necessity and importance of testing the possible existence of cross-section dependency in the panel. This study investigates the cross-section dependency in the series by employing Breusch and Pagan (1980) LM (Lagrange Multiplier) test; Pesaran (2004) CD_{LM} (Cross-Sectional Dependence Lagrange Multiplier) test; Pesaran et al. (2008) CD_{LMadj} (Adjusted Cross-Sectional Dependence Lagrange Multiplier) test and Pesaran (2015) CD test for weak cross-sectional dependence. The first two of these tests are the pioneering tests with several limitations. For instance, standard Breusch and Pagan (1980) LM test is not appropriate for testing cross-sectional dependence in panel data models, when the number of cross-sectional units (N) is larger than

and the number of time periods (T) ($N > T$). Besides, its group mean is zero, while the individual mean is different from zero. To overcome such limitations, the mean and the variance have been added to the test statistics of Breusch and Pagan (1980) LM and Pesaran (2004) CD_{LM} tests by Pesaran et al. (2008). This modified test with null hypothesis that there is no cross-sectional dependence is given in Equation (3):

$$CD_{LMadj} = \sqrt{\frac{2}{N(N-1)}} \sum_{i=1}^{N-1} \sum_{j=i+1}^N \left[\hat{\rho}_{i,j}^2 \left(\frac{(T-K-1)\hat{\rho}_{i,j}^2 - \hat{\mu}_{Ti,j}}{v_{Ti,j}} \right) \right] \sim N(0,1) \quad (3)$$

where;

N = number of cross-sectional units,

T = number of time periods,

K = number of explanatory variables,

μ_{Tij} = the mean,

v_{Tij} = the variance and

$\hat{\rho}_{ij}$ = the correlation coefficient between the residuals acquired from each regression by using OLS.

Prior to panel unit root, panel cointegration and panel causality test; testing of slope homogeneity is also necessary in high-dimensional panel data models. The homogeneity of slope coefficients in panel data used in the research model is tested by Pesaran and Yamagata (2008)'s testing procedure based on Swamy (1970)'s test. This homogeneity test is useful in this sense that it treats a high-dimensional panel data model where the number of cross-sectional units (N) and the time series dimension (T) are large. Based on assumption of serially uncorrelated errors in dynamic models, the testing procedure of Pesaran and Yamagata (2008) allows heteroskedastic regression. Results of cross-dependence and homogeneity tests are given in Table 2.

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Table 2: Results of Cross-Sectional Dependency and Homogeneity Tests

Cross-Sectional Dependency Tests	Variables		Cointegration Equation
	MB	CCC	
Breusch and Pagan (1980)	39.277	38.329	38.848 [0.000]
LM test	[0.000] 2.820	[0.000] 2.674	
Pesaran (2004) CD _{LM} test	[0.000]	[0.000]	2.754 [0.000]
Pesaran et al. (2008)	0.833	1.852	2.953 [0.000]
CD _{LMadj} test	[0.000] 10.774	[0.000] 2.341	
Pesaran (2015) CD test	[0.000]	[0.000]	
<i>Homogeneity Test of Pesaran and Yamagata (2008)</i>			
Δ			-1.666 [0.610]
Δ_{adj}			-1.789 [0.963]

Note: Figures in brackets represent *p*-values of test statistics.

The test results given in Table 2 indicate that the null hypothesis is rejected at 5.0% significance level and confirm the existence of cross-sectional dependence among the panel units and cointegrating equation. Similarly, two different test statistics of homogeneity (Δ and Δ_{adj}) are -1.666 and -1.789, respectively, suggesting a strong evidence to accept the null hypothesis of the slope homogeneity at 1.0% significance level.

Panel Unit Root Tests

Panel unit root tests can be categorized as first- and second-generation panel unit root tests. While first-generation panel unit root tests are developed under the hypothesis that panel individuals are independent of each other; second-generation panel unit root tests assume that individuals are not independent each other. Due to the existence of cross-sectional dependency, second-generation panel unit root tests should be applied. Therefore, CADF (Cross-Sectionally Augmented Dickey-Fuller) test as one of the second-generation unit root tests developed by Pesaran (2007) is used in this study to check for the existence of unit root. In Pesaran (2007)’s CADF test, the augmented Dickey-Fuller (ADF) regressions are augmented with the cross-sectional average of the lagged levels and the first-differences of the individual time series. It uses the cross-sectional ADF statistics (CADF) given in Equation (4):

$$\Delta y_{i,t} = \alpha_i + \beta_i y_{i,t-1} + \gamma_i \bar{y}_{t-1} + \delta_i \Delta \bar{y}_i + e_{i,t} \quad (4)$$

where; α_i , γ_i and δ_i are slope coefficients estimated from the ADF test; \bar{y}_{t-1} is the mean of lagged levels; $\Delta \bar{y}_i$ is the mean of first differences and $e_{i,t}$ are the error terms.

The null and alternative hypotheses for CADF test are as $H_0 = \beta_1 = \beta_2 = \dots \beta_n = 0$ (series contain a unit root); and $H_A = \beta_1 \neq \beta_2 \neq \dots \beta_n \neq 0$ (series are stationary).

As CADF test fails to analyze the stationarity of all panels, Pesaran (2007) has developed a modified version of IPS (Im, Pesaran and Shin) statistics based on the average of the individual CADF, which is denoted as a cross-sectional augmented IPS (CIPS), given in Equation (5):

$$CIPS = \frac{1}{N} \sum_{i=1}^N t_i(N, T) \quad (5)$$

where; (N, T) is the t -statistics of the OLS estimate for the equation $y_{i,t} = \alpha_i + \gamma_i t$ (see Moon and Perron, 2004).

Results of CADF and CIPS tests are given in Table 3.

Table 3: Results of CADF and CIPS Tests

Sub-Sectors	MB		CCC		Critical Values		
	CADF	Lag Length	CADF	Lag Length	1.0%	5.0%	10.0%
Manufacture of food, beverage and tobacco	-1.292	1	-2.319	1	-4.67	-3.87	-3.49
Manufacture of paper and paper products printing and publishing	-3.091	1	-3.010	1	-4.67	-3.87	-3.49
Manufacture of chemicals, petroleum, rubber and plastic products	-2.094	1	-1.836	1	-4.67	-3.87	-3.49
Basic metal	-3.241	1	-2.089	1	-4.67	-3.87	-3.49
Manufacture of fabricated metal products, machinery and equipment	-2.196	1	-2.879	1	-4.67	-3.87	-3.49
Manufacture of non-metallic mineral products and textile	-3.271	1	-2.567	1	-4.67	-3.87	-3.49
Wearing apparel and leather industries sub-sectors	-2.850	2	-1.921	3	-4.67	-3.87	-3.49
PANEL CIPS	-2.576		-2.374		-3.10	-2.86	-2.73

Note: Critical values are obtained from Pesaran (2007).

The null hypothesis in CADF test implying “the series have unit root” is accepted in case of that the calculated CADF test value is bigger than the critical value

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obtained from Pesaran (2007) and is understood that the related series have non-stationary process characteristics. As seen in Table 3, all CADF test values are bigger than the related critical values concluding that all sub-sector series are individually non-stationary. Besides, calculated CIPS test value also confirms that all sub-sector series are non-stationary as a whole.

Panel Cointegration Test

Following the detection of unit root presence, it should be checked whether there exists cointegration relationship among the variables in subject. Panel cointegration tests can be classified in two groups: (i) a group of tests similar to the Engle and Granger (1987) framework testing the stationarity of the residuals from a levels regression; and (ii) another group of tests based on Johansen (1988)’s multivariate cointegration technique. In this study, the existence of cointegration relationship among the series is tested by using the error correction-based cointegration test proposed by Gengenbach et al. (2015) and given in Table 4, indicating the existence of cointegration between PD and CCC variables.

Table 4: *Results of Gengenbach et al. (2015)’s Panel Cointegration Test*

	<i>Coefficient</i>	<i>Test Statistics</i>	<i>p-value</i>
y_{t-1}	-0.781	-3.230	<=0.01

Estimation of Long-Run Coefficients

This study employs the CCE (Common Correlated Effects) approach proposed by Pesaran (2006) and AMG (Augmented Mean Group) estimator developed by Eberhardt and Bond (2009), which consider the horizontal section dependency in estimating long-run coefficients. Results of CCE and AMG are given in Table 5.

Table 5: *Results of Estimation of Long-Run Coefficients*

<i>Variables</i>	<i>Pesaran (2006)’s CCE</i>			<i>Eberhardt and Bond (2009)’s AMG</i>		
	<i>Coefficient</i>	<i>Standard Error</i>	<i>t-statistics</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>t-statistics</i>
CCC	-0.059***	0.0032	-1.82	-0.064***	0.0033	-1.90
constant	-0.291	0.444	-0.66	2.5278*	0.6127	0.00

Note: * and *** denote 1.0% and 10.0% significance levels, respectively.

As a result of both panel cointegration tests, it is concluded that there exists a cointegration relationship between market-to-book value and cash conversion cycle variables. According to the coefficients of both tests, it is also observed that there is a statistically negative relationship between market-to-book value and cash conversion cycle. This indicates that any increase/decrease in the length of cash conversion cycle cause decrease/increase in firm value.

CONCLUSION

This study's remarkable contribution to the *neglected* short-term financial management literature is to provide evidence on the effect of working capital management on long-term firm performance, considering the most common firm valuation measure, market-to-book value, rather than traditional measures of corporate performance. Besides, the study uses a panel data of seven manufacturing sub-sectors consisting of SMEs listed in an emerging market, Borsa Istanbul, differentiating from studies of Emery (1987), Jose et al. (1996), Shin and Soenen (1998), Wang (2002), Deloof (2003), Chiou and Cheng (2006) and Afrifa et al. (2016) focusing on relatively large firms operating in advanced economies.

The empirical results suggest that firm value can be increased by increased by shortening the cash conversion cycle. This finding is consistent with previous findings from studies of Jose et al. (1996), Deloof (2003), Raheman and Nasr (2007), Quayyum (2011), Karadağlı (2012) and Ukaegbu (2014). By implementing aggressive working capital policies, that means reducing the inventory holding and receivables collection periods by processing and selling goods more quickly, and speeding up collections; and lengthening the payables deferral period by slowing down the payments to suppliers; cash conversion cycle can be shortened. Aggressive working capital management policies can reduce the cash tied up in working capital (Moss and Stine, 1993) and minimize the external cost of cash conversion cycle financing, creating positive effects on corporate profitability and firm value. From this point of view, shortening cash conversion cycle can be evaluated as a value-enhancing activity or a value-driver.

Another policy implication drawn from empirical findings of the study is that effective working capital management should be the concern of all sub-sectors and of firms from all size levels, especially SMEs. Financing is a common challenge facing SMEs and this challenge makes working capital management more crucial

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regarding corporate profitability, survival and growth of SMEs (Appuhami, 2008). As internal financing is less costly than external financing (Myers, 2001); internal and external financial resources are not perfectly interchangeably. By efficient working capital management policies, it is possible to allocate additional internal funds for investment and reduce dependency on costly external financial resources. According to Striscek (2001), SMEs managed under efficient working capital policies can raise funds from external resources more easily and less costly.

The main limitation of the study is the shortness of the research period of 1990 to 2018, due to lack of access to financial data of related sub-sectors. Other limitation is that the research model uses only one measure related to corporate performance, the market-to-book value. However, in further studies a set of corporate performance measures from both accounting and market evaluation perspectives, such as return on assets (ROA), return on equity (ROE) and Tobin's Q, can be included in the research model and comparisons can be made.

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RISK APPETITE INDEX AND CREDIT DEFAULT SWAPS : A GRANGER CAUSALITY ANALYSIS

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INTRODUCTION

The concept of risk appetite, which is accepted as an important indicator of the performance of financial markets, consists of two basic elements such as uncertainty caused by macroeconomic conditions and investors' risk avoidance preferences. Similarly, another important indicator followed in the financial markets is CDS (Credit Default Swap) premiums. Despite the non-repayment risk (default risk) of loans, CDS, which is a derivative product that protects investors against a certain amount of premiums, is one of the tools frequently used in determining credit risks of countries or companies. CDS premiums are an important indicator for investors as well as credit risk. Both the Risk Appetite Index and CDS Premiums offer faster (instantaneous) information compared to other indicators that provide information about financial markets and country economies. In the literature, although there are studies examining the relationship between Risk Appetite and CDS premiums, it has been observed that the studies are mostly done by using variables obtained from developed markets and variables that measure the level of global risk appetite. The aim of this study is to examine the relationship between Risk Appetite and CDS premiums, which have been used frequently by investors, policy makers and researchers. In this context, relationship between Risk Appetite Index (RIS) which is calculated for various investor groups by Central Depository of Turkey (Merkezi Kayıt Kuruluşu) and Özyeğin University, and Turkey's 5-year CDS premium will be examined using the time series method.

Organization of this chapter is as follows.

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Next section presents an introduction to the Risk Appetite Index and Credit Default Swaps. In the third section, relevant literature is summarized. Data and methodology are explained in the fourth section, whereas empirical findings reported in the fifth section. The last section, concludes the chapter.

RISK APPETITE INDEX AND CREDIT DEFAULT SWAPS

Risk is defined by the possibility that the actual return will be different from its expected return. An investor aim that for maximum return with minimum risk. However, investors’ sensitivity to risk is different. In other words, each investors have a different attitude toward to risk. Although it is seem to be similar, risk appetite and risk aversion are different from each other. It is accepted that risk avoidance will not change over time for investors. However, risk appetite can change depend on macroeconomic condition, financial condition and the other economic parameters (Fettahoğlu, 2019).

Risk appetite, which is an indicator of willingness to carry risk, can be calculated using different methods. These calculations provides to evaluate investors’ attitude towards risk and can be expressed by risk appetite indices. The first of these indices is the VIX (Volatility Index), which is accepted as an indicator of global risk appetite calculated since 1993.

There are different types of appetite indexes which is represent to willingness to take risk of investors. Some examples for these indexes are shown in the table below.

Table 1

Different Types of Risk Appetite Indexes	
INDEX	Institution/Corporation
Risk-Appetite Index -Tarashev, Tsatsaronis, and Karampatos (2003)	Bank for International Settlements (BIS)
Risk-Appetite Index -Gai and Vause (2004)	Bank of England
Global RiskAppetite Index (GRAI)-Kumar and Persaud (2002)	IMF and JPMorgan
Boston RiskAppetite Index -Wilmot, Mielczarski, and Sweeney 2004	The Credit Suisse First
Confidence Index (ICI) Froot and O’Connell 2003	State Street Investor
Risk-Aversion Index (GS)	Goldman Sachs

A Brief Survey of Risk-Appetite – Bank of Canada Financial System Review

The other one of the risk proxy, CDS is the most popular tool in the growing credit derivatives markets. By using the CDS contract, the seller promises to buy a particular bond at the nominal value when an event defined previously occurs. In return to this, the buyer pays amounts of contract premium periodically until

the contract date expires or until a credit event occurs. This periodic payment, which is often expressed as a percentage over the notional value of the bond, is called CDS spread (Zhang, Zhou and Zhu, 2009, p.5104).

An increase for country risk causes to increase CDS premiums and on the contrary when country risk decreases it cause to decrease in CDS premiums. In a sense, CDS premiums show the confidence in the ability of the country to pay its debts in international markets. Since developing countries realize most of their financing needs by borrowing from external sources, it is of great importance how the outside world looks especially at these countries. In other words, CDS premiums are the rates that show how foreigners evaluate the economy and markets of these countries.

LITERATURE REVIEW

There are not many studies in the literature investigating the relationship between risk appetite index and CDS. Both Risk Appetite and CDS are used as an indicator for market risk. The literature has focused on the determinants of these variables and relationship between equity/bond prices.

Kiraz et al. (2015), introduce a new risk appetite index (RISE) methodology and provide two different type of risk appetite indices, calculated at individual investor level before aggregation. The study presents the relationships of the indices with 5y CDS spreads and discuss the possibility of some new financial instruments which could well be used for hedging or speculating. The study results show that because of data restrictions, the proof comes from just one developing state but induction of the main conclusion appears to be completely reasonable and testable since the new method introduced is compliant enough to be applied in different contexts and / or countries.

Fettahoğlu (2019), determine the relationship between risk appetite and CDS Premium. Using CDS Premium as a dependent, and three sub index of Central Securities Depository Risk Appetite Index, Euro/TL and Dollar/TL rates, BIST 100 Index and 2040-Eurobond prices as independent variables, Author, employ regression analysis over the period 2013-2018. The results show that all independents variables related with risk appetite, foreign and domestic investors' risk appetites statistically significant for explaining CDS premiums, also findings suggest that there is a negative relationship between three types of risk appetite indexes and CDS premiums.

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Bursa and Tatlıdil (2015), investigates the relationship between Eurobond prices and CDS variables as an indicator of country risk, and domestic and foreign financial indicators for Turkey in a period of 2012-2014. In this context, market risk is proxied by VIX index and Eurobond prices. The other variables were used in the study are BIST 100 Index, Libor, budget balance, export/import coverage ratio, foreign exchange rate. Results show that both market risk proxies is affected by equity market return.

Çelik et al. (2017), examine the determinants of risk appetite of investors by using regression analysis methods. Risk Appetite Index as dependent variable and macroeconomic factors such as interest rate, inflation, growth and exchange rate, Money supply, Central Bank reserves as independent variable are used in the study. Results of the study suggest that there is a negative and significant relationship between the index and Exchange rate and interest rate. Otherwise, there is a positive and significant relationship between the index and Money supply and Central Bank reserves.

Zhang, Zhou, and Zhu (2009) aim to define the CDS premium, using a unusual approach to specify the volatility and jump risks of particular companies from high-frequency equity values. The study's conclusions propose that the volatility risk by oneself forecasts 48% of the fluctuation in CDS spread grades, whereas the jump risk only predicts 19%. Later controlling for credit grading, macroeconomic conditions, and companies' balance sheet data, we can explicate 73% of the whole fluctuation.. The data set were used in the study provided by Markit, and the pricing information of 307 organizations and the weekly CDS spread data obtained by processing average recovery rates over the sample between January 2001 and December 2003. Enron is the only company that went bankrupt among the 307 companies included in the analysis. In the case study on the Enron event, it was revealed that short-term realized volatility is more useful than long-term historical volatility in detecting ongoing changes in market conditions.

Hull, Predescu, and White (2004), investigate the theoretical validation relationship between CDS spreads and bond yields by using regression model. In the study, CDS spread data which is at least \$ 10 million from January 5, 1998 to May 24, 2002 provided by GFI, and 183 cases covering the period between January 1, 1998 and July 15, 2002, provided by Bloomberg. Thus it was concluded that

the 5-year risk-free ratio used by the participants in the credit clearing market could be estimated.

Coronado, Corzo, and Lazcano (2012), examined the lead-lag relationship between CDS and equity markets in 8 European Country (Italy, Spain, Greece, Portugal, Ireland, United Kingdom, France and Germany). Stock market closing price and CDS spreads data analyzed by using Vector Autoregression (VAR) model from 2007 to 2010, and the results show that there is a negative relationship between these two variables.

DATA AND METHODOLOGY

In the study, weekly data were used between January 2010 and January 2019 to determine the long-term relationship between Risk Appetite Index and CDS premiums. Data on the Risk Appetite Index were obtained from the Central Securities Depository of Turkey e-DATA system (MKK); Data on Credit Default Swap premiums were obtained from Bloomberg database.

Risk Appetite Index is a weekly calculated index by using portfolio change for each investor who have a portfolio value of 5,000 TL and above in any retrospective period, since November 28, 2005.

The threshold value for the index is accepted as 50. If the index value disclosed to the public on the first business day following the last working day of the week is above 50, it indicates that investors have a higher risk position than the average risk of their past 52-week positions in the stock market. The fact that the value is below 50 means that there is a decrease in the average position risks compared to the 52-week period.

Because the Risk Appetite Index has different risk perceptions for each investor type, different indices are calculated for 6 different investor groups, namely Domestic Investors, Foreign Investors, Domestic Real Persons, Domestic Legal Entities, Domestic Funds and Institutional Investors. In the study, the general index which is representing all investors was used (Central Securities Depository of Turkey e-DATA).

CDS contract provide to the CDS buyer is offered a kind of guarantee that the debt that will be the subject of the CDS contract will be paid if the debt becomes

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default or the risk of bankruptcy occurs; In return for this protection, a certain premium is paid to the CDS seller.

CDS spread which is usually expressed as a proportion of the notional value in basis points is also known as “CDS price”. CDS bond-basis is the difference between CDS spread and bond yield spread (bond yield-risk free rate). Historical and real time data about CDS can be obtained from Bloomberg terminal. Therefore, in this study, Turkey’s 5-year CDS premium daily data is extracted from Bloomberg and transformed to weekly data for using in analysis.

In this study, Granger causality test developed by Granger (1969) was used. Granger causality test show that, if the random values of a random X variable allow for predicting another Y variable, taking into account all possible factors and non-random information, the X variable is expressed as the Granger cause of Y.

The model for Granger causality test is formed as follows: X_t and Y_t are zero time series with zero mean (Granger, 1969)

$$X_t = \sum_{j=1}^m a_j X_{t-j} + \sum_{j=1}^m b_j Y_{t-j} + \varepsilon_t \quad (1)$$

$$Y_t = \sum_{j=1}^m c_j X_{t-j} + \sum_{j=1}^m d_j Y_{t-j} + \eta_t \quad (2)$$

where m is lag lenght for variables, ε_t ve η_t are independed error terms and t is period. First equation Show that if b_j is zero, there is no causality from Y_t to X_t . In other words, Y_t is not Granger cause X_t . If b_j has a different value from zero, it shows that there is causality from Y_t to X_t , namely Y_t Granger cause X_t . Similarly, second equation shows that if c_j is zero, there is no causality from X_t to Y_t . In other words, X_t is not Granger cause Y_t . If c_j has a different value from zero, it shows that there is causality from X_t to Y_t , namely X_t Granger cause Y_t .

In order to determine the way of the relationship between the variables by using the Granger causality test, firstly must be examined the stationarity of the series. Thereafter, F statistic is calculated from the sum of the error term squares in the model. F statistic is compared with the F table value. If calculated F statistic is smaller than F table value, the null hypothesis of there is no causality is rejected.

Otherwise, If calculated F statistic is greater than F table value, the alternative hypothesis of there is causality is accepted (Çiftçi ve Evci, 2019; Tari, 2010 p. 439).

Traditional time series models were developed within the scope of probability theory. Since the time series used in applied studies are stochastic processes, some assumptions must be made in order to make statistical inference. There are two types of stationarity, strong and weak. The strong stationary form is defined as the process in which the common probability density function of the stochastic process does not change over time (Kirschgässner & Wolters, 2007, p.13).

Because of non-stationary series in time series analyzes cause spurious regressions, stationary assumptions should be tested in the analyzes. Where the stationarity assumption is violated, the test results appear to be meaningful, although not statistically significant (Gujarati, 2010, p.23).

In this study, Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) unit root tests are employed in order to investigate the stationarity conditions of the variables.

EMPIRICAL RESULTS

In this section, firstly, Dickey – Fuller (or Augmented Dickey Fuller (ADF)) and Phillips-Perron (PP) unit root tests are employed in order to investigate the stationarity conditions of the variables CDS and RE. Then a Vector Autoregressive Model (VAR) is estimated and it's checked whether these two variables are Granger Causal to their each other.

Here, the three models of ADF unit root tests include constant and linear trend, constant and none are estimated. The Table 2 represents the ADF unit root test results.

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Table 2

ADF						
Variables	With Constant and Trend		With Constant		Without Constant and Trend	
	<i>p</i>	<i>T</i>	<i>p</i>	<i>t</i>	<i>p</i>	<i>T</i>
<i>CDS</i>	0	-3.103	0	-2.484	0	0.204
<i>RE</i>	1	-3.849**	1	-3.834***	1	-0.498
ΔCDS	0	-23.296***	0	-23.318***	0	-23.334***
<i>The Critical Values</i>	(***) 1%	-3.978		-3.444		-2.570
	(**) 5%	-3.419		-2.867		-1.942
	(*) 10%	-3.132		-2.570		-1.616

p refers to the lag length determined for the ADF unit root tests by taking into account the Schwarz criterion

According to the results mentioned in Table 2, the null hypothesis of non-stationarity in level can't be rejected in any of the three models of ADF test for CDS. Because the t-statistics computed from the models *with constant and trend*, *with constant* and *without constant and trend* are -3.10, -2.48 and 0.20 respectively and all of them are smaller than the critical values even for the 10% significance level. After taking the first difference of CDS series (which is ΔCDS), the computed t-statistics in all three models are found quite higher than the critical values in 1% significance level. So, the CDS series are integrated order of 1, in other words I(1). For RE series, the null of non-stationarity are rejected in 1% significance level for the models *with constant and trend* and *with constant* that have the t-statistics -3.85 and -3.83 respectively. The null hypothesis cannot be rejected in the model *without constant and trend* in any of the significance levels but since it's been decided that the null hypothesis is rejected in the model *with constant and trend*, it can be said that RE series are integrated order of zero, namely I(0). The results from the PP unit root tests present familiar findings with ADF unit root tests.

The tests results of PP unit root tests are indicated in the Table 3. There are two models in PP unit root tests *with constant* and *without constant and trend*. For CDS series, the t-statistics computed from these two models are -2.407 and -0.247 and both are smaller than the critical values in 10% significance levels. The test procedure is repeated after taking the first difference of CDS series (ΔCDS) and

the t-statistics have become higher. So, the null hypothesis of non-stationarity is rejected in both models of PP unit root tests and CDS is I(1). The t-statistics calculated for RE series in the model with constant and none are -4.339 and -0.468 respectively. The t-statistic from the model with constant is higher than the critical values of 1% significance level but the t-statistic from the model without constant and trend is smaller than the critical values of 10%. It's concluded that the RE series are integrated order of zero, namely I(0).

Table 3

P-P				
Variables	With Constant		Without Constant and Trend	
	<i>K</i>	<i>T</i>	<i>k</i>	<i>T</i>
<i>CDS</i>	1	-2.407	6	0.247
<i>RE</i>	7	-4.339***	6	-0.468
ΔCDS	5	-23.352***	4	-23.353***
<i>The Critical Values</i>	(***) 1%	-3.444		-2.57
	(**) 5%	-2.867		-1.942
	(*) 10%	-2.570		-1.616
<i>k denotes the appropriate lag length for the PP unit root tests.</i>				

In the next step, the VAR model estimated in order to investigate Granger causality relation between the variables. In the theory that put forward from Granger (1969) underlies with the effect of one stationary variable's past values on the other's future values. It's easy to assign the direction of the relation by using Granger Causality approach. Because the CDS variable is I(1), the differenced values of CDS are used in the Granger Causality analysis. The Table 4 indicates the Granger Causality Test results.

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Table 4

Null Hypothesis:	Obs	F-Statistic	Prob.
CDS does not Granger Cause RE	472	114.671	3.E-41
RE does not Granger Cause CDS		4.88022	0.0080

According to the results in the Table 4, in the first equation where the CDS is dependent and RE is independent variable, it's clear that RE is Granger Causal to CDS in 1% significance level. Also, in the second equation where RE is dependent and CDS is independent variable, the computed F test statistics is reasonably high (4.88022) and its prob. value is quite small (0.008). So the CDS is Granger Causal to RE too.

CONCLUSION AND FUTURE RESEARCH DIRECTIONS

Both risk appetite and CDS are variables that do not have great importance in terms of risk perception in financial markets. Therefore, the relationship between these two variables is one of the essential issue to be examined.

It is very important to understand the dynamics and determinants of the CDS for the policymakers to decrease the volatility of the markets. In this framework this study employed Granger Causality test for discussion the basic relation between RE and CDS. Results of the Granger Causality test showed that there is two-way causality between these variables. Basic rationale behind this is a simple idea. Risk Appetite Index and Credit Default Swap are clearly affecting and promoting each other.

This paper is preliminary for the advanced level studies that will use different methodologies. This results pointed out the necessity of the advanced analysis for the future that are clearly presents the nexus between these two basic variable for the financial markets. Especially there may be non-linear relations and future studies may extend the analysis

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MUNICIPALITIES' EXPENDITURE AND REVENUE NEXUS: EVIDENCE FROM TURKEY

Taha Emre ÇİFTÇİ¹, Erkan KARA²

INTRODUCTION

Governments meet the necessary needs of the society within their borders, such as security, health, education and justice. However, governments' duty varies in terms of quality and quantity in the services they provide with political and social conditions that change over time. The majority of public services provided by the governments are only the services provided by central and local governments that the market and the society cannot afford. (Erdem et. al, 2016; 31).

The most important reason for the existence of local administrations besides the central governments is to provide optimum use of scarce resources in meeting social needs. The optimum use of scarce resources is about efficiency and productivity, and this is all about those who benefit from the services provided (Edizdoğan et. al. 2011).

The main goal in state administrations is to meet social needs effectively. The common goal in both central and local governments is to meet social needs. Local governments operate as the service production units to the people living in the local region. It meets the needs of the people living in the local region with local government incomes. In this context, the revenues and expenditures of the municipalities, which are a local administration, are financial instruments that are important for meeting these obligations. In addition, the relationship between revenues and expenses in the formation of budget deficits of the municipalities and in policy production for this is of great importance. If there is an interaction

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between the historical values of the expenditures and revenues of the municipalities, the existence of a causal ranking relationship between these two values can be considered. In addition, this ranking can provide the option to be chosen in reducing budget deficits. For example, if tax increases cause public spending to increase, it is revealed that tax increases should not be preferred. If public spending causes tax increases, the policy to be preferred can be preferred as a reduction in expenditures (Akçağlayan and Kayıran, 2010: 130).

The rapid urbanization and population increases that have emerged today have made municipalities and their role more important. Demand increases in public services became inevitable with the increasing population. Changes have occurred in the needs and desires of the individuals living in the local areas as a public service together with the developing technology (Ulusoy and Akdemir, 2009). In this context, the revenues to be obtained due to the increasing expenditures have also gained great importance. If the municipalities fail to meet the increased expenditures with the revenues they will generate, the budget deficits will arise. Policies to be formed by municipalities regarding the closing or sustainability of budget deficits are also very important.

There are two important elements of budget deficits. One of these elements is revenues and the other is expenditures. To reveal the causal relationship between revenue and expenditure is important in producing policies to reduce budget deficits. In this context, to reveal the causality relationship between income and expenditures; tax-expenditure, spending-tax, fiscal synchronization and institutional difference hypotheses have been proposed (Dökmen, 2012).

The studies conducted for the hypotheses revealed are generally directed towards the revenues and expenditures of the central administration. Therefore, it can be mentioned that the studies on the revenues and expenditures of local administrations are limited. In this context, the importance of this study on the revenues and expenditures of the municipalities becomes apparent. The main aim of this paper is to analyze the causal relationship between municipalities' expenditure and revenues between 2006 and 2019 in Turkey. Further, the objective is to test hypotheses that related government or municipal budgets which are mentioned in the theoretical section. We used an econometric test of Granger causality test proposed by Dumitrescu and Hurlin (2012).

MUNICIPALITIES REVENUES AND EXPENDITURES IN TURKEY

Administrative units that provide services within the local region are known as local administrations. Expenditures incurred by the local administrative units due to the services rendered arise and they should earn income for these expenditures. Local administrations can partially produce semi-public goods and services other than public goods and services that are fully produced by local administrations (Öner and Mutluer, 2011).

Municipalities, which have a very important place among local administrations, provide public service in the local region. Municipalities undertake many important tasks such as garbage collection, sewage, water distribution, and fire protection within the boundaries of the local region and serve a large part of the population in Turkey (Çetinkaya and Demirbaş, 2010).

Municipalities' features delivering public services in local areas take important position in Turkey in terms of delivering public services and financial tools, such as revenue and expenditure. Although the municipalities have separate legal entities, it is seen that they have a structure that is under the central administration in terms of income generation feature. However, the regulation and implementation of the municipal budget, leaving the central administration under its control and supervision, and the fact that the municipalities have their own budgets provide financial autonomy (Mutluer et al. 2016).

The need to have adequate sources of revenue to the municipalities in Turkey is situated in article 127 of the Constitution. According to this provision, a source of income commensurate with their duties should be provided depending on the purpose of meeting their local needs. Therefore, it was aimed to ensure constitutional guarantee for the income of municipalities in return for their expenditures.

Income that belongs to municipalities in Turkey are taxes, duties, fees and participation fees included in the Municipal Revenues Law numbered 2464. Within the scope of Real Estate Tax Law, building and land taxes are also belong to municipalities. In addition, the rental and sales revenues of movable and immovable properties are among the municipal revenues. Wage income for service, revenues from initiative activities, interest and penalty revenues, donations are also municipal revenues (Mutluer and Öner, 2009).

GDP ratio of total municipal revenues in Turkey is at the level of 3.5 - 4%. 60% of municipal revenues are derived from tax revenues. Half of the municipal expenditures are non-exhaustive expenditures. Investment expenditures, on the other hand, make up about 40% of total expenditures (Mutluer et. al. 2016).

THEORETICAL FRAMEWORK OF THE RELATION BETWEEN REVENUES AND EXPENDITURES

There are four hypotheses that explain the resulting relationship between public revenues and expenditures, one of which is the tax expenditure hypothesis created by Friedman (1978). He argues that in the tax expenditure hypothesis, increases in public revenues will lead to an increase in expenditures and budget deficits will arise in such a situation. He argues that the resulting budget deficit will be financed through borrowing. He also stated that the interest rate burden arising from the cost of borrowing will increase the tax burden in the future. (Friedman, 1978).

Another view was raised by Buchanan and Wagner (1978) within the scope of the tax and expenditure hypothesis. According to this view, it is suggested that public revenues are not understood by taxpayers due to non-transparency of revenues and therefore public expenditures can be seen in low level. Such a situation reveals the concept of financial illusion. The financial illusion feature of indirect taxes, in particular, causes a low tax burden to be felt in taxpayers. This situation may lead to the low cost perception of the public services utilized for taxpayers, which may lead to a demand for increased public spending. Politicians find support in terms of increasing the size of the public in the face of such a demand. Thus, the increase of financial illusion causes public expenditures to increase (Buchanan and Wagner, 1977; Şahin and Akar, 2015).

The approach to expenditures causing changes in tax revenues is the expenditure tax hypothesis. There are two important opinions defending this hypothesis. Peacock and Wiseman (1979) argue that temporary increases in government spending due to crises can lead to permanent increases in government revenues, while Barro (1974) believes that individuals will increase their future tax burdens due to government debt made today. Therefore, according to Barro's analysis, if there is no financial illusion, the increase in government spending causes an increase in taxes (Ewing and Payne 1998).

The third view is the fiscal synchronization hypothesis, a hypothesis proposed by Musgrave (1966) and Meltzer and Richard (1981). The authors suggest that government decisions about expenditures and revenues are taken simultaneously. In this hypothesis, it has been suggested that the government can change the expenditures and revenues at the same time by adhering to the tax-expenditure and expenditure-tax approaches (Richter and Dimitrios, 2013).

Another approach is the institutional difference hypothesis by Bashhestani and McNown (1994) and Wildavsky (1988). They made a proposal under the name of different institutions hypothesis by separating the expenditures and revenues institutionally (Payne, 2003). Hoover and Sheffrin (1992), on the other hand, argued that state expenditures and taxes are independent from each other (Hoover and Sheffrin, 1992).

LITERATURE REVIEW

There are many studies that are conducted to find the relation between expenditures and revenues in local government's level in particular and in central government level in general. The studies mainly focused on the hypothesis that related expenditures and revenues causality and budget deficits. For instance, Saunoris (2015) examined expenditures and revenues of 48 US states and tried to test four hypotheses of budget constraint in fiscal literature. The author found that the tax-spend hypothesis is valid for US states. In addition, the author claims that when separating the states into high debt and low debt states as two groups, the findings are when states experiences budget deficits then higher debt level follows for those selected states.

Similar to Saunoris (2015), Kuncoro (2005) explored the relation of expenditures and revenues for Indonesian municipalities for the period of 1988 and 2003 using Granger causality test. When using local municipalities' own revenues and transfers from government, the author found a Granger causality of bidirectional effect from local expenditures to revenues. However, when only expenditures and revenues of municipalities used, central and local governments synchronize fiscal performance.

On the other hand, for central government, Chang and Chiang (2009) explored the relation between government expenditures and revenues of 15 OECD countries by using panel cointegration and panel causality test. The authors' results indicate bidirectional causality between government expenditures and revenues and finding

a fiscal synchronization hypothesis. Beside government expenditures and revenues, the author uses GDP (at constant prices) a control variables. The authors claim that OECD countries- their policymakers- should settle their expenditure decision in line with revenue decision to escape budget deficits.

The literature on the relation between of municipal expenditures and revenues in Turkey's case lacks the information and research. There are only several studies that deal with this issue. Among them, Akçoraoglu (1999) investigated the relation between public expenditures and revenues of Turkey between 1955 and 1995 by using Johansen cointegration test and Granger causality tests. Further, the author argues that whether the relation between expenditures and revenues conform to the Keynesian view of increasing government expenditure will lead to higher income level or higher GDP. The paper's findings reveal that the Turkish expenditure - revenue causation structure do not indicate supporting Keynesian theory. The results suggest a granger cause from expenditures to revenues. And there seems to be no granger causation from revenues to expenditures. So the results support the theory of spend-tax approach.

Another paper that investigated municipalities' expenditures and revenues for Turkey is Çiçek and Yavuz (2014). The analysis is covered the year between 2007 and 2011 by using quarterly data. The authors used cointegration method to see the long run relation between expenditures and revenues. Their results suggest that municipal income and spending are moving together and have positive relationship in the long run and further found that, when using Panel vector Granger causality test, expenditures and revenues' causalities is bidirectional and support the hypothesis of fiscal synchronization for Turkey's municipals.

In their paper, Akbulut and Yereli (2016) by using monthly data they looked at the causality between government revenues and expenditures employing Granger causality test and further aiming to argue fiscal policies for policy makers. The authors used the approach used by Park (1998) to find whether Keynesian effective demand theory is valid for Turkey. As stated before the Keynesian theory of effective demand suggest that government can expand and involvement in the economy by increasing expenditures which in turn increases the revenue side by boosting tax gains. Data set consist of the years between 2006 and 2015 as of January and used monthly data. They found that government expenditures Granger cause government revenues in Turkey within the investigated period and

further stating that government expenditures and revenues are increasing hand in hand in the period after 2006 in Turkey. Akbulut and Yereli (2016) analyze also found that government expenditures created an increase in revenue via raising tax rates rather than generating revenue itself in Turkey. Results are similar with Akçoraoglu (1999).

Kanca (2018) examined the income – spend paradox for Turkish local municipalities in between 1980 and 2015. Using time series analysis in his paper, the author found a relation between municipalities' expenditures and revenues. And further claims that the Turkish case is valid for tax – spend hypothesis when using Granger causality test.

DATA AND METHODOLOGY

As we investigated the budget theories for the municipalities in Turkey in this study, the paper uses government expenditures and revenues to see which variable is leading which variable or whether they are affecting each other synchronously by employing panel Granger causality test. The expenditures and revenues data for all municipalities of Turkey were collected from Ministry of Treasury and Finance statistics. The data originally is in nominal terms and then by using inflation deflator, the data were converted into real terms. The series cover the period of between 2006 and 2019 and used annually. This is in line with the previous researches mentioned before.

Before moving further to formulate our Granger causality test, there need to be unit root tests to be run to see whether the panel data set series are stationary or not. Because the order of integration of series is important to determine what kind of econometric modeling should be applied (Sari et. al. 2007). MacKinnon (1991) state that using stationary variables will remove the possibility of spurious regression and will increase the significance of regression.

Panel Unit Test Results

Before looking at the causality between the expenditures and revenues of municipalities, it is necessary to check whether the variables contain unit root or not. For this purpose, Levin–Lin–Chu (2002), Im–Pesaran–Shin (2003), and Fisher-type (Chi 2001) panel unit root tests are handled to check stationarity of the variables. While

Levin–Lin–Chu (2002) assume a common unit process, Im–Pesaran–Shin (2003), and Fisher-type (Chi 2001) consider individual unit root process.

Table 1: Unit root test in level.

Variables	Panel unit root test	Constant		Constant and Trend	
		Coefficient	P-value	Coefficient	P-value
Real Expenditures	Levin, Lin & Chu	-6.20623	0.0000	6.45527	1.0000
	Im, Pesaran and Shin	-2.72471	0.0032	-2.59733	0.0047
	ADF - Fisher	181.319	0.1423	240.119	0.0001
	Hadri	12.5734	0.0000	18.053	0.0000
Real Revenues	Levin, Lin & Chu	-5.71124	0.0000	0.60676	0.7280
	Im, Pesaran and Shin	-2.58624	0.0049	-7.64635	0.0000
	ADF - Fisher	196.855	0.0322	320.283	0.0000
	Hadri	13.9052	0.0000	16.8115	0.0000

The null hypothesis is that the series contains a unit root for all above test, and the alternative is that the series is stationary. However, the exception is that Hadri unit root test's null and alternative hypothesis is the opposite. The above results give mix conclusion about the stationarity of variables in level. While the results of Hadri and ADF Fisher unit suggest non-stationarity when only constant is added, Levin–Lin–Chu (2002), Im–Pesaran–Shin (2003) suggest a stationarity of the variables. However, the stationarity of both variables is confirmed by three tests in level when trend included and it appears that the variables in consideration are $I(0)$.

In Table 2, the result of panel unit root tests can be seen. When all variables are first differenced, clearly they become stationary again according to tests employed.

Table 2: Unit root test when first differenced

Variables	Panel unit root test	Constant		Constant and Trend	
		Coefficient	P-value	Coefficient	P-value
Real Expenditures					
	Levin, Lin & Chu	3.23387	0.9994	9.16644	1.0000
	Im, Pesaran and Shin	-14.2281	0.0000	-5.03419	0.0000
	ADF - Fisher	494.571	0.0000	275.027	0.0000
	Hadri	6.05735	0.0000	13.5462	0.0000
Real Revenues					
	Levin, Lin & Chu	-0.9443	0.1725	-0.44146	0.3294
	Im, Pesaran and Shin	-13.1001	0.0000	-5.27634	0.0000
	ADF - Fisher	463.574	0.0000	281.309	0.0000
	Hadri	6.21897	0.0000	21.3873	0.0000

Panel Granger Causality Test

To find whether the panel series are heterogeneous or homogeneous across the individual units, Pesaran and Yamagata (2008) slope homogeneity test is applied to the series. The below results suggest that all series are heterogeneous.

Table 3: Homogeneity test results

	Coefficient	P-value
Delta tilde	48.223	0.0000
Delta tilde adj.	53.915	0.0000

In this study we use a panel Granger causality test proposed by Dumitrescu and Hurlin (2012). Dumitrescu and Hurlin extend Granger causality test to panel data series. This test is also credible for the use of heterogeneous panel data. Their equation for causality test is look like:

$$y_{i,t} = \alpha_i + \sum_{k=1}^K \beta_{ik} y_{i,t-k} + \sum_{k=1}^K \gamma_{ik} x_{i,t-k} + \varepsilon_{i,t} \quad (1)$$

In equation (1), y_i and x_i indicate the variables for each unit i for the period t . β and γ are the coefficients for each unit. K is lag order for all units.

To determine causality between x and y variables (Granger causality from x to y), Dumitrescu and Hurlin's null hypothesis is as follow:

$$H_0 = \gamma_{i1} = \dots = \gamma_{ik} = 0, \text{ when } \forall i = 1, \dots, N \quad (2)$$

Equation (2) shows that no causality for all individual in the panel data. On the other hand, this test further supposes that there may be causality for some individual units in the panel. So, the alternative hypothesis could be written as:

$$H_1 = \gamma_{i1} = \dots = \gamma_{ik} = 0, \text{ when } \forall i = 1, \dots, N_1$$

$$\gamma_{i1} \neq 0 \text{ or } \gamma_{ik} \neq 0, \text{ when } \forall i = N_1 + 1, \dots, N$$

Table 4: Dumitrescu and Hurlin Test:

		W-stat	Z-stat	P-value
Lag 1	Expenditures does not homogeneously cause Revenues	3.16697	7.96868	0.0000
	Revenues does not homogeneously cause Expenditures	4.44115	13.2653	0.0000
lag 2	Expenditures does not homogeneously cause Revenues	4.76447	4.13373	0.0000
	Revenues does not homogeneously cause Expenditures	6.44038	7.66025	0.0000

Dumitrescu and Hurlin Granger causality test is applied to the series under the restriction that each individual unit has the same lag length of 1 and 2. The results point that the variables are homogeneously granger causes each other. In other words, there is a bidirectional granger cause between municipalities' expenditures and revenues. The outcome of the causality test supports the hypothesis of fiscal synchronization. Our findings are also in line with Chang and Chiang (2009); Çiçek and Yavuz (2014) while the findings contradicts with Akçoraoglu (1999);

Akbulut and Yereli (2016) who found the Granger causality from expenditures to revenues which was backed by the theory of spend-tax approach.

CONCLUSION

The presence and direction of relation between government or municipals' expenditures and revenues has been a focus of many studies in public finance and for the policy makers in this field. In this study we investigated the causal relationship between municipalities' expenditure and revenues in Turkey. The aim was to confirm that what type of fiscal budget hypothesis is valid for Turkish municipalities. The data first checked for stationarity and then Dumitrescu and Hurlin Granger causality test (2012) was applied to see the direction of causality. This study's results indicate that there is bidirectional Granger causality between municipalities' expenditure and revenues in Turkey. The outcomes appear to support fiscal synchronization hypothesis that introduced by Musgrave (1966) and Meltzer and Richard (1981). It could be said that municipalities' decisions about expenditures and revenues are taken simultaneously and the local governments should determine to take action in income and spending of their budget to avoid a possible budget deficits.

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ISLAMIC FINANCE AUDITING STANDARDS AND ITS STATUS AGAINST INTERNATIONAL STANDARDS ON AUDITING

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INTRODUCTION

The development of international trade and the rapid growth in the global economy led to the globalization of financial markets. Increasing fund demand of market participants has increased the need for new financial resources and new financial instruments. Rapid increase in oil prices since the end of the 20th century, it brought capital accumulation in Islamic countries with rich oil resources, but these funds could not be brought to the economy due to interest sensitivity. Islamic Financial Institutions were established in order to accelerate the economic development by using this corporate accumulation and new Islamic financial instruments have been issued. These tools, which first appeared in Islamic countries, are now used all over the world and the funds accumulated in these tools have reached important levels. The Islamic financial system will continue to grow due to the fact that oil is still the most important energy source in the world and the growing population of the Muslim population.

The development of the Islamic finance system and the increasing demand for new investment tools specific to this system have made Islamic finance an important field of activity in the global financial sector. Today, the transaction volume for these new investment instruments has reached significant levels not only in Muslim countries but also in major financial centers around the world. This increased interest brought with it the need for information on Islamic financial institutions and instruments. These institutions, which are based on Islamic law, are subject to a number of different regulations than traditional financial institutions. Therefore,

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the necessity of establishing certain standards based on strict provisions has emerged in the transactions of independent financial institutions. In this direction, Accounting and Auditing Organization For Islamic Financial Institutions (AAOIFI) was established in Bahrein in 1991. Today, AAOIFI develops and publishes standards that regulate the functioning of the Islamic finance sector in the fields of management, accounting, auditing, ethics and governance.

The global development of Islamic financial institutions has brought new expectations of responsibility and accountability requirements. Therefore, new demands have emerged at the point of inspection of these institutions. In this study, the subject of Islamic Finance Auditing Standards (IFAS), which was published by AAOIFI and regulates the audit procedures of Islamic financial institutions, has been examined. In addition, the situation of these standards against International Standards on Auditing (ISA) published by the International Auditing and Assurance Standards Board (IAASB) established under the International Federation of Accountants (IFAC) has been analyzed. In order to guide the practitioners, IFAS and ISA were compared and similarities and differences were revealed. In this framework, firstly, the concept of Islamic finance is emphasized and its development in the world is examined. Then AAOIFI and the auditing standards it published were revealed and studies in the literature were examined. In the last section, IFAS is explained and compared with ISA, and the differences between them are revealed.

ISLAMIC FINANCE AUDITING STANDARDS

Islamic Finance Sector and Its Development

The concept of Islamic finance can be defined as a system in which all kinds of financial activities and financial transactions are carried out in accordance with Islamic rules. Most Islamic finance transactions are mainly based on trade and consist of a number of contracts that bring innovation to business life. These transactions are similar to traditional financial transactions, but are based on fiqh rules and provide alternative financing types for the Islamic segment. The Islamic finance system takes its source from Islamic law and the underlying interest is forbidden.

Today, banks are the important institutions of national economies and commercial life. It meets the needs of individual and corporate customers with the financial services they offer. Although banks offer many financial services such as brokerage, collection of payment instruments, checks and bills, foreign exchange transactions, safe deposit services, their main field of activity is to collect deposits from their

customers and to lend money to those in need of funds in exchange for interest. In this sense, because the interest is forbidden in the religion of Islam, the words Islam and banking have not come together for a long time.

With the industrial revolution, the need for oil has increased rapidly in the world, as a result of the internal turmoil and wars in the oil exporting countries and the increasing demand, oil prices have increased rapidly. Increasing oil revenues and the wealth that started in the Arab world made it imperative to develop a new banking system suitable for Islam. The Islamic banking model, first introduced by Prof. Dr. Abdülaziz en-Neccar in Egypt, was launched with the Islamic Development Bank (IsDB) in 1975 (COMCEC 2018). Islamic capital, which increased with oil revenues, was rapidly evaluated and expanded with the establishment of the Islamic banking system.

Islamic banking is based on Islamic Sharia laws. Therefore, profit-loss partnership is adopted instead of interest, which is the basis of the traditional banking system. Islamic funds that are not included in the banking system due to interest have been brought into the economic system thanks to Islamic banking.

According to the Islamic Finance Development Report published in 2018, 1389 Islamic Finance Institutions in the World have reached a total of \$ 2.4 trillion. The total size of Islamic Finance Institutions is projected to reach \$ 3.8 trillion in 2023 (Thomson Reuters 2018). The size of the Islamic Financial Industry over the years is shown in Table 1;

Table 1. Global Islamic finance industry

Years	Islamic Banking Assets Growth (Billion US \$)	Takaful (Insurance) Assets Growth (Billion US \$)	Other Islamic Financial Institutions Assets Growth (Billion US \$)	Sukuk Assets Growth (Billion US \$)	Islamic Fund Assets Growth (Billion US \$)	Islamic Finance Assets Growth (Billion US \$)
2012	1.305	31	104	260	46	1.746
2013	1.565	36	115	284	54	2.050
2014	1.445	36	126	299	59	1,965
2015	1.604	43	136	342	66	2.190
2016	1.675	44	135	345	91	2.290
2017	1.721	46	135	426	110	2.438
2023	2.441*	72*	188*	783	325	3.809*

Source: *Islamic Finance Development Report 2018, * (Projected)*

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As seen in Table 1, Islamic Finance is growing rapidly. The size of the total Islamic finance market, which was US \$ 1,746 billion in 2012, grew by approximately 40% in a short period of 5 years, reaching US \$ 2,438 billion. The asset size of Islamic Banks, which are the largest institutions of the Islamic Finance market, also grew by 32% between 2012 and 2017. The total growth of Takaful assets between these years is approximately 50%. The size of the total Islamic financial markets in 2023 is expected to be approximately \$ 4 trillion. The reasons for this rapid growth are increased awareness of the Islamic financial market and rapid diversification of Islamic financial market instruments in recent years.

The total share of the Islamic banking sector in the Islamic finance market is 71%. The Islamic Banking sector, which has reached US \$ 1.72 trillion, has a total of 503 banks. Islamic banking has reached 6% of the total banking sector (Thomson Reuters 2018). Table 2 shows the type of the Islamic Banking in the world;

Table 2. Islamic banking type

Type	Number of Islamic Banks
Commercial	402
Investment	59
Wholesale	24
Specialized	18
Total	503

Source: *Islamic Finance Development Report 2018,*

In line with the Islamic Finance Development Report of 2018, when the quantitative development of Islamic financial markets is analyzed, Malaysia is the most developing country. Malaysia is followed by Iran, Saudi Arabia, Kuwait and Bahrain respectively. When the development in Islamic banking is evaluated, Sudan, Bahrain and Iran are in the top three. In terms of Islamic funds, the top three countries are Malaysia, Iran and Saudi Arabia.

AAOIFI and Auditing Standards

The audit tests the conformity and accuracy of the financial statements prepared in the enterprises to the predetermined standards. It collects sufficient and appropriate independent audit evidence to contribute reasonable assurance and evaluates them and links the results to a report (Selimoğlu et.al.,2014:5). In order for the economic decisions made by investors in the financial markets to be accurate, reliable and consistent, the financial information underlying the decisions must be accurate and reliable. The growth in the Islamic financial markets and the increasing information needs of investors in these markets and the religious sensibilities of the Islamic sector have led to the establishment of standards for audit activities in the field of Islamic finance.

AAOIFI, founded in 1991 in Bahrain to develop standards for the Islamic financial sector, has published a total of 100 standards in the fields of law (accounting), accounting, auditing, ethics and governance. (AAOIF 2019). Auditing standards consist of ethical rules and 5 auditing standards for independent auditors. There are 16 countries that partially or fully enforce these standards or obtain guidance. In addition to these countries, organizations such as the Islamic Development Bank and Qatar International Financial Center have adopted the standards as guidelines (AAOIF 2019). Islamic financial auditing standards published by AAOIFI are given in Table 3. In addition, international auditing standards corresponding to these standards are shown in the same table.

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Table 3. Islamic finance auditing standards / international standards on auditing

Islamic Finance Auditing Standards (IFAS)		International Standards On Auditing (ISA)
IFAS 1	Objective and Principles of Auditing	ISA 200
		ISA 250
		ISA 500
		ISA 700
		ISA 720
IFAS 2	The Auditor's Report	ISA 700
		ISA 701
		ISA 705
		ISA 706
		ISA 800
		ISA 570
IFAS 3	Terms of Audit Engagement	ISA 210
IFAS 4	Testing for Compliance with Shari'a Rules and Principles by an External Audit	There is no equivalent for ISA
IFAS 5	The Auditor's Responsibility to Consider Fraud and Error in an Audit of Financial Statements	ISA 240
		ISA 450
		ISA 315
		ISA 330
		ISA 700
		ISA 705

Sources: AAOIFI (2019), IAASB (2018)

LITERATURE REVIEW

There is a limited number of studies in the literature on Islamic Finance Auditing Standards. In this part of the study, these studies are briefly summarized.

Yaacob and Donglah (2012) have conducted studies in graduate students' Islamic financial institutions to obtain perspectives on Sharia'a auditing. They found that students had a low level of awareness in this regard.

Yahya and Mahzan (2012) conducted 5 semi-structured interviews with the audit managers of 5 different Islamic financial institutions in Malaysia in their studies, where they investigated the adequacy of the existing sherry audit practices. Although the Central Bank of Malaysia has created the Shariah Governance Framework for the activities to be performed in the audit, as a result of the interview, they found that the desired level in practice has not been reached yet, the audit is still in the development phase and needs further improvement.

Yaacob (2012) focused on the problems and difficulties of Shari'a audit in Islamic Financial Institutions. In the study, it was determined that IFIs needed auditors with a high level of competence, independent and accountable, who have mastered Shari'a rules.

Kasim and Sanusi (2013) conducted a survey on 86 audit practitioners working in 21 Islamic financial institutions operating in Malaysia. In the survey, the perspectives of the employees on sharia auditing standards, auditor qualifications and independence were examined. As a result of the study, it was determined that Islamic financial institutions in Malaysia need professional sharia standards in their audit practices.

Uddin et al. (2013) divided their studies into two sections. In the first part, they determined the points where the traditional auditing is lacking in Islamic matters. In the second part, they revealed how the auditing activities should be in the Islamic framework. As a result, they stated that auditors should be independent, competent and accountable in Islamic Financial Institutions.

Kasim et al. (2013) examined the scope of the existing auditing practices in Malaysia and Indonesia in their studies. Although there is a Sharia'a auditing guideline for Indonesian Islamic financial institutions, they found that Sharia'a auditing is better in Malaysia.

Shafii et al. (2015) have developed a model that integrates internal and external Sharia'a auditing in the audit and they have been determined in scope. Based on the Shariah Governance Framework published in Malaysia in 2010, they formulated the internal and external audit model.

Ertugay et al. (2019), the auditing activities of Islamic financial institutions in Turkey is carried out according to international auditing standards, but they

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have not been given an assurance determine their compliance with Islamic rules. They found that in Turkey, a need for an integrated auditing standards. In this reason, in 2017, a copyright agreement was signed between the Public Oversight Authority and AAOIFI. In the current practice, they have demonstrated that IFIs conduct Islamic training for internal auditors and certification is needed for independent auditors.

COMPARISON OF ISLAMIC FINANCE AUDITING STANDARDS WITH INTERNATIONAL STANDARDS ON AUDITING

In the study, before moving to the comparison of Islamic finance auditing standards and International Standards on Auditing, ethical standards for auditors specified in both standards were compared.

Ethical Standards For Auditors

AAOIF has the objectives, structure, the religious basis of ethical principles and codes of conduct for independent auditors. The ethical standards for auditors in International Standards on Auditing are much more comprehensive than the ethical rules set by AAOIF.

In both standards, ethical principles are listed for auditors. The principles of impartiality, honesty, professional competence and care, and professional conduct are common in the ethical rules of both standards. While ISA has shown confidentiality as a separate item in ethical principles, it is explained in the reliability principle at IFAS. Two new ethical principles stand out as the most important difference in IFAS, acting on the principles of legitimacy and belief. Accordingly, while performing his profession, the auditor has to make sure that everything is in compliance with Islamic Law and belief values. Ethical principles and rules are based on religion at IFAS. At ISA, there are no decretal and ethical principles are determined by universal values.

IFAS 1 Objective and Principles of Auditing

This standard, in which the purpose and principles of the auditing are determined, also discusses the scope of the auditing, the concept of reasonable assurance and

the auditor's responsibilities regarding the financial statements. This standard has been described in ISA 200, ISA 250, ISA 500, ISA 700 and ISA 720 in 5 different standards at ISA.

According to IFAS 1, the purpose of the auditing is to check the compliance of financial statements with the Islamic Law, IFAS and national accounting standards. On the other hand, in ISA, the focus of the audit is to increase the level of trust in the investors, as stated in the ISA 200 standard. As with IFAS, compliance with religious principles and national accounting standards is not sought.

The content of the audit is also set out in IFAS 1. According to the standard, the scope of the audit activities consists of Islamic Laws and legislation that does not contradict them, the terms of the audit contract and reporting obligations. At ISA 200, the scope of audit is to determine the reporting details according to legal regulations and to prepare the statements accordingly. At this point, ISA 250 explained issues such as the compliance of the audit with the legislation and the responsibility of the auditor.

In IFAS 1, it defines reasonable assurance as a concept for the auditor to gather the necessary audit evidence. Reasonable assurance concerns the entire audit process. It also means that the auditor is convinced that the prepared financial statements comply with the Islamic rules. The content of IFAS does not include details such as how to provide reasonable assurance and what the audit evidence is. These issues are detailed in ISA 500. In ISA 700, it is stated that reasonable assurance should be sought while forming the opinion. Adequate and appropriate audit evidence must be obtained for reasonable assurance.

The auditor's responsibility is to express an opinion on the financial statements according to IFAS 1. The responsibility for compliance with Islamic rules and regulations belongs to the audited institution. In ISA, the responsibilities of the auditor are regulated in ISA 200, ISA 700 and ISA 720 standards. Except for the Islamic rules, the auditor's responsibility is similarly defined in IFAS and ISA.

IFAS 2 The Auditor's Report

In IFAS 2, there are basic elements of the independent auditor's report, positive opinion including these elements, limited positive opinion, avoidance of comment and negative opinion report examples and issues that affect and do not affect

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the auditor's opinion. The standard explained in detail what should be done on these issues. A basic auditor report according to the standard; The title, addressee, introduction paragraph, scope paragraph describing the nature of the audit, reference to IFAS and national standards, the basis of the opinion and opinion, the auditor's responsibilities, the date of the report, the auditor's address and signature.

Provisions regarding the independent audit report are regulated in ISA at ISA standards 700- 701-705-706. ISA 700 regulated the auditors responsibility to express their opinions and the content of the audit report. In ISA 701, it is stated that the key audit issues should be included in the audit report. When the opinion is expressed other than the positive opinion, how the content of the audit report is regulated in ISA 705 and ISA 706. Briefly, in IFAS 2, the auditor's report is clarified in one standard, while in IAS it is explained in more detail in 4 different standards.

Unlike ISA, there is no explanation in IFAS 2 regarding the audit of special purpose financial statements. This situation is explained in ISA 800 standard. In IFAS 2, the auditor may add paragraphs to highlight an important issue related to the continuity of the business. At ISA, the continuity of the business forms part of the audit report. There is even a separate standard called ISA 570 "Going Concern".

In IFAS 2, while there is no provision for determining and reporting risky areas and key issues in the audit for the enterprise subject to independent audit, these issues are regulated in ISA 701 standard.

There is no provision for additional information and footnotes included in the financial statements audited in IFAS 2. However, it is stated in ISA 700 that additional information provided with the financial statements may be part of the auditor's opinion and in this case should be presented with the auditor's opinion.

IFAS 3 Terms of Audit Engagement

The purpose of IFAS 3 is to establish standards and provide guidance on the appointment of an auditor to audit the financial statements of the Islamic financial institution. The standard contains how to prepare the audit contract and its basic content. According to the standard, the content of an audit contract includes the purpose and scope of the audit, the auditor's responsibilities to the customer, the management's responsibility for the financial statements, fees and other issues. In

addition, the audit of other units affiliated with the group company, the subsequent audits and possible changes in the contract before the audit is completed, are regulated by this standard.

The International Standards On Audit corresponding to IFAC 3 is ISA 210. When the two standards are compared, there are great similarities in basic issues. According to IFAC 3, the content of the audit contract should include the responsibility of the management regarding the financial statements and the compliance Islamic rules within the scope of the audit.

IFAS 4 Testing For Compliance with Shari'a Rules and Principles by an External Audit

IFAS 4 reveals the responsibilities of the auditor and the scope of the auditing, according to the Shari'a principles and rules. Hence, reference should be made to the report of the advisory committee in the audit report. The purpose of this standard is to provide guidance in the Islamic financial institution for the auditor, who carries out the independent audit activities, to test the compliance of financial statements with the rules and rules. According to the standard, the opinion of the auditor should be in conformity with the principles and rules, the fatwa, decisions and instructions published by the advisory committee should be used as the basis of the auditor's opinion. This is the responsibility of the auditor.

The auditor is not empowered to evaluate the competence of the advisory committee and to interpret the principles and rules of the judgment. The auditor should also review whether there are changes in fatwa, decisions and guidelines during each accounting period. The auditor presents his draft audit report to the advisory committee primarily in terms of compliance with the principles and rules of the judgment. The audit report is published with the approval of the advisory committee.

Since this standard is based on the principles and rules of Shari'a, all issues specified under the standard have no counterpart at ISA.

IFAS 5 The Auditor's Responsibility to Consider Fraud and Error in An Audit of Financial Statements

Within the scope of the standard, error and fraud are defined, and situations involving errors and fraud are specified. The necessity of professional skepticism was

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mentioned by revealing the auditor's responsibility to these situations. The issues regarding the evaluation of the error and fraud, its effect on the auditor's report and its certification are specified in the standard. Accordingly, the purpose of the standard is to evaluate the risks of error and fraud and to determine the auditor's responsibilities in International Financial Institutions (IFI)'s independent audit.

While the provisions regarding error and fraud are explained in IFAS 5, on the other hand, 240- 315- 330- 450 and 700 are specified in five different standards in ISA.

According to IFAS 5, management is primarily responsible for the prevention of errors and fraud. When performing the audit procedures, the auditor takes into account the risk of material misstatement due to errors and fraud. While determining the risks of material misstatement in IFAS 5, the procedures and risk assessment procedures required by the auditor are not disclosed, while these issues are detailed in ISA 315 and ISA 330.

According to IFAS 5, the situations that contain errors are accounting estimation errors, errors in the practicing of accounting principles and standards, errors in the application of Shari'a principles and rules. In ISA 450, the situations that contain errors are explained in more detail than IFAS 5. According to ISA 450, the error can occur in the collection, classification, interpretation and accounting estimates of the information used in the organizing of financial statements. Besides, errors can be caused by incomplete and inadequate explanations. In IFAS 5, errors related to Islamic Law are also mentioned.

IFAS 5 has identified fraud as deliberate actions involving deception to gain interest. In ISA 240, fraud is divided into 2 as inaccurate from fraudulent financial statements and inaccuracies caused by abuse of assets.

In IFAS 5, the auditor's responsibility is to make reasonable efforts to report errors and fraud. Nevertheless, it is not the auditor's duty to prevent errors and fraud. In ISA 240 and ISA 700, the auditor's responsibility for errors and fraud is similar. According to both standards, the auditor should continue his professional skepticism with the awareness that there may be mistakes and fraudulent errors during the audit.

In IFAS 5, the auditor decides whether to continue the audit by preparing a report with limited positive opinion or avoiding giving an opinion in case of a material

misstatement due to errors and fraud. According to ISA 700 and ISA 705, in case of material misstatement due to errors and fraud in the financial statements, the auditor gives an opinion other than positive opinion.

In both standard sets, management is primarily responsible for the prevention and detection of errors and fraud. Management should establish an effective internal control system that complies with ethical rules to minimize errors and fraud. According to IFAS, management must also establish controls and procedures in accordance with Shari'a principles and rules in all activities of IFI.

CONCLUSION

In countries where the Muslim population is dense, the surplus funding especially with the increase in oil prices, has made the Islamic finance system one of the important areas of activity of the global financial sector. Owing to meet the information require of investors and to observe their religious sensibilities in the rapidly growing sector, it has become mandatory to establish some standards that regulate the sector. AAOIF has published standards accepted in the fields of accounting, auditing, Shari'a, ethics and governance. In the field of audit, the institution has published ethical rules and 5 audit standards for independent auditors to date.

In this study, first of all, Islamic control standards were examined in terms of purpose, scope and content. Then, similarities and differences between Islamic Finance Auditing Standards (IFAS) and International Standards On Auditing (ISA) have been revealed. When ethical rules are analyzed, it is seen that in addition to universal ethical values, there are religious bases and religious codes of ethical principles. However, at ISA, ethical values are independent of religious rules and much more comprehensive.

All the procedures and principles regarding the audit activities of Islamic financial institutions have been gathered in 5 standards in IFAS. Therefore, it is generally narrower compared to ISA. Therefore, as stated in IFAS 1, ISAs can be applied to matters not covered in detail in IFAS unless they are contrary to the Islamic principles and rules.

When both sets of standards are analyzed in detail, it is seen that IFAS is based on the Islamic principles and rules and in this sense, it differs from ISAs without

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religious principles. Apart from this fundamental difference, the concept of the advisory committee is included in IFAS. Hence, the auditor should mention the report of the advisory committee in his report and publish the audit report with the approval of the committee. The advisory committee system, which operates like a supreme board, does not meet ISA. It can be said that this situation complicates the auditing activities of Islamic financial institutions compared to the traditional system. Apart from this, while a standard regarding audit evidence has not been published in IFAS, it has been detailed in more than one standard in ISA (ISA 500-501). IFAS is narrower than ISA and it is based on Shari'a principles and rules. This situation prevents the universality of the standards.

As a result, the global Islamic financial market is growing rapidly day by day. Financial investment instruments are rapidly diversifying in line with the needs of investors. Therefore, IFAS, whose scope is narrower than ISA, will have to be developed and updated by adding new standards. Auditors who will apply Islamic auditing standards must also keep up with this development. Training and certification programs, including Islamic rules, need to be increased for auditors.

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TARGET COSTING AS A STRATEGIC TOOL OF COST MANAGEMENT

Ülkü MAZMAN İTİK¹

INTRODUCTION

Due to the recent economic and technological developments in the last century, intensifying competition environment affected the manufacturing technologies of firms significantly. Since the firms did not desire to be fallen behind these changes, they pushed their best to adapt and execute new production and management approaches in their firms as well. In present conditions, the most significant problem of firms is to produce goods with good quality and cheap prices and to market these goods (Saygılı,2008 p.167). When the firms that have the strategic objective of gaining profits are creating plans about the profits, they should analyze by taking all the variables that affects the profit of their business significantly into consideration. In time, firms realized that the cost reduction method is not only included during the production line but also includes the process that involves with suppliers as well by starting from the design phase of product. In this regard, the method of target costing that firstly started to be used in Japan for the first time in 1960s take its part in the literature and in time, it has become a method that has been applied throughout the world.

Target costing is a method that reviews all the ideas in order to decrease the costs during the process of planning, researching and development of a product, and shapes the production in accordance with the demands of customers by prioritizing the elements such as pace and quality in the production line. Although the inclusion of the term of “costing” in the method of target costing might lead one to think that this process is only about the part of accounting-finance, the method of target costing is an effective management tool that includes R & D, product development, engineering, design and supply departments in cost control

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before the production. "Target costing interests from dealers, distributors and customer services to all the members in the chains of value" (Şakrak, 1997p. 94). The purpose of this study is to emphasize the differences between the traditional method and the approach of target costing by analyzing the approach of target costing theoretically.

THE DEFINITION OF TARGET COSTING AND RELATED CONCEPTS

Although there are several definitions of target costing in the literature, conceptual framework can be summarized as below.

Sakurai defined target costing as a costing and management device that has been used to reduce the costs with the participation of various departments (Yükçü, 2007 p. 387). According to Consortium for Advanced Management International, the target costing system is a set of tools and techniques to be used to achieve the cost and profit targets determined throughout the entire life cycle of the decisions taken to produce a product in accordance with the design starting from the design phase (Saygılı, 2008 p.169). The method of target costing is a set of systems that aim to meet the profitability and cost targets throughout the production process, which provides a whole set of techniques and methods for direct design and planning activities for a new product (Bozdemir & Orhan, 2011 p.25). Target costing is defined in the accounting literature as below: it is a cost management technique that will clearly detect the cost of a production in every phase of the costs of a product in development process and will manage the future profits of the firm. Some concepts when the method of target costing is referred are as below:

Target Selling Price: Target selling price is that the buyers intend to give to the product and can be determined in accordance with their perception to the product (Kaya, 2010 p. 25). When selling price has been determining, its starting point is the price that emerged in the market. When target selling price has been determining, objectively detecting the needs of customers to the price, their levels of income and their perception of quality are crucially important. Moreover, researching the prices of rival firms and the preferences and tendencies of customers among the products and analyzing these components have importance for the method of target costing to reach its aim.

Target Profit Margin: When target profit margin has been determining, conducting an analysis that will take into consideration several significant components such as the financial position of a firm, the reports of previous periods, sectoral analyses and even, the risk landscapes which could occur in the country will hinder the deviations.

Target Cost: Target cost is an acknowledgeable costing level that can achieve the aimed profit margin with a product that will be produced. In other words, it is the positive difference between target selling price and target profit. According to Yükcü, it represents the cost based on the market share that is determined in accordance with the current selling prices to achieve the target market share (Yükcü 1999. p. 924).

THE BASIC PRINCIPLES OF TARGET COSTING

There are six basic principles that would form a basis to the conceptual base of the method of target costing (Ansari, SL (Ed.).1997 p.456).

1. Pricewise Costing: It is obtained with subtracting target profit from target costing market price in the method of target costing. However, this aforementioned selling price of the product is not a price that can be detected under the control of firm. Yet, target profit can be detected in accordance with the financial status of a firm, sector analyses and other variables, and it is a component that is partially under the control of firm.

2. Concentrating upon Customers: One of the most significant components in the method of target costing is to detect the needs of the customers and the qualities that they are looking for a current product.

3. Prioritizing the Design: The method of target costing has been shaped towards the design of a product and the process of its design. Before beginning the production, detecting the changes that could be encountered in the market beforehand and preventing for that to happen during the design phase of a product are significant components to achieve profits.

4. Enhanced Participation: The firms that desire to implement the method of target costing should demonstrate their targets to both intrabusiness and non-operating shareholders and should constitute active groups when they are

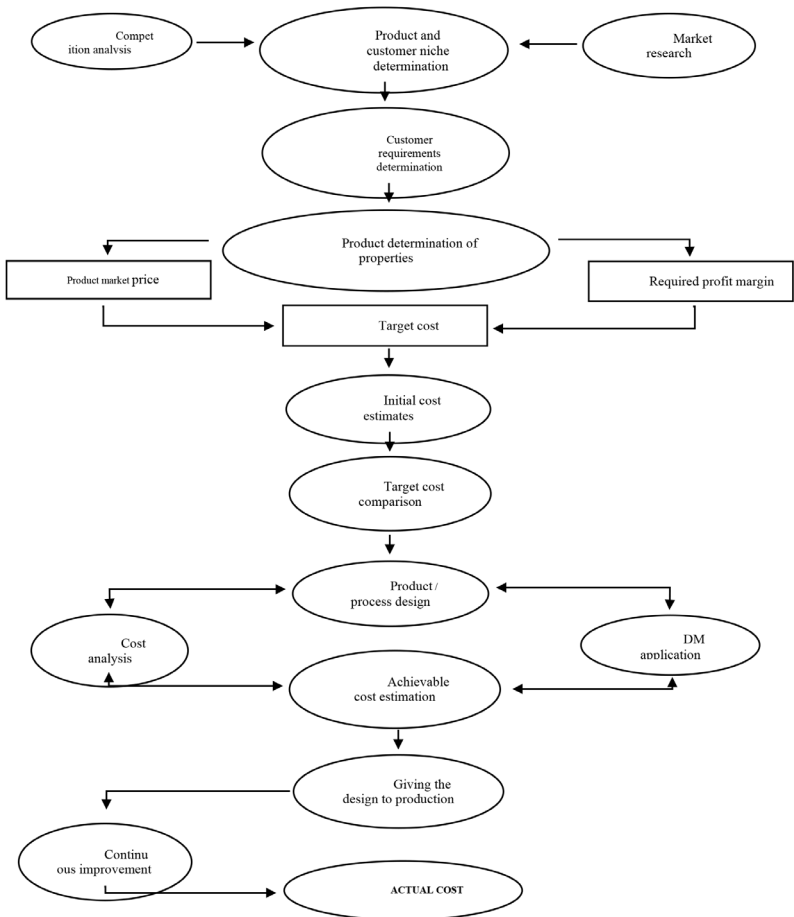
implementing this method. In addition to intrabusiness groups such as marketing, engineering, accounting and purchasing, firms can include non-operating units such as suppliers and customers into these aforementioned groups as well.

5. *Approach of Life Cycle:* The cost of product not only includes the costs that materialized during the production but also the costs, which include the period after the product delivered to the markets and customers by starting from the design phase, such as R & D, design, marketing, distribution, maintenance and repair, during the process of its life cycle in the principle of life cycle.

6. *Binding with the Chain of Values:* The method of target costing has a perspective that embodies the relationship between the functions of firms and to take along shareholders in the corporal relations during the life cycle of a product. The method of target costing provides mutual benefits for the suppliers and all the shareholders that are included in the chain of values in the long-term. Furthermore, it is a system that contributes positively for reducing the costs in all phases of production.

THE PHASES OF THE METHOD OF TARGET COSTING

The firms that desire to implement the method of target costing must materialize and implement two different phases. The first phase of target costing is the phase that target cost is determined and competition, customers and market surveys are conducted. The second phase of it is sum of the conducted studies in order to achieve the target cost. The most significant technique to plan product cost is the method of target costing (Fisher, 1995p. 51-53). The phases of the method of target costing are in Figure 1 (Ansari, SL (Ed.). 1997 p. 465).

Figure 1: Stages Of Target Cost

Source: Yükcü, 2007 p. 401

The first phase in the method of target costing is to conduct market surveys and competition analysis in order to determine the target cost. By obtaining information about the market in detail, the data such as the structure of the market, the level

of incomes of customers and demand forecasting are detected with the support of numeric data in the market survey. In several conducted researches, the most significant factor for the method of target costing not to reach its goal was correlated with the reason that a proper market survey had not been done (Yükçü 1999. p. 400). In the competition analysis, on the other hand, elements such as the position of the products of rivals in the market, the point of view of customers towards the products and the possible reactions of rivals and customers when a new product will be introduced into the market are tried to be analyzed and estimated. In the method, however, the competition analysis is a difficult component to be estimated since the reactions of individuals and firms in the future will be tried to be estimated. When it was considered from this point of view, it is the most subjective criterion of the method. After determining the general perspective of market and customers, possible changes in the process should be monitored and the changes should be reflected into the process. After the customer requirements are determined, the target cost will be achieved by detecting price of product and profit margin of a firm. When the target profit margin has been determining, various ratios may be utilized as well. One of the most frequently used analyses in the literature about the profitability ratio is the ratio of profit margin which will be achieved through the distribution of net profit into sales. Profit margin is a ratio that will determine whether the profits are in adequate levels in accordance with the sales in a firm. (Net Profit/Sales) (Akgüç, 1998. p. 67). After detecting profit margin and market price, target cost can be achieved through the undermentioned formula (Aksoylu & Dursun 2001. p. 362).

$$C = P - * \quad C = \text{Target Cost} \quad P = \text{Market Price} \quad * = \text{Target Profit}$$

For instance, if the determined price for the X product is 200 TL and if the firm needs %15 target margin in order to create sustainable finances in current period, the target cost for this product will be estimated as 85 TL (Kutay & Akkaya 2000 p.28). When the target cost is determined, another question needed to be answered is whether the target cost will remain fixed during the life cycle of the product. There are two approaches about this issue: the first one is the approach that will be based on the same target cost during the life cycle of the product and this is called as "linear approach". The other approach, on the other hand, aims to determine a distinct target cost in every life cycle (introduction, maturity and fall) of the product, and promises to provide the determined target cost in every life cycle.

The second significant phase in the method of target costing is the process to achieve the estimated target cost that was estimated in the previous process. In this phase, maximum costs that could be necessary for the every part have been determined and after this phase, all shareholders of the firm and all the groups that are included in the chain of values carry on their activities to adapt the costs that had been determined for them. However, it is worth noting that the quality and design of the product should not be compromised for reducing the costs. For this purpose, all of the employees go into a difficult and competitive period. The difference between first cost estimations and target cost after the determination of target cost is significant because the efforts of production, process design and continuous improvements will be shaped towards aiming to make up the difference. After the achievable cost is estimated, actual cost become determined as well. If there is a significant difference between the actual cost and target cost, by detecting the reasons for these financial differences, designers and engineers will be encouraged to achieve the target cost by utilizing cost reduction techniques. Since it is not possible to determine the target cost again, if the target cost is not achievable, then, the production phase of the product will be cancelled as well.

THE COMPARISON BETWEEN TRADITIONAL COSTING METHOD AND THE METHOD OF TARGET COSTING

The most frequently used traditional costing method is the cost-plus method. In this method, the price of product is determined thereby adding the expected profit margin into the costs. The fundament logic of traditional costing method is to achieve the target profit by adapting previously determined costs. In this method, the preferences and satisfaction of customers are not at the forefront (Kartal & Bozok 2011.p.76).

Price=Costs + Profit Margin

In this method, a market survey will be conducted firstly, then, demands of customers and product specifications will be determined. Later, the works of engineering and design will be concluded. Finally, the estimated cost will be clear by determining input costs. After completing the works upon the estimated cost, the costs that can achieve the expected profit margin will be determined and the production phase will be initiated. After initiating the production, if increase in costs is observed, then, cost reduction techniques will be implemented periodically

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or specifically to that department. Differently from traditional method, in the method of target costing, on the other hand, the system starts from the last phase and it has concentrated upon the customers (Doğan,1998 p.197). As stated in the previous subtopic, firstly the sale price as a result of the market surveys will be determined, then, the target cost that will achieve the target profit will be determined (Civelek &Özkan 2006 p.638).In other words, starting point of this method is the sale price. A backward process by starting from the sale price is followed in this method (Türk, 1999 p.214).

Target Cost=Target Sale Price-Target Profit

The table that is formed through the comparison between the traditional method and the method of target costing is as below.

Chart 1: *Comparison Of The Classical Method And The Target Cost Method*

Traditional cost	Target cost
Market factors are not part of cost planning	Competitive market factors drive cost planning.
Costs determine prices	Prices determine costs
The focus of cost reduction is waste, waste and inefficiency.	Design is key in cost reduction.
Cost reduction studies are not guided by customers.	In cost reduction studies, the data provided by the customers are guiding.
Those responsible for cost reduction in the business are cost accounting.	The large participation team manages costs.
The suppliers are involved after the product design.	Suppliers participate before product design.
It is aimed to reduce the price paid by the customer.	It is aimed to minimize the cost of ownership of the customer.
In cost planning, the value chain relationship is either very low or none at all.	Value chain is based on cost planning.

Source: *Gökçen, 2003,p.81*

THE IMPLEMENTATIONS OF THE METHOD OF TARGET COSTING

In 1960s, target costing was developed under the umbrella of Toyota firm in Japan as a concept and it was especially acknowledged in the automotive sector. In the study that Helms et al. conducted, it was indicated that %100 of Japanese automotive companies and %80 of all companies in Japan used the method of target costing in 2000s. In their reports in 1990s, Lockamy and Smith indicated that the firms that used the method of target costing in Japan were %80 especially in the discrete manufacturing firms. Although American automotive sector was not unconcerned with the developments in Japan and implemented the method of target costing as well, both the adaptation process was rather slow and success rates were not achieved in desired levels. In the study that Helms et al. conducted, it was emphasized that %40 of American companies used the method of target costing in 2000s (Saygılı, 2008 p.169). Furthermore, according to the research that Fortune-500 (96) conducted, it was concluded that the American companies in the research list were unsuccessful for implementing the method of target costing (Kaya 2010). The implementations of the method of target costing in Turkey are as below. In the study that Alagöz et al. conducted, it was concluded that the method of target costing can be implemented in %56 of companies in automotive sector in Konya but it is not frequently used by the companies. In their studies, Bozdemir and Orhan detected that %64 of the companies did not implement the method of target costing and only %2 of the companies used this method in accordance with their results of survey with 249 companies.

One of the most significant reasons for the adaptation and implementation of the method of target costing in Japan in contrast with the other countries is that the companies have embraced the most suitable cost management techniques complying with the terms and conditions. Since the global competition has intensely experienced in these days, the implementation of modern management techniques has definitely importance. However, the implementation of methods of countries and institutions for more suitable with their dynamics and more competitive advantage with their conditions is not an unacceptable factor as well.

CONCLUSION

As a result of the developments in the industrial field in 19th century, the most frequently used method of firms is the traditional costing method. However,

intensified competition and customer satisfaction as a prominent factor have paved the way for questioning the efficiency of traditional costing method and implementing new cost management techniques. While the market price is prepared by adding expected profit margin on determined costs in traditional costing method, firstly the costs are determined in a backward process by grounding on the market price firstly, and all the shareholders that involved with this process must make an effort in order to adapt to these costs. The method of target costing provides a significant competitive advantage in contemporary world. Moreover, the inclusion of “costing” concept in the title does not necessarily mean that it is a system of cost accounting. On the contrary, the method of target costing is not a system of cost accounting but a strategic cost management system.

The method was firstly used in the Japanese automotive sector in 1960s. Thanks to its financial advantage for the firms, this method attracted the attentions of other countries as well. However, despite its strong field of activity in Japan, this method has never been used as effectively as in Japan in other countries. In Turkey, on the other hand, although some phases of the method of target costing is implemented, all the processes of the method have not been embraced by the sectors and firms actively. However, in order for firms to sustain their financial and economic position in the market, firms should realize the fact that only variable that they can intervene is the costs of product and they should act in accordance with this fact when they will determining the cost management. The realization of this condition and in accordance with it, the implementation of the method of target costing will provide a great advantage for the firms to sustain their existence and provide competitive advantage.

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INTRODUCTION

The emergence of environmental problems which beget great outcomes has made it compulsory for businesses to be more sensitive and conscious about this issue. Employees, managers, and accountants of enterprises need to master the green accounting concept in order to develop their awareness of the environment. Green accounting, also known as environmental accounting in the literature, is a specialty accounting that occurred after enterprises detected their adverse impacts on the environment (Yılmaz and Şahin, 2017). With green accounting, it is aimed to determine the relationship between enterprises and the environment, to determine the environmental costs accurately and to perform cost analyses for solving environmental problems (Korukoğlu, 2015: 85).

In this study, it is aimed to determine the perceptions of the students who are enrolled at the Faculty of Economics and Administrative Sciences, Sivas Cumhuriyet University on environmental issues and to measure the levels of their green accounting perceptions. After introducing green accounting theoretically in the following sections of the study, previously conducted studies on this subject are summarized. In the application section, various analyses are carried out in line with the obtained data and the conclusion section is prepared by making various suggestions.

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GREEN ACCOUNTING

Any type of thought that neglect environmental facts are subject to severe criticism. As of today, environmental sensitivity has been included in accounting science as well as in almost every field (Kırlıoğlu and Fidan, 2009: 13). Accounting, as an open system, continuously interacts with its surroundings. In pursuant to the concept of social responsibility as one of the basic concepts of accounting; it is obligatory for accounting to uphold the interests of the whole society, not merely of certain individuals and groups. Social responsibility accounting ensued as the extension of the social responsibility concept.

Social responsibility accounting, which emerged as the extension of the social responsibility concept, refers to an information system that determines the impacts of the socio-economic consequences stemming from the activities of goods or service produced by an enterprise on the parties such as employees, managers, partners, the state, etc. in order to provide the authorities with adequate information required for the planning and execution of social activities (Akün, 1999: 151).

Green accounting constitutes a subset of social responsibility accounting. It has emerged as a branch that includes the issues of reporting and auditing of environmental monetary transactions in the light of documents upon request of the parties associated with the enterprise (Alagöz, 2001: 147). According to another definition, green accounting is a term that expresses the combination of knowledge in accounting practices and environmental costs and it is known as the accounting of environmental impacts that would occur as a result of the formation of environmental resources (Çetin et al., 2004: 63; Çelik, 2007: 153).

The North American Indian proverb “*We do not inherit the earth from our ancestors; we borrow it from our children.*” constitutes the basic philosophy of green accounting (Özkol, 1998: 18).

The green accounting, which is performed for reliable detection of enterprises’ environmental expenditures and costs, has the following objectives (Kürklü, 2015: 422):

- Integrating environmental responsibilities with the accounting information system,

- Getting the assistance of accounting in order to determine the positive and negative conditions of the environment and to mitigate its adverse impacts,
- Determining the costs required to eliminate environmental problems,
- Determining the level of environmental resources on a certain date.

REPORTING IN GREEN ACCOUNTING

The scrupulous care given to the environment by the enterprises throughout recent years has rendered the reporting of environmental activities vital. Enterprises may report these environmental activities along with financial statements such as balance sheets and income statements, or use them in supplementary financial statements. Upon considering the studies conducted on green accounting, it can be noticed that definitions are increasingly emphasizing the importance of the recording system (Gönen and Güven, 2014: 42).

The aims of voluntarily prepared environmental reports to manifest the extent to which the enterprises fulfill their duties towards the environment are as follows (Kaya & Akdeniz, 2016: 11):

- To bring in a different understanding into the reporting system that enterprises utilize continuously,
- To provide the information users with the necessary information,
- To reveal the responsibility assumed by enterprises regarding the environment,
- To cultivate environmental awareness,
- To build prestige as an environmentally conscious enterprise.

LITERATURE REVIEW

In the literature, the terms “green accounting” and “environmental accounting” are often used interchangeably in the same meaning. Some of the national studies conducted in this field are as follows:

Çelik (2007) examined the concept of environmental accounting in his study. The aim of the study was to ensure that enterprises take the environmental obligations that arise as a result of their activities into consideration. The underlying reason for this is that, although environmental problems are considered not to influence enterprises in the short-run, they have long-term impacts on them.

Kırlioğlu and Fidan (2009) dealt with the accounting of enterprises operating in the province of Sakarya in the field of environment and waste activities. As a result of the study, they concluded that medium and large enterprises in the province were performing activities on environmental policies. Due in part to the non-compulsory nature of the reports indicating the environmental costs incurred by the enterprises, the function of reporting on the environmental costs was significantly deteriorated. Since accounting of the environmental costs incurred by the enterprises in the accounts of “General Administrative Expenses” and “General Operating Expenses” disabled clear monitoring of environmental costs, the study suggested necessary steps be taken in designating an account for these costs within the chart of accounts.

Aymaz (2009) examined the environmental accounting and its impacts on other accounting types in terms of enterprises located in Isparta, Antalya and Burdur provinces. As a result of the study, it was found that the enterprises did not carry out environmental pre-feasibility studies while designating the place of establishment. It was observed that the institutionalized enterprises participating in the study were more sensitive in performing environmental analyses and evaluating the opportunities and threats offered by the environment compared to family-owned businesses. The preparation of legal grounds for environmental reporting, the provision of necessary training for employees in environmental issues, and the dissemination of documentation in environmental studies were determined to be essential factors in rendering the environmental accounting widespread in Turkey.

Uluslan (2010) examined environmental costs within the frameworks of Turkish Accounting Standards (TAS) and Turkish Financial Reporting Standards (TFRS). In the study, it was asserted that there was no standard in both TAS and TFRS regarding the environmental costs and that such a deficiency did not need to be eliminated necessarily. This is because the current accounting principles are sufficient for reporting and accounting of the environmental costs.

Gönen and Güven (2014) reviewed the environmental costs of an enterprise operating in the ceramic industry and examined how these transactions should be accounted for. In the examinations, it was concluded that enterprises should have been encouraged for reporting in green accounting which should have taken its proper place within enterprises to reduce or prevent environmental problems.

Kürklü (2015) compared two distinct enterprises. One of the enterprises was environmentally conscious and the other was an enterprise with a high pollution rate. The environmental costs of these two enterprises were compared. As a result of the research, it was observed that the environmental costs incurred by the former which adopted the green accounting approach were found to be relatively lower; whereas the latter incurred additional costs.

Aydın and Gözütok (2015) first defined the concept of accounting in their studies, and then, measured the perception levels of the professional accountants operating in Sivas province for environmental accounting using the survey methodology. As a result of the research, they described the industrialization factor of the accounting professionals operating in Sivas as the source of environmental problems. They stated that 70% of the accounting professionals had knowledge about environmental accounting. Moreover, the concept of environmental accounting was attributed to one of the basic concepts of accounting, namely, “Social Responsibility” by accounting professionals.

Kaya and Akdeniz (2016) concentrated on the association between environmental accounting and the Turkish Accounting and Financial Reporting Standards (TAS/IFRS). As a result of the examination made within this framework, it was determined that TAS/IFRS included regulations that would coordinate environmental accounting practices, directly and indirectly. Furthermore, it was clearly stated that TAS/IFRS, which aimed to present financial-based environmental information especially in accordance with the need, made substantial contributions to environmental accounting.

Yılmaz and Şahin (2017) measured the awareness of green accounting through a questionnaire survey that was applied to the students attending an accounting course. As a result of the study, it was revealed that students who had an internship in the field of accounting had a higher awareness of green accounting. Another conclusion obtained from the study was that the education provided to students regarding green accounting was insufficient.

Arı and Bayram (2017) analyzed the role of social responsibility and environmental accounting in the effective implementation of corporate governance. As a result of the study, it was claimed that good corporate governance comprehension must have covered both environmental accounting and social responsibility accounting in order to be applied to the enterprise side. In order to achieve this in a good

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manner, the employees should be provided with the necessary training and preemptive measures should be taken to prevent environmental hazards.

Deniz and Türker (2018) explained environmental accounting and its objectives. According to the study, the damages caused by enterprises to the environment and the benefits of the environment to enterprises should have been monitored in the “770 General Administrative Expenses” account within the uniform chart of accounts. Besides, the need for inclusion of environmental costs in the financial reports of the enterprises was also mentioned.

OBJECTIVE AND IMPORTANCE OF THE ANALYSIS

The rise of environmental problems that lead to enormous outcomes has made it compulsory for enterprises to be more sensitive and conscious about these issues. Enterprise employees, managers, and accountants need to master the green accounting concept in order to improve their environmental consciousness. This study aims to determine the perceptions of the students enrolled at Sivas Cumhuriyet University, Department of Economics and Administrative Sciences on environmental issues and to measure the level of their green accounting perceptions.

ANALYSIS METHODOLOGY

The survey method is used in collecting the research data. Yılmaz and Şahin (2017) is utilized in generating the survey scale. The research study consists of two parts. In the first part, 7 questions are asked to determine the demographic characteristics of the participant students. In the second part, 25 statements are presented to the participants using a 5-point Likert-type scale (1-Strongly Disagree, 2-Disagree, 3- Neither Disagree Nor Agree, 4- Agree, and 5- Strongly Agree) to detect their opinions on green accounting. Descriptive statistics, t-test, and analysis of variance (ANOVA) are performed using the SPSS software.

LIMITATIONS OF THE ANALYSIS

Sivas Cumhuriyet University, Faculty of Economics and Administrative Sciences was chosen as the sample in the survey. A survey questionnaire was applied to the senior students of the Department of Business and Banking Finance, where the accounting course was taught intensely. The aim of conducting surveys in two different departments is to determine whether or not the responses differ. As

a result of the calculations made, the sample size is determined as 242 and 134 participant students submitted their survey questionnaires following the application.

FINDINGS

The frequency and percentage distribution of the demographic characteristics of the students who participated in the survey are examined and presented in Table 1.

Table 1: *Frequency Distributions According to Demographic Characteristics of the Participants (N=134)*

	Frequency	Percentage (%)
Gender		
Female	88	65.7
Male	46	34.3
Age		
18-20	4	3.0
21-23	105	78.4
24-26	16	11.9
27 and older	9	6.7
Department		
Business	73	54.5
Banking and Finance	61	45.5
Type of Education		
Daytime Education	71	53.0
Evening Education	63	47.0
GPA		
1.99 and lower	35	26.1
2-2.99	52	38.8
3 and higher	47	35.1
Idealized Profession		
Academician	30	22.4
Financial Consultant - Accountant	3	2.2
Banker	19	14.2
Private Sector	15	11.2
Expert in Government Institutions	21	15.7
Civil Servant	22	16.4
Other	24	17.9
Work Experience/Internship		
Yes	37	27.6
No	97	72.4

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As seen in Table 1, 65.7% of the students participating in the survey are female and 34.3% are male. 73 students from the Department of Business Administration and 61 students from the Department of Banking and Finance participated in the survey. 53% of the participant students are enrolled in daytime education, whereas 47% are enrolled in evening education. 38.8% of the students' GPA is between 2-2.99, and 35.1% of the students' GPA is 3 and above. While being an academician is the first-rank idealized profession (22.4%), being a financial consultant/accountant is the least idealized profession (2.2%).

Table 2: *Means and Frequency Distributions of the Green Accounting Statements*

Statements	\bar{X}	Groups
1. I act with due diligence to reducing electricity, water and fuel consumption to protect the environment	1.74	ENVIRONMENTAL CONSCIOUSNESS
2. I warn people around me not to harm the environment	1.90	
3. When choosing between two types of products, I prefer to purchase the product that least damages the environment	2.39	
4. Enterprises should be financially supported in producing environmentally-friendly products	1.76	
5. I avoid using products that would damage the ozone layer	2.81	
6. I follow the innovations and developments related to environmental problems	2.84	
7. I purchase recycled products, even if they are expensive	3.09	

Statements	\bar{X}	Groups
8. I believe that green accounting practices would stimulate clean and safe production	2.00	PERCEPTION OF GREEN ACCOUNTING
9. I have no knowledge of green accounting whatsoever	2.68	
10. I believe that green accounting practices would be helpful in limiting unnecessary consumption of natural resources	2.21	
11. Enterprises should be obliged by the state to participate in green accounting practices	2.19	
12. I believe that green accounting practices are protective of the ecosystem	2.22	
13. I believe that green accounting practices would be useful in sustaining biodiversity	2.28	
14. I believe that green accounting practices would be helpful in waste management during production	2.37	
15. I have read about the concept of green accounting from articles, books, the internet, etc.	3.31	
16. I believe that green accounting practices would be useful in water usage and water management	2.39	
17. I believe that green accounting practices would be useful in managing greenhouse gas emissions (CO ₂)	2.50	
18. I am familiar with the concept of green accounting only by name	2.77	
19. I believe that green accounting practices would promote energy savings	2.37	
20. I have taken the course(s) regarding green accounting during my education	4.23	
21. Enterprises must carry out green accounting practices for the solution of environmental problems	2.08	PERCEPTION OF GREEN ACCOUNTING IN ENTERPRISES
22. Enterprises should report their environmental performances	1.87	
23. Green accounting practices indirectly reduce the costs incurred by enterprises	2.55	
24. Enterprises should identify environmental policies as part of green accounting practices	2.13	
25. The relationship between enterprise and environment is reported through green accounting practices	2.52	

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As seen in Table 2, the survey questions are divided into 3 groups such as Environmental Consciousness, Perception of Green Accounting, and Perception of Green Accounting in Enterprises.

It is observed that the students who agree with the statement “I act with due diligence to reducing electricity, water and fuel consumption to protect the environment” with a mean value of 1.74. This statement is followed by the statement “Enterprises should be financially supported in producing environmentally-friendly products” with a mean value of 1.76. On the other hand, it is seen that the students disagree with the statement “I have taken the course(s) regarding green accounting during my education” with a mean value of 4.23. The other statement that follows is that “I have read about the concept of green accounting from articles, books, the internet, etc.”. It is seen that students agree with the statement “Enterprises should report their environmental performances” with a mean value of 1.87.

RELIABILITY (CRONBACH'S ALPHA) COEFFICIENT

The reliability (Cronbach's Alpha) Coefficient stands for one of the features that a scale should have. The reliability coefficient indicates the internal consistency of the measured value obtained in repeated measurements under the same conditions by means of a measurement tool. Upon interpreting the reliability coefficient, the following classification should be taken into consideration (Kılıç, 2016: 47-48):

Cronbach's Alpha Coefficient	Interpretation
$0.81 < \alpha < 1.00$	The scale has high reliability
$0.61 < \alpha < 0.80$	The scale has moderate reliability
$0.41 < \alpha < 0.60$	The scale has low reliability
$0.00 < \alpha < 0.40$	The scale is not reliable

In the research study, Cronbach's Alpha coefficient is calculated as 0.833, indicating that the measurements would yield similar results and they are highly reliable. The similarity of the results obtained in the study that is carried out at Sivas Cumhuriyet University with of Yılmaz and Şahin (2017) which was conducted using the same scale proves this scale has high reliability.

HYPOTHESIS TESTING

The questions in the survey questionnaire are divided into three groups, t-test and variance analyses are separately performed for each group. In this regard, the hypotheses under consideration are as follows:

H₁: The students' opinions on green accounting tend to differ significantly according to their gender.

H₂: The students' opinions on green accounting tend to differ significantly according to the department in which they are enrolled.

H₃: The students' opinions on green accounting tend to differ significantly according to the type of education.

H₄: The students' opinions on green accounting tend to differ significantly according to their work experience/internship.

Table 3: *Inter-group T-test Results According to Gender*

Groups	Gender	N	Mean	Sigma Value
Environmental Consciousness	F	88	2.2500	.077
	M	46	2.3789	
Level of Green Accounting Perception	F	88	2.6031	.751
	M	46	2.5301	
Importance of Green Accounting in Enterprises	F	88	2.2977	.544
	M	46	2.1087	

According to the information presented in Table 3, the environmental consciousness levels of the students do not differ significantly according to their gender. Although the environmental consciousness level of male students seems higher than of female students considering the mean values, such a difference is not statistically significant ($P > 0.05$). The level of green accounting perception and the importance of green accounting in enterprises do not differ significantly according to their gender. Although the importance of green accounting in enterprises, as well as the green accounting perception level of female students, seem rather higher than of male students considering the mean values, such differences are not statistically significant.

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Table 4: Inter-group T-test Results According to the Department

Groups	Department	N	Mean	Sigma Value
Environmental Consciousness	Business	73	2.4051	.977
	Banking and Finance	61	2.1616	
Level of Green Accounting Perception	Business	73	2.6807	.875
	Banking and Finance	61	2.4552	
Importance of Green Accounting in Enterprises	Business	73	2.3616	.407
	Banking and Finance	61	2.0787	

According to Table 4, the students' level of green accounting perception, environmental consciousness, and the importance of green accounting in enterprises do not differ significantly according to the department in which they are enrolled. Although the mean values of students enrolled in the department of business are higher than of the students enrolled in the department of banking and finance, such differences are not significant ($P>0.05$).

Table 5: Inter-group T-test Results According to Type of Education

Groups	Type of Education	N	Mean	Sigma Value
Environmental Consciousness	Daytime	71	2.4051	.130
	Evening	63	2.1616	
Level of Green Accounting Perception	Daytime	71	2.6807	.612
	Evening	63	2.4552	
Importance of Green Accounting in Enterprises	Daytime	71	2.3616	.685
	Evening	63	2.0787	

As seen in Table 5, there are no significant differences among the opinions of the students in terms of the environmental consciousness, the level of green accounting perception and the importance of green accounting in enterprises according to the types of education to which they attend ($P>0.05$).

Table 6: *Inter-group T-test Results According to Work Experience/Internship*

Groups	Work Experience/ Internship	N	Mean	Sigma Value
Environmental Consciousness	Yes	37	2.3591	.013
	No	97	2.2695	
Level of Green Accounting Perception	Yes	37	2.6175	.010
	No	97	2.5630	
Importance of Green Accounting in Enterprises	Yes	37	2.2811	.013
	No	97	2.2144	

As seen in Table 6, the students' environmental consciousness levels indicate a significant difference according to their work experience/internship status. Upon considering the mean values, the students with work experience/internship tend to have significantly higher levels of environmental consciousness in comparison to those students without work experience/internship ($P < 0.05$). There are significant differences in the levels of green accounting perception and the importance of green accounting in enterprises according to the work experience/internship status of the students. Variance analysis is performed following the T-test analysis. In this regard, the hypotheses of the analysis are constituted as follows:

H₅: The students' opinions on green accounting tend to differ significantly according to the age groups to which they belong.

H₆: The students' opinions on green accounting tend to differ significantly according to their idealized professions.

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Table 7: *Inter-group Variance Analysis Results According to Age*

Groups	Age Group	N	Mean	Sigma Value
Environmental Consciousness	18-20	4	2.7500	.371
	21-23	105	2.2599	
	24-26	16	2.3214	
	27 and older	9	2.4444	
Level of Green Accounting Perception	18-20	4	2.6346	.235
	21-23	105	2.5289	
	24-26	16	2.7981	
	27 and older	9	2.7350	
Importance of Green Accounting in Enterprises	18-20	4	2.3500	.273
	21-23	105	2.1771	
	24-26	16	2.3750	
	27 and older	9	2.5778	

Based on the information given in Table 7, the environmental consciousness levels of the students do not differ significantly according to their age group to which they belong. Although the students' age group of 18-20 seems higher than of other age groups, such difference is not statistically significant ($P>0.05$). There is no significant difference among the students' ages, and the level of green accounting perception and the importance of green accounting in enterprises.

Table 8: *Inter-group Variance Analysis Results According to Idealized Occupation*

Groups	Idealized Professions	N	Mean	Sigma Value
Environmental Consciousness	Academician	30	2.3524	.066
	Financial Consultant-Accountant	3	1.6667	
	Banker	19	2.4135	
	Private Sector	15	2.2667	
	Expert in Government	21	2.0612	
	Institutions	22	2.1818	
	Civil Servant	24	2.5298	
	Other			
Level of Green Accounting Perception	Academician	30	2.6846	.590
	Financial Consultant-Accountant	3	2.2051	
	Banker	19	2.5101	
	Private Sector	15	2.5897	
	Expert in Government	21	2.4725	
	Institutions	22	2.5245	
	Civil Servant	24	2.6795	
	Other			
Importance of Green Accounting in Enterprises	Academician	30	2.3400	.395
	Financial Consultant-Accountant	3	2.2000	
	Banker	19	2.3368	
	Private Sector	15	2.3200	
	Expert in Government	21	2.0000	
	Institutions	22	2.0455	
	Civil Servant	24	2.3417	
	Other			

According to Table 8, the environmental consciousness levels of the students do not differ significantly according to their idealized professions. The levels of the students' green accounting perception and the importance of green accounting in enterprises do not differ significantly according to the idealized professions. Although the mean values of the level of academicians' green accounting perceptions and the importance of green accounting in enterprises seem higher than of other professions, such differences are not statistically significant ($P > 0.05$).

CONCLUSION

In order to better comprehend and utilize the concept of green accounting for enterprises, it is essential to raise awareness in this regard. The fact that future managers and accountants have opinions about green accounting is a crucial factor for enterprises to become more environmentally conscious. The aim of this study is to determine the perceptions of students, who may become business owners and managers in the future, on environmental issues and to measure their green accounting perception levels.

In this study, the green accounting perception levels of the Business Administration and Banking Finance Department students studying at Sivas Cumhuriyet University, the Faculty of Economics and Administrative Sciences are measured by courtesy of survey data collection method. In the study, firstly, item analysis is performed and the questions below 0.30 points are excluded from the analysis. Then, the questions of the survey questionnaire are divided into three groups, namely, Environmental Consciousness, Level of Green Accounting Perception and Importance of Green Accounting in Enterprises. The significance levels of the differences among these groups are measured according to several demographic factors. There are no significant differences among these groups according to the students' gender, the department in which they are enrolled, the types of education to which they attend, the age groups to which they belong, and the professions they idealize. These groups tend to differ significantly only in terms of the Work Experience/Internship factor. The statement with which the students mostly agree in the study is "I act with due diligence to reducing electricity, water and fuel consumption to protect the environment". The statement with which the students mostly disagree in the study is "I have taken the course(s) regarding green accounting during my education".

In order to foster their perception levels on green accounting, undergraduate and associate degree students may attend a "*Green Accounting*" course. Another way to constitute such perception may involve inviting these students to conferences or symposia held on green accounting. The findings that students with work experience/internship tend to have higher perception levels about environmental consciousness, green accounting perception and the importance of green accounting in enterprises than those students without work experience/internship highlight the importance of providing students with internship training in the constitution of green accounting perception.

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SECTION **III**

**STRATEGIC MANAGEMENT AND
MARKETING**

30

A REVIEW OF ADVERTISING EFFECTIVENESS WITHIN SOCIAL MARKETING

Banu KÜLTER DEMİRGÜNEŞ¹, Mutlu Yüksel AVCILAR²

INTRODUCTION

Today, society faces many of the problems involving important issues such as smoking cigarettes, drinking alcohol, and taking drugs. When these problems become effective at the level of society, there is a need for using social marketing to dictate such a behavior (O'Cass and Griffin, 2006: 87). Social marketing is defined as "a promising framework for planning and implementing social change" (Kotler and Zaltman, 1971: 3). It is about voluntary behavior change. Social marketers apply the exchange principle that the change must supply a clear benefit. There are previous researches about the effectiveness of social marketing, but these are not many in number and do not define social marketing in various application fields (Gordon et al., 2006: 1134).

Social marketing is an intervention approach. In other words, it plans and implements a campaign about social issues. However, some people benefit from social marketing intervention but others not. Although the offerings are standardized, variations and inequalities within society mean that some people adopt the program better than others. Therefore, the expected and desired effect is an increase in inequalities (Stead et al., 2007: 191). One way for achieving the desired effect can be properly designed and implemented advertising campaigns. Social marketing can attract attention through advertising campaigns (O'Cass and Griffin, 2006: 87).

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A REVIEW OF ADVERTISING EFFECTIVENESS WITHIN SOCIAL MARKETING

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Advertising has a wide application field and one is for social marketing. Advertising has an important role in the campaigns of social marketing and its effectiveness leads to success (O’Cass and Griffin, 2006: 89). In recent years, there are many applications of advertising on social issues because of the increase in the number of sensitive and conscious customers. Many years ago, the Advertising Council of America has developed campaigns for social issues as “Go to College”, and “Join the Peace Corps”. Indeed, social advertising is now a well-developed phenomenon in most countries. The function of advertising indeed helps in informing and convincing people to buy products and services. However, it can be applied to the “ideas” that aim to inform people about better education, environmental sustainability, community crime and so on (Kotler and Zaltman, 1971: 4). Although the concept of social issues is important, not much research has studied especially on advertising. Many researchers indicate that effective advertising can influence the attitudes positively and get the attention of society whether or not the person engaging in the behavior (O’Cass and Griffin, 2006; Stead et al., 2007).

Commercial promotional activities can have limitations to be applied for the social marketing mix and, indeed, social marketing advertising and its effectiveness cannot be the same as that of commercial advertising. This study discusses social marketing effectiveness achieved with advertising, by reviewing a wide literature about different social issues. It presents a view for examining social issues from the perspective of the effectiveness of advertising and presents acknowledgment about variables or antecedents that affect success. Since attitudes lead to behavior (Fishbein and Ajzen, 1975), social marketers should change attitudes for affecting social behaviors (Kotler and Andreasen, 1996). Thus, social marketers must consider antecedents of the effectiveness of the advertising message.

Advertising effectiveness is frequently studied because of its significant influence on purchasing, intention, and attitude. Yet, limited studies have discussed its effectiveness on desired behavioral change, which is the main goal of social marketing. In this study, advertising effectiveness stands for the desired behavioral change in social marketing (Kotler and Zaltman, 1971: 3). The study can support the acknowledgment about the antecedents of the effectiveness of the advertising message and the desired outcomes of advertising. So that it can help social marketers to obtain knowledge about variables leading to social behaviors.

First, the study presents a definition of social marketing and its similarities with and differences from marketing's generic nature. Then, social marketing advertising and its application on the types of social interventions/campaigns are discussed. The required instruments and variables used for social marketing advertising are summarized. Lastly, the effectiveness of social marketing advertising and its evaluation criteria are discussed within the commercial marketing effectiveness perspective.

SOCIAL MARKETING ADVERTISING

Social Marketing

Social marketing is defined as “the application of the technologies of commercial marketing to the planning, analysis, evaluation, and execution of programs designed for influencing the target audiences’ voluntary behavior so as to increase their welfare and of the society” (Andreasan, 1995). Since it focuses on the change of voluntary behavior, social marketing is not enforcement. Social marketers work for persuading on change by performing the principle of exchange. In other words, the customer has a clear benefit, if a change occurs. Social marketing also includes commercial marketing techniques such as segmentation, targeting, being consumer-oriented and the marketing mix. Lastly, the end aim of social marketing is to increase the welfare of individuals and society, but not to benefit the company organizing social marketing. This is the main difference between social marketing and other forms of marketing (Kotler et al., 1996).

While sales-oriented applications consider finding loyal customers and convincing customers on buying existing products, the modern marketing concept dictates most effort to discover the needs of the target market and then providing goods and services in order to satisfy them. This view is a socially more acceptable offer for social marketing. The social marketing view emerges from society’s decision on product mix (Kotler and Zaltman, 1971: 5). Marketing mix of social marketing involves “6 Ps” like Product, Price, Place, Promotion/Communication, Person, Policy. For instance, a school-based intervention can comprise a curriculum element, teacher training, materials and home activities (place, promotion, person) (Stead et al., 2007).

Different theories and models are used in social marketing programs. Since social marketing is about to influence behavior (Kotler and Zaltman, 1971), different models and theories can be adapted to the programs. For example, many school-based

programs or campaigns were defined by “the theory of social influences” which dictates the significance of psychological and social factors in promoting against drug use (McDermott et al., 2005). While some researchers have used “social learning theory” in their studies (Baranowski, 2003), some have supported “social cognitive theory” that defines how people get specific behavioral patterns. This theory explains the relations between cognitions of a person and his behavior, through the variables such as outcome expectancies and self-efficacy (Bandura, 1997). Besides, the “trans-theoretical model”, supposing that behavioral change follows a series of stages, has been used in many interventions (Reger, 2002). It is important in this model to know in which stage a person is. Then, a proper program can be applied for a successful behavioral change. These theories are frequently applied to social marketing campaigns, and to different social issues in order to get effective outcomes. Stead et al. (2007) supports the application of a certain theory for planning and implementing interventions. For instance, Botvin (1997) dictated that using “social influences theory” in tobacco, alcohol, and drug prevention programs can help to achieve the desired result and be effective. Besides, social-oriented warnings and their results are more related to the “theory of reasoned action” (Ajzen and Madden, 1986). Because this model dictates that people are more likely to think about causes and to adopt change if they take care and think about group values and social norms (Morvan et al., 2011).

Social marketing campaigns have different effects. Kotler and Zaltman (1971) summarized the relative effectiveness of social campaigns in five factors as “the force”, “the direction”, “the mechanism”, “adequacy and compatibility” and “the distance”. The force factor indicates the level of a person’s motivation for achieving the goal and the direction defines the need for knowledge of where the person can carry out his motivation. The Mechanism indicates the need for the presence of an agency which helps the person for translating the motivation into action. Adequacy and compatibility reveal the agency’s effectiveness in carrying out its job, whereas the distance defines a person’s expected or required time reward (Kotler and Zaltman, 1971; 6).

Recent studies have worked for a more consistent perspective for evaluating social marketing’s effectiveness and they have applied the social marketing approach to different social issues. McDermott et al., (2005) found that interventions/campaigns about social marketing were strongly affective on nutrition behavior, such as knowledge and perceptions on the benefits of eating healthily. National

Social Marketing Center also examined the strong effect of social marketing applications on tobacco, drugs, and alcohol interventions. Researchers agreed that many interventions applying social marketing principles can affect behaviors. Most interventions for preventing alcohol usage and youth smoking showed important positive influences in the short term. Differently, interventions for motivating physical activity have less effect on behavior. So, it can be said that the type of intervention and its application can determine the level of effectiveness which also needs to be more researched (Stead et al., 2007: 190).

Social Marketing Advertising

Social marketing advertising can be defined as a part of corporate social responsibility advertising since companies try to dictate socially responsible ideas. This type of advertising promotes social ideas to consumers via advertising messages (Lee et al., 2013: 234). Stead et al. (2007) indicate the rapid changes in individuals' consumption habits in the world, for the last 30 years because of the marketing applications by Coca-Cola and McDonalds. While these companies use promoting strategies and different advertising messages and methods in their commercial fields, social marketing uses its strategies as the fight against obesity (Stead et al., 2007: 192). For instance, McDonald uses a social advertising message supporting regular exercise and healthy eating (Lee et al., 2013: 234).

Social marketing advertising communicates the value of a company while studying to increase the awareness of issues. Like commercial advertising, social advertising has parallel influences on issue support behavior. Advertising indeed shapes the process of decision for issue support behavior. However, Lee et al. (2013) stated that few studies in social advertising have answered the effect of social advertising on social outcomes. They found that social marketing advertising is a significant communication instrument in affecting consumer behavior (Lee et al., 2013: 237).

Nevertheless, social marketing is not equal to advertising. In other words, many interventions can be media campaigns, but they are mistakenly identified as social marketing. So, research should not be limited only to interventions (McDermott et al., 2005: 7). Similarly, many practitioners do social advertising and call it social marketing. This is a threat to the development of social marketing discipline, and it restricts the application of it in practice. Some researchers discuss that social marketing and social advertising are often confused. Confusing these two concepts may cause problems. Social marketing can be misunderstood due to the

limitations of social advertising. For example, ethical issues about advertising can be transferred to social marketing and this restricts the advertising is effective. Exaggerating the social advertising importance in the social marketing mix is also an obstacle for social marketing discipline in many ways. It can restrict its usage and can cause mistrust. Thus, social marketers are mainly advised not to confuse these two concepts and not to overstate advertising to get effective results (Stead and Hastings, 1997).

Besides the obstacles for applying advertising to social ideas, the issue of success in social advertising is also problematic. Many campaigns involve multiple objectives. Furthermore, social marketing, in its nature, needs a long-term strategic perspective. These all cause difficulties in the measurement of the success of social advertising. Especially, measuring the success in short terms can be a problem, if objectives are inevitably long-term. So, social advertising campaigns have also an obstacle for being evaluated prematurely (Drumwright, 1996: 79). Despite all these difficulties, social advertisers need to know measurement methods of effectiveness and the variables leading to success in social marketing. Thus, they can plan and develop proper advertising strategies for each different type of social issue.

ADVERTISING EFFECTIVENESS

Advertising has been defined as “a paid and non-personal form of presentation and promotion of ideas, goods or services by an identified sponsor” (Khan, 2006:262). Advertising is a complex phenomenon that is distinct from every other form of communication. In developed countries, it helps consumers to satisfy their wants and needs by informing them of what is available in the marketplace. Advertising plays a crucial role for manufacturers and sellers of products because it helps manufacturers recognize their competitors, meet the planned level of competition and increase sales (Bergh and Katz, 1999).

Advertising effectiveness is shaped by its interaction with the social, cultural, economic, legal, and psychological context in which it's delivered (Rodgers and Thorson, 2019). Researchers have examined the effectiveness of advertising since the massive advertising began (Tellis, 2009). Advertising effectiveness refers to the managerial approach which aims to relate the advertising results to the performance standard and goals for evaluating the true value of the advertising performance (May, 2018: 273). Advertising effectiveness can be described as “market response

to a company's (or a brand's) advertising." Researchers also examined the effects of advertising on consumer awareness, attitudes, beliefs, and intentions. The effectiveness of advertising depends on the customer's response to advertisements and their attitudes. Advertisements are considered effective by their capability to convey the message or to promote sales (Saumendra, 2018: 15).

A careful advertiser tries to measure the extent to which an advertising campaign has reached its communication objectives. The measurement often takes the form of qualitative or quantitative marketing research (Bendixen, 1993: 20). Advertising effectiveness research can be classified into two broad research areas as behavioral research and field research. Behavioral research area often uses theater or laboratory experiments to address the effects of advertising on mental responses such as awareness, attitudes, beliefs, and intentions, whereas field research uses field experiments or econometric models to evaluate the effects of advertising on market responses as brand choice, sales, or market share (Tellis, 2009: 240). MacKenzie et al. (1986) suggested four alternative structural models for advertising effectiveness: (1) affect transfer hypothesis (ATH), (2) dual mediation hypothesis (DMH), (3) reciprocal mediation hypothesis (RMH), and (4) independent influence hypothesis (IIH) models. Among these four models, ATH, DMH, and RMH propose that attitudes toward advertisement affects firstly brand attitudes, and then leads to brand purchase intention. Differently, the IIH model suggests that attitude toward advertising can directly influence brand purchase intention. According to Schultz et al. (1984), advertising objectives can be set in one of three ways; (1) sales effects, (2) behavioral effects, and (3) communication effects, when it is necessary to define such objectives in cognitive, affective and/or conative terms. The objective of advertising is communication rather than sales and attempt to express the impact which the advertiser wishes to achieve with his message, something which does not necessarily coincide with an increase in sales (Lautman and Percy, 1978).

The measurement used in evaluating advertising effectiveness should be defined in terms of the advertiser's objectives for the advertisement (Beerli and Santana, 1999: 11). Specific advertising objectives will be dictated by the company's overall marketing strategy (Stanton et al., 1994: 506). The specific objectives of an advertising campaign may adopt many forms as; (1) creating awareness of a new product or brand, (2) informing customers of the features and benefits of the product or brand, (3) creating the desired perceptions of the product or brand,

(4) creating a preference for the product or brand, (5) persuading customers to purchase the product or brand. Such objectives are all aimed at a higher purpose of enhancing the buyers' response to the company and enhancing its offerings for achieving profitable sales in the long run (Bendixen, 1993:19).

One of the most cited theories related to the advertising effect on the consumer buying process is the "AIDA model" (Jobber, 1995: 363). In the buying-decision process, buyers pass through the stages of unawareness, awareness, interest, desire, action, and post-purchase evaluation (AIDA). According to this theory, advertising is strong enough to increase target audience knowledge, to change attitudes of the target audience and consequently to persuade the target audience who had not previously bought a brand. Therefore, a conversion theory of advertising dictates that non-buyers are converted to become buyers. Advertising is assumed to be a powerful influence on consumers' buying decision process. Thus, the objective of advertising may be to move target customers to the next stage in the hierarchy from awareness to action (Jobber, 1995: 363). Another important research area on the evaluation of advertising effectiveness is the attitude towards advertising. Many advertising researches support its mediation role between advertising and purchase intentions (Mackenzie et al., 1986; Mehta, 2000).

Advertising effectiveness measurement can take place before, during and after the advertising campaign execution. Pre-testing is applied before the campaign is run and it is the part of the creative process. Attention and awareness of advertising, attention, and awareness of the brand, comprehension, and interest are the most used measures for pre-test advertising effectiveness. On the other hand, image/attitude change, actual usage, sale level, recall, recognition, and intention to buy are the most used measures for post-test advertising effectiveness (Jobber, 1995: 381).

In summary, many of the measures and theories are used to evaluate advertising effectiveness. The complexity of decision making and many influences on the buyer will continue to make measuring advertising effectiveness a difficult managerial task. In today's intense competitive marketing environment, the measurement of the effectiveness of advertising is an important economic force. In terms of a social point of view, advertising creates awareness about social problems and informs society about their solution (Bergh and Katz, 1999). Since social marketing advertising is recently emerging, its effectiveness has recently been placed emphasis. Although applicability of commercial advertising and its concepts to the social

marketing issues are supported by many researchers (Kotler and Zaltman, 1971; Jones and Rossiter, 2002; O'Cass and Griffin, 2006), the antecedents of effective social advertising, its measurement methods and outcomes can differ from that of commercial one (Lee et al., 2013: 237).

Effectiveness of Social Marketing Advertising

Ordinary commercial advertising is likely to be effective because of the lack of attitudes and involving new behavioral changes. It rather canalizes existing attitudes in one direction or another. For example, toothpaste seller does not a goal for socializing people for a new dental care practice but convince on which familiar and desired product brand (Lazarsfeld and Merton, 1949). Many researchers support this idea but add that most marketing situations include the aim of creating new attitudes rather than dealing with the existing one. For example, changing farming practices, trying out new drugs and environmental purchasing deal with new attitudes. Especially, social marketers frequently work for producing new products and services that need major attitudinal and behavioral reorientations (Kotler and Zaltman, 1971: 6). Jones and Rossiter (2002) dictated that commercial business' advertising theory can be applied effectively to the social marketing's design (especially advertising) programs. They studied Australian social marketing that targets teenagers' use of drugs and the use of alcohol. The two campaigns and their advertising messages supplied evidence which concepts and theory of commercial advertising can be adapted to social marketing successfully (Jones and Rositer, 2002: 7).

Social marketing programs should be applied to what is known about targeting, branding, positioning and finding media to market good behaviors in the interest of the public. Firstly "good behavior" should be presented as the product's commercial brand then it is promoted. Secondly, role players should be in the decision as participants (influences, purchases, deciders, initiators, users). Thirdly, a positioning statement about the brand and objectives of social communication should be clearly defined. Fourth, "creative execution tactics" should be developed to use believable design in the advertisement. Lastly, media planning should be based on "minimum effective frequency" for the cycles of advertisement, rather than an overhead budget expenditure of the campaign's budget (Jones and Rossiter, 2002). Similarly, Rossiter and Percy (1997) presented "advanced advertising theory" in four steps for developing an advertising campaign: 1) segmentation of target and

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objectives of the action, 2) objectives of communication and positioning, 3) creative strategy and 4) strategy of media. According to them, all campaigns should be designed in these four steps which are defined as “buyer response sequence” When considered all these stages, advertising is not solely enough to get a successful result. The achievement and effectiveness of the promotion/communication technique like advertising are closely related to proper designing of product, place, price and promotion considerations. Since these concepts were indicated to be applied to social ideas, social marketing advertising also cannot be free from other parts of the social marketing mix (price, place, product, person, and policy). Therefore, integrated marketing is true for the effectiveness of a communication technique (Kotler and Zaltman, 1971: 6).

Jones and Rossiter (2002) proposed for effective social advertising that the content of the advertisement has to be supported by a positioning statement that has three elements; 1) target audience, 2) need of category and 3) key benefit. For example, a campaign for drug prevention can target parents who have the roles as initiators and influencers in communicating about anti-drug messages to teenagers. So that the target audience is parents having teenage children and the aim of the campaign is to give information to the primary target audience who are the parents of 10 to 17 years olds. The proper positioning statement can be shaped as “would you like to know how to talk to your kids about drugs?” It is a message requiring high involvement and tries to convince parents to talk to their teenagers about drugs. The key benefit can be defined as keeping teenagers drug-free. Such a campaign can be branded as “Drug Aware” and can use wide range of media for promoting message to parents like television advertisements, magazines or newspaper advertisements targeted at parents, a brochure or billboard advertisements targeted at parents or e-mail of the materials of the campaign to general practitioners (Jones and Rossiter, 2002: 7).

Many social campaigns work for giving information that is believed to increase awareness of causes and to shape attitudes toward required behavior and lastly lead to a change in behavior. This approach focuses on the view that consumers’ reshaping attitudes and beliefs will cause behavioral changes. However, Rothschild (1999) noted that apart from getting knowledge about the cognitive processes of consumers, there is a need to focus on environmental stimuli that reinforce consumers’ behavior patterns. Implementation of a campaign exposes the environment within which behavior of result in. So, there is a need for considering

legal and social interventions because of their determining effects on the behaviors of interest (Rothschild, 1999: 417). The focus is on how the issues can be better reformed or improved with advertising theories and social marketing. Creating a supportive environment can help social marketers in this respect. For example, in order to prevent obesity; fruit in schools, develop walking and cycling strategy, expanding breakfast programs can be an example of a supportive environment. Healthy eating and ways for this can shape objectives of implementation plans (Rothschild, 1999: 420).

Researchers proposed the number of factors that determine the effectiveness of social advertising. Although there are common antecedents of effective social advertising agreed by many researches (Drumwright, 1996; O'Cass and Griffin, 2006; Lee et al., 2013), implementation strategies and effectiveness of advertising in social issues can differ in various types of social issues. Many factors (e.g. attitude towards advertising, social issue involvement, believability, corporate-community relations and perception about advertisers) can be the antecedents for an effective social advertising and can have different outcomes (e.g. intention to perform behavior, behavioral change, intention to comply with the message, social advertising acceptance and perceived success of social campaign). Among these, one of the most important determining factors for effectiveness is attitudes towards the message (Drumwright, 1996; O'Cass and Griffin, 2006; Lee et al., 2013). For example, if people like McDonald's messages about a healthy lifestyle, they will be more likely to adopt actions such as exercising more or eating healthy food (Lee et al., 2013: 237). Fishbein and Ajzen (1975) dictated that many behaviors were the result of a person's intention for carrying out behavior. From the social marketing perspective, Snyder and Kendzierski (1982) noted that a person must be aware of attitude's relevance to the specific situation. For instance, a positive attitude towards anti-smoking can be related to the belief of an individual that cigarette is dangerous and damage him. So new attitudes should be translated into new behaviors. If people have a more positive attitude, the advertising message is more likely to be effective in terms of complying with the social marketing campaign (O'Cass and Griffin 2006).

Many researchers agreed on the effectiveness of visual warning illustrations on social marketing (Miniard et al., 1991) Text-only messages are found to be less effective than textual and pictorial messages (Petty et al., 1983). Usage of pictures, music and popular person in advertising can generate emotion and messages

with pictorial warnings are perceived as more effective. Morvan et al. (2011) found that social-oriented fear appeals were noted as the most effective. Ethical responsibilities are also found as one of the important factors to determine the effectiveness of advertising and to get the desired behavior change. Due to the importance of social issues, Donovan et al. (2009) recommended social advertisers to be more sensitive to ethical principles as compared to commercial advertisers (Donovan et al., 2009: 17).

If one talks about advertising, the statement of “competition” reveals important knowledge for effectiveness. In social marketing, marketers should focus on competing behaviors that prevent consumers from accepting the required behavioral change (Stead et al., 2007). For example, tobacco usage can be defined as a competing behavior for an anti-smoking campaign. Since tobacco is perceived as a reminder of smoking, advertising can carry internal and external competition strategies. A visual that helps people to deal with cravings can be an internal strategy, whereas messages that propose restrictions in the number of outlets selling tobacco can be an external strategy. Many studies show evidence of the success of using these strategies on social issues (Hansen, 1988; Perry, 1996). Although many social campaigns and advertising messages are expected to result in desired behavioral change, sometimes messages and interventions can harm (Donovan et al. 2009). Drumwright (2019) indicates that social ideas are different from messages of the product on some dimensions. Dimensions that characterize social ideas can affect cognition and attention negatively. Donovan et al. (2009) found that depictions of media that involve violence messages of materials encourage some viewers to make suicide. If the method of suicide is clearly demonstrated in advertising, it appears to influence more people that are similar to those shown in the depiction. For the success of advertising, they proposed the advertising to be tested among not only the members of the public but also tested on people suffering from issues such as suicide or violence (Donovan et al., 2009: 17).

After discussing the factors leading to success or causing problems and the key outcomes of social advertising, the main question is “how to measure the level of effectiveness”. Measurement of the effectiveness of a social advertising campaign may not be always as systematic as that of the commercial one. It may not be clear whether the effects are the result of a specific component of the campaign or it is because of other factors in society (Gordon et al., 2006: 1135). Outcome measures also differ according to the field of issue. For example, variables such

as nutritional knowledge, physiological change, and vegetable intake can be used as outcome measures for “nutrition review”. On the other hand, illicit drug use, smoking prevention, policy adoption, alcohol use can be used for outcome measures for the “review of substance misuse” (Gordon et al., 2006: 1136).

Outcome measures should be evaluated with caution since it is not enough to apply suitable behavioral theory (Nutbeam, et al., 1993). For example, a limitation for measuring the effectiveness of physical activity studies is that there is no universally agreed measure of the level of physical activity (Ashenden et al., 1997). Many researchers have found physical activity intervention to have less effect as a social campaign because physiological outcomes using measures such as cholesterol level, cardiovascular disease rates, and blood pressure are more determining or have distinctive on engaging in physical activity (Gordon et al., 2006: 1137). So, the measures of the outcome used in the intervention program can vary. This makes problems difficult to compare across studies. In these terms, comparing interventions that apply similar outcome measures can be more useful. On the other hand, this approach can limit the number of included studies. In addition to all this, evaluating the effectiveness of social marketing advertising takes a long time and most studies go on one to two years (Stead et al., 2007).

CONCLUSION

This study provides a comprehensive view of social marketing advertising within the commercial advertising perspective. The study theoretically reviews and discusses the effectiveness of advertising with a social dimension. It presents theories and important variables discussed for evaluating the advertising effectiveness. This theory-based research also summarizes some examples of social marketing campaigns in the literature and presents the key constructs for evaluating their effectiveness. Different types of social interventions and their messages can be developed, and their effectiveness can be measured within social marketing. Therefore, social marketers may consider the key points given in the study before planning an advertisement with a social dimension.

Social advertising can create many approaches to achieve the desired behavioral change. Some advertising messages deal with overcoming harmful consumption behavior, whereas others encourage people to behave for the benefit of society. Some types of advertising use positive and emotional messages, whereas others

induce the feeling of guilt and fear (Hastings, et al., 2004) that motivate people to get control of their lives and give freedom of choice (Grace, 1991). The issue of emotions as shame, fear and guilt cannot always be effective because people are more likely to dismiss fear-based messages and they show defensive and avoidance behavior toward these messages. Advertising messages used in campaigns change according to social issues. Thus, there are two main questions in advertising. Firstly, marketers need to know which approaches are applicable or more suitable for the messages of social marketing advertising. Second, which components of the message (as positive or negative) are used in advertising (Zharekhina and Kubacki, 2015). As Andreasen (1995) dictated in their study, “being consumer-oriented” is a key principle of social marketing and can help social advertisers to find a proper message. Social advertising can be subject to governments, citizens and specific interest groups (O’Cass and Griffin, 2006) and its effectiveness cover a wide range of area. Thus, social advertising needs a clear understanding of the desires of individuals and it is subject to broader criticism since it is believed by society.

This study reveals that the measurement of the effectiveness of social advertising may not be always systematic. Different intervention types need different measurement techniques, although they are designed by applying a methodology that tries to make them more systematic. Though there are many measures for the effectiveness of advertising, there are some problems related to measuring advertising effectiveness in social settings. The need for more time for a behavioral change and adoption of change makes social advertising more difficult to measure outcomes. Outcome measures also differ according to the type of social issue. This study presents different examples of campaigns and the results reveal that each needs different outcome measures. Whereas common measures of the effectiveness of commercial advertising focus on the marketer’s benefit, the effectiveness of social advertising should be considered by the consumer perspective.

Evaluation of advertising effectiveness needs some criteria. The criteria should be measurable, bound by time and specific. Pavlou and Stewart (2000) state consumers as one of the most suitable criteria for evaluating advertising effectiveness. Factors related to consumers (such as changes in the measures of attitudes, behaviors, awareness, and interaction) can reveal success. Snyder and Kendzierski (1982) note that the advertising message can be more likely to be effective in terms of complying with the social marketing campaign if people have a more positive attitude.

One of the keys to success is to know “social advertising does not work alone”. Social advertising is just a part of the social marketing effect. Especially, a poorly positioned advertising is likely to fail although it is unique. Pavlou and Stewart (2007) state that if advertising effects are separated from other marketing mix’s effects, the result can even be misleading. Thus, integrated marketing strategies can play a greater role rather than solely advertising. Social marketers are advised to plan communication techniques and communicated programs like advertising and its messages (e.g. messages’ content, its believability, uniqueness, interactivity, and credibility) effectively in order to achieve the desired target response. In other words, the use of marketing skills in advertising is inevitable to present social marketing interventions. Kotler and Zaltman, (1971) define common marketing techniques as the key to the basic knowledge and socially useful application of what knowledge permits.

Rothschild (1999) indicate that successful result can be achieved at the individual, community or social levels and be stimulated by marketing, law or education. Like many decisions of marketing, he proposes social marketing decisions should be analyzed with the view of environmental factors. Many social campaigns work for giving information that is believed to increase awareness of causes and shape attitudes toward required behavior and lastly lead to a change in behavior (Hoek and Gendall, 2006). This approach focuses on the view that the consumers’ reshaping attitudes and beliefs will cause behavioral changes. In other words, effectiveness is strongly related to attitudes.

One of the main focuses for effectiveness is how the issues can be better improved with advertising theories and social marketing. Hoek and Gendall, (2006) proposed to create a supportive environment for this. For example, fruit in schools, develop walking and cycling strategy, expanding breakfast programs can be examples for a supportive environment, in the case of preventing obesity. Similarly, Rothschild (1999) indicate that successful result can be achieved at the individual, community or social levels and be stimulated by marketing, law or education. Healthier eating issue is more likely to succeed, as activities are created at community-level and supportive environment is provided. Then people will be more willing to exercise programs and messages when community-level social marketing programs are applied. Individuals will be more likely to consider education programs. At the individual level, messages change as “Push Play”, “It is what you do”, whereas messages such as “fruit in schools”, “walking bus”, “workplace exercise fitness

program” are the prevention efforts at community-level (Hoek and Gendall, 2006). Therefore, types of interventions (at the individual or community level) are likely to shape behavior and are one of the keys to effectiveness. Social advertisers are advised to choose the proper one for a specific social issue.

Lastly, this study presents common antecedents as social issue involvement, attention paid to advertising, attitude toward issue, the believability of advertising (O’Cass and Griffin, 2006); campaign strategy (campaign objectives, time commitment, advertising content), company-cause compatibility (Drumwright, 1996). Social marketers have to consider the effectiveness of these antecedents and advertising messages. Since attitudes lead to behavior (Fishbein and Ajzen, 1975), the key point is to change attitudes for affecting social behaviors.

This study has not selected a specific social issue (i.e., alcohol drinking, physical activity) for discussing the effectiveness. A review of included studies involves different social issues. This is the main limitation of the study. Further researches can evaluate the effectiveness of advertising for a specific type of social issue (for example, only in physical activity) and compare the advertising outcomes for this specific issue. This is also true for emotional factors. The issue of emotions as shame, fear, and quit can result in different outcomes (Zharekhina and Kubacki, 2015). Future researches can work on a specific issue by analyzing these emotional factors within a specific issue. So that different types of social issues and their effectiveness factors can be compared. Since outcomes result in many forms of attitude and behavior (such as an intention to comply with the message, perceived success of the social campaign, social advertising acceptance, perform behavior, attitudes toward social advertising) (Drumwright, 1996; Lee et al., 2013), each can be subject to future researches.

Different types of advertising (e.g. television, radio, and billboard) can have different roles in shaping public opinion (Lee et al., 2013). For example, social advertisers can promote the social consciousness on social networking sites, since social media has recently been important in shaping opinion. Therefore, future studies can evaluate the effectiveness of different advertising media on the campaign results.

Apart from advertising, social marketing campaigns also involve other communicational strategies as government policy and public relations. Yet, the study is limited to the social programs’ advertising components. Future researches can also discuss the support of other strategies in the view of integrated marketing communications.

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THE MEDIATING ROLE OF ORGANIZATIONAL IDENTIFICATION IN SERVANT LEADERSHIP'S EFFECT ON EMPLOYEE PERFORMANCE

Huseyin ASLAN¹

INTRODUCTION

In today's intense competitive environment, it is difficult for businesses to maintain their profitability and even maintain their existence compared to previous years (Bekmezci and Mert, 2018). Businesses are increasingly in need of leaders who are able to direct employees to organizational goals in the ever-changing environmental conditions of the business world. In this sense, the role of leadership in employees is of great importance in developing positive relationships as long as the attitudes and behaviors of the leaders towards their members can respond to the expectations of the employees (Turgut et al., 2015). In this respect, servant leadership is needed to increase the organizational identification levels and job performances of the employees. In studies conducted on the relationship between servant leadership and organizational identification in the literature, it is seen that servant leadership has a positive effect on organizational identification (Akbari et al., 2014; Chughtai, 2016; Zhang et al., 2019; Tian et al., 2018; Zorlu et al., 2019) and servant leadership and employee performance (Harwiki, 2016; Muhtasom et al., 2017; Chiniara and Bentein, 2016; Özer, 2019). Based on these evaluations, the purpose of this study is to determine the mediating role of organizational identification in the effect of servant leadership on employee performance.

The research questions created in the study are listed below:

- Does servant leadership affects organizational identification?

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- Does organizational identification has a mediating role in servant leadership's effect on employee performance?

In the following sections of the study, firstly, the literature review related to the relationships between the variables is presented. Then, in the method section, the population and sample of the study, the scales that were used, analyses and research findings are explained. Finally, in the conclusion and inference section, the findings are discussed in a way to shed light on studies that will be carried out in the future for implementers.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Servant leadership (Mayer et al., 2008), which helps employees' needs and development and includes a special focus, is a devoted leadership model that stimulates change at the personal and organizational levels and enables the development of sound, vibrant and productive research cultures (Jackson, 2008). Servant leadership approach expresses not only a management method but also a lifestyle (Turgut, et al. 2017). While other leadership theories are traditionally defined only by what the leader does, servant leaders are defined by their character and their determination to serve others (Parris and Peachey, 2013). Spears (2010) built up on Greenleaf's work and identified ten traits of a servant leader – listening, empathy, healing, awareness, persuasion, conceptualization, foresight, stewardship, commitment to the growth of people and community building. Servant leaders, whose main purpose is to meet the wishes of their followers (Sendjaya and Sarros, 2002) care about the needs of the employees more than their own needs and create a strengthening environment to reveal the creativity of the employees (Chiniara and Bentein, 2016). According to Zhang (2012), servant leaders tend to identify with the organization as they create a nutritious environment that positively shapes the organization's image for the development of employees. According to Chughtai (2016), servant leaders empower employees and contribute to their development. This increases the perceived attractiveness of the organization and increases the level of organizational identification of the employees. The positive effect of servant leadership on organizational identification is seen in the literature (Akbari et al., 2014; Chughtai, 2016; Zhang et al., 2019; Tian et al., 2018; Zorlu et al., 2019).

Servant leadership behaviors are a factor that increase employee performance (Özer, 2019). The contribution of servant leaders to the development and maintenance of strong interpersonal relationships with their followers increases the motivation and potential of followers (Liden et al., 2008). Servant leaders create a work environment where employees can feel psychologically safe and increase their trust in their collective abilities to be effective (Chiniara and Bentein, 2016). Servant leaders can promote service-oriented behavior both consciously and unconsciously among followers through role modeling processes. Servant leaders also serve as a role model that inspires employees (Bavik et al. 2017). The positive effect of servant leadership on employee performance is seen in the literature (Harwiki, 2016; Muhtasom et al., 2017; Chiniara and Bentein, 2016; Özer, 2019).

The followers who identify with their organization and see themselves as part of the organization will make more efforts to run the business. In addition, they will consider themselves as a representative of the organization and will prioritize the interests of the organization in all decisions they take (Turunç and Çelik, 2010). In addition, according to Liu et al. (2011), employees who provide a high level of identification with their organization attach great importance to their organizational membership and take care to act in the interests of the organization. For this reason, employees who experience a high level of organizational identification will spend more effort to fulfill their duties. In studies conducted on the relationship between organizational identification and employee performance in the literature, it is seen that organizational identification has a positive effect on employee performance (Walumbwa et al., 2011; Carmeli et al., 2007; Schwarz, 2017).

In this respect, in the light of studies and findings in the literature regarding the relationship between servant leadership, organizational identification and employee performance the following hypotheses was formed:

H1. Servant leadership has a positive effect on organizational identification.

H2. Organizational identification has a mediating role in servant leadership's effect on employee performance.

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METHOD

In this study, which aims to determine the mediating role of organizational identification in the effect of servant leadership on employee performance, firstly, information about the sample and the scales are presented. Then, the model is analyzed in the light of the data obtained from the sample. In this context, a factor analysis was carried out. Correlations between variables were then determined, and the structural equation model related to the current model and the goodness of fit of the model were tested. Goodness of fit tests were conducted, and regression analysis and hypothesis test results are presented.

Within the context of the study, the model depicted in Figure 1 was created in order to reveal the relationships between variables.

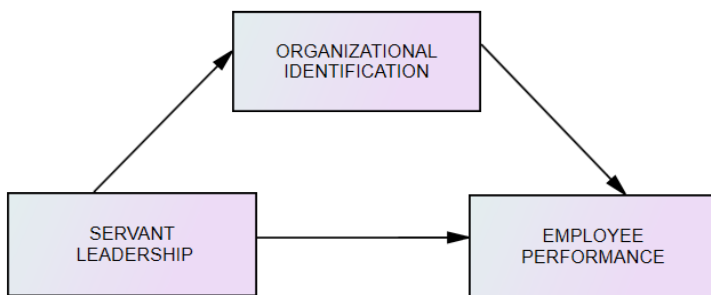


Figure 1. *Research Model*

Universe and Sample

The universe of this study consists of manufacturing companies. The sample consists of carpet companies in Gaziantep province which are selected via convenience sampling. Due to time and cost constraints, a survey was planned for 300 people working in the production department in 5 randomly selected carpet factories. 13 questionnaires were not answered and 8 questionnaires were incomplete. Therefore, the sample of the study was determined as 279. Of the participants, 47 were female and 253 were male. 43 of the participants were between 18-25 y/o, 198 were between 26-40 y/o, and 59 were 41 and over. 54 of the participants have 1-5 years' experience, 172 have 6-10 years' experience and 74 have 11 years and more experience working in the company.

Scales of Research

Servant Leadership Scale: The scale, which was created by Ehrhart (2004) and validated by Bolat et al. (2016) for Turkish version was used. As a result of the reliability analysis, the Cronbach's alpha reliability coefficient of the scale was found to be 0.92. In the confirmatory factor analysis, it was seen that the scale consisted of one dimension. The factor loads were found to be between 0.79 and 0.93. The goodness of fit values of the scale are given in Table 1 together with the other scales.

Organizational Identification Scale: The scale, which was created by Mael and Ashforth (1992) validated by Tüzün (2006) for Turkish version was used. As a result of the reliability analysis, the Cronbach's alpha reliability coefficient of the scale was found to be 0.93. In the confirmatory factor analysis, it was seen that the scale consisted of one dimension. The factor loads were found to be between 0.77 and 0.94. The goodness of fit values of the scale are given in Table 1 together with the other scales.

Employee Performance Scale: The scale adopted by Sigler and Pearson (2000) from Kirkman and Rosen (1999) and validated by Çöl (2008) for Turkish version was used. As a result of the reliability analysis, the Cronbach's alpha reliability coefficient of the scale was found to be 0.94. In the confirmatory factor analysis, it was seen that the scale consisted of one dimension. The factor loads were found to be between 0.73 and 0.94. The goodness of fit values of the scale are given in Table 1 together with the other scales.

FINDINGS

According to the goodness of fit values obtained and presented in Table 1, the scales and the research model were found to be good fit with the data (Meydan & Şeşen, 2015; Gürbüz & Şahin, 2016). SPSS 21 and Amos program were used for analysis. Confirmatory factor analysis was carried out to examine the scales and the construct validity of the measurement model.

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Table 1. *Goodness of Fit Statistics of Scales and Research Model*

Goodness of Fit Values	χ^2	df	CMIN/DF ≤ 5	CFI $\geq 0,90$	TLI $\geq 0,90$	RMSEA $\leq 0,08$
Servant Leadership	112.34	46	2.442	.990	.990	.056
Organizational Identification	38.91	21	1.852	.994	.994	.051
Employee Performance	14.84	6	2.473	.991	.991	.048
Measurement Model	328.53	126	2.607	.992	.992	.051

According to the test of the goodness of fit values of the scales that were used in the study and the measurement model that was created, it was found that the CMIN/DF, CFI and TLI values were within a good fit range. Additionally, the RMSEA value of the employee performance scale was within the good fit range, and it was within acceptable limits for the servant leadership organizational identification, measurement model (Meydan & Şeşen, 2015; Gürbüz & Şahin, 2016; Gürbüz, 2019).

The means, standard deviations and correlation values that were calculated as a result of the analysis are presented in Table 2. As kurtosis and skewness values were found in the range of -2 to +2, data distribution was accepted as normal. Furthermore, significant relations were found between all dependent and independent variables in the study. Therefore, it is possible to predict important interactions between variables. When Table 2 is examined, it is seen that there is a positive relationship between servant leadership and organizational identification and employee performance. It is also seen that there is a positive relationship between organizational identification and employee performance.

Table 2. *Descriptive Statistics and Correlation Coefficients of Variables*

	Mean	SD	Skewness	Kurtosis	1	2	3
1.Servant Leadership	3.96	1.07	-.42	.84	(.92)		
2.Organizational Identification	3.86	1.04	-.85	-.35	.271**	(.93)	
3.Employee Performance	3.45	1.14	-.57	.35	.355**	.582**	(.94)

** $p < .001$, $n = 279$, parentheses show the Cronbach Alpha reliability values.

In order to investigate the causal relationships and mediating effect in relation to the hypotheses, the causal structural equation model presented in Figure 2 was analyzed. For testing the mediating role, the significance of indirect effects was examined using the bootstrap method. The highest likelihood method was used in the 95% confidence interval of 5000 samples and the monte carlo parametric bootstrap option was selected. Bootstrap confidence interval lower bounds and confidence interval upper bounds, bootstrap standardized effects indirect effects data are shown in Table 3.

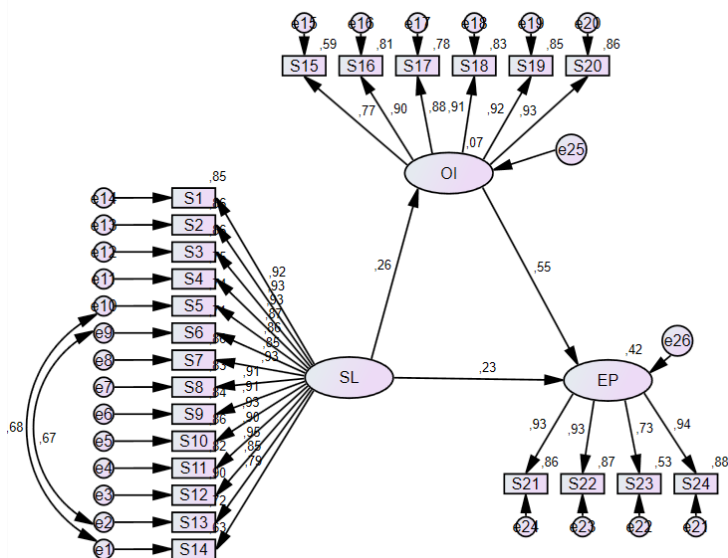


Figure 2. Structural Equation Modelling

The research model provided goodness of fit values ($\chi^2/df=2.60$; TLI=0.99; CFI=0.99; RMSEA=0.05). Based on the analysis, servant leadership has a positive and significant effect on organizational identification ($\beta = .264$, $p < .001$ CI [.13, .39]). So, H1 is supported. This result show that servant leadership increases the organizational identification. Organizational identification as a mediator variable, has a positive and significant influence on employee performance ($\beta = .548$, $p < .001$ CI [.44, .66]). This result show that organizational identification

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increases the employee performance. Servant leadership has totally ($\beta = .371, p < .001, 95\% \text{ CI } [.26, .47]$) and directly ($\beta = .226, p < .001, 95\% \text{ CI } [.13, .32]$) positive and significant influence on employee performance. It was also found that servant leadership has an indirect ($\beta = .145, p < .001 \text{ CI } [.10, .22]$) and significant influence on employee performance. So, H2 is supported. According to the findings, organizational identification partially mediated the influence of servant leadership on employee performance. Because bootstrap confidence interval values do not include 0 (zero) value.

Table 3. Mediating Analysis

Tested Path			β	SE	BC 95% CI	
					LB	UB
Organizational Identification	<---	Servant Leadership	0,264***	0,52	.13	.39
Employee Performance	<---	Organizational Identification	0,548***	0,53	.44	.66
Employee Performance	<---	Servant Leadership				
Total Effect (c)			0,371	0,54	.26	.47
Direct Effect (c')			0,226***	-	.13	.32
Indirect Effect (axb)			0,145***	-	.10	.22

Note: n= 279 (5.000 Bootstrap sample), YD %95 BC = Bias corrected %95 Confidence interval, X= Servant Leadership, Y= Employee Performance, M= Organizational Identification, a= the effect of X on M, b= the effect of M on Y, c= the total effect of X on Y, c'= the effect of X on Y. ***p<.001

CONCLUSION

The purpose of this study was to investigate whether organizational identification has a mediating role regarding the impact of servant leadership on job performance. In line with this aim, the data obtained from 279 people were analyzed.

According to the analysis results, servant leadership was positively effective on organizational identification. These results were in agreement with the results

of the study examining the relationship of servant leadership and organizational identification (Akbari et al.,2014; Chughtai, 2016; Zhang et al., 2019; Tian et al.,2018; Zorlu et al., 2019). These findings show that servant leadership increases the organizational identification. This finding suggested that servant leaders create a work environment where employees can feel psychologically safe and increase their trust in their collective abilities to be effective. as Chiniara and Bentein (2016) stated.

In the mediating analysis conducted to determine the mediation function of organizational identification in the influence of servant leadership on employee performance, organizational identification was determined to have a partial mediating role in the influence of servant leadership on employee performance. Accordingly, servant leadership has both direct and indirect impact on employee performance through organizational identification. In this respect, in order to increase the work performance of the employees, it is necessary to create the work environment that the employees need by the servant leaders. In addition, in order for the employees to experience organizational identification, positive emotions must be experienced towards the organization. However, all findings should be evaluated within the framework of the selected sample, preferred questionnaire method, and cross-sectional research limitations.

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INTRODUCTION

In the high-tech world, people expect to interact with them. As a result of changes in socialization, people now show more interest in the products and services offered only for them. Products and services supported by big data analysis become more personal. This transition period led to the emergence of a new marketing approach and the concept of marketing 4.0 emerged. The main purpose of Marketing 4.0 is to adapt the marketing approach to the change caused by the transition to digital economy. This goal is important. Because today, there have been important changes in the interaction with the customer (Kotler et al., 2016). The holistic marketing approach has a perspective that covers products, employees, competitors, and even the environment, and recognizes that all stakeholders have significant effects on marketing (Sulivyo et al., 2019: 188). As a matter of fact, the transition of a company from its product and sales philosophy to a holistic marketing philosophy will give it a better performance in competition. (Kotler and Keller, 2012: 119). So the concept of holistic marketing is a way of thinking. A management philosophy that directs the general activities of the institution affects not only the marketing activities but all the activities of the organization. The aim of the research is to determine whether holistic marketing practices have an effect on repurchase intent.

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LITERATURE REVIEW

Holistic Marketing

It means all, entire or total. It is believed that all the features of a system cannot be determined or explained only by component parts. In contrast, the system as a whole determines how parts should be positioned. The use of the holism approach is frequently encountered in different fields of work, including marketing. This is because it is believed that the holistic effect of all components in the holistic marketing strategy is greater than that used alone (Tushi, 2014: 7).

Holistic marketing is an attempt to synthesize and combine various marketing efforts and strategies to achieve corporate goals. The holistic marketing strategy is organic and interrelated processes built on a team-oriented approach to achieve corporate goals (Asfour, 2016: 7).

Pop & Vlodoi (2009: 14) also adopted the holistic theory that sees the whole more than the sum of the parts. With this approach, they have defined holistic marketing as follows: Holistic marketing is a type of marketing that provides the elaboration and implementation of the various processes and actions associated with each other. Purcarea & Ratiu (2011: 42), on the other hand, defined it as an advanced marketing strategy that aims to reflect holistic marketing on business as a whole. In this way, they positioned the holistic marketing by considering the whole business. According to Lucassen and Jansen (2014: 195), holistic marketing is to establish satisfactory and long-term relationships based on mutual satisfaction with all related parties in order to continue the activities of a company. According to Tejedor et al (2014: 7) holistic marketing; They have defined it as a basic action plan developed to ensure the integration of the “European Foundation for Quality Management” and the “Balanced Scorecard Strategic Management Model”. According to Soliman (2016: 43), holistic marketing is a tool containing four basic elements and the application of this tool allows to increase the overall organizational performance. According to Kotler and Keller (2012: 20), holistic marketing accepts that everything is important in marketing. Therefore, the holistic marketing approach is based on the assumption that all activities of marketing should be adopted. For this reason, the holistic marketing approach includes 4 different marketing concepts listed below:

Integrated Marketing Communication: Rapid development in technology has led to a rapid development in communication channels and caused the

marketing communication to be freed from the media-dependent structure and the customer-oriented approach to become more important. Total supply exceeding total demand increased competition and caused the balance of power to shift from retailers and distributors to customers (Kitchen & Burgmann, 2015: 35). Technological progress has enabled information to be transmitted through many different channels and media. However, technology not only facilitated accelerated communication and methods, but also enabled customers to connect with each other. These new communication platforms and devices used by customers provide more freedom and power than one-way traditional communication (Mulhern, 2009: 95). Integrated marketing communications include all core product or service strategies that tell managers how to develop the product and deliver it to customers. The marketing department must integrate with other departments in order for the company to implement its win-win strategy and achieve customer-oriented goals (Asfour, 2016: 8). There are five dimensions that make up the integrated marketing communication: *Advertising* is promotional activities carried out using mass media for a fee paid by the advertiser (Broderick & Pickton, 2005: 614). *Sales Activities*: Sales promotions often complete advertising and can be planned and run in parallel with public relations campaigns (Williams, 2012: 107). *Public Relations* is the development of a strategic relationship in the management of internal and external stakeholders of the organization through communication or perception (Mahajan & Suresh, 2017: 9). *Personal Selling* is a monetary communication between the institution and the customer that usually requires one-to-one contact (Mahajan & Suresh, 2017: 9). *Direct Marketing* is much more than marketing activities carried out by mail. In other words; Includes various activities such as database management, direct sales, telephone marketing, e-mail, Internet marketing, ads that respond directly through the media (Belch, G. E., & Belch, M. A., 2003: 20).

Internal Marketing: Internal marketing is about how all employees and other organization members can work as a team to achieve the company's goals and objectives. It is important that employees support their customers. In addition, it is very important for company employees to form a bond with customers. For this, it is an important requirement to have a common sense of value within the company and to work in this direction (Tushi, 2014: 14). According to another approach focusing on the relations within the company, internal marketing is considered as a subset of relationship marketing. According to this approach, company employees should be evaluated as "internal customers" for the successful

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development and implementation of a marketing plan. For this reason, company employees should be handled with the same care and attention as external customers whenever possible. The main purpose in internal marketing is to create an awareness to develop a common goal feeling among the company employees (Williams, 2012: 88).

Social Responsibility Marketing: Marketers should take into account the environmental, legal, ethical and social context of their roles and activities, as the effects of marketing spread to society as a whole beyond the company and the customer (Kotler & Keller, 2012: 22). A company must be aware of many legal and ethical issues related to marketing communications while shaping the promotion mix (Kotler & Armstrong, 2014: 446).

Relational Marketing: Relationship marketing focuses on maximizing the lifetime value of customers and customer segments targeted. Therefore, in the marketing strategies created, the relations with the target markets should be taken into consideration as well as external relations developed with the parties such as customers, suppliers, reference groups, penetrated markets and new markets etc. (Williams, 2012: 13).

Repurchase Intention

Yan & Yu (2013: 18) defined repurchase intention as the subjective opinion of a person's possibility to shop continuously from a store or e-supplier. In other words, repurchase intention is a customer's judgment about purchasing the product or service he / she has determined taking into account the possible conditions (Hellier et al., 2003). The concept of repurchase intent is important. Because it functions strategically at the point of understanding whether consumers are exhibiting repurchase behavior.

The repurchase intention has been associated with three basic concepts in the literature. The first of these is "Customer satisfaction". Satisfaction is a mental state that changes according to the person, product or service and conditions (Edvardsson et al., 2000: 917). One of the two factors that make up customer satisfaction is loyalty and the other one is trust (Habib and Aslam, 2014: 169). The second concept associated with the repurchase intention is "Brand image". In case of a successful brand image, consumers believe that they can meet their needs from this brand. They position the brand in a place different from its competitors

and have a positive approach to re-purchasing the brand (Hsieh et al., 2004: 252). The third and last concept associated with repurchase intention is “Brand loyalty”. According to Jacoby & Kyner (1973: 2), brand loyalty takes place consciously without coincidence, generates a behavioral result such as purchasing etc., continues for a certain period of time, making decisions against one or more alternative brands among existing brands and evaluation etc. is a function of psychological processes. If this can be achieved, the company can achieve significant gains. For example, customers with brand loyalty tend to purchase the brand more. Also, it is another gain for the company that they pay more for the products they purchase. However, enabling them to pay more to a brand is only possible by increasing their satisfaction with the product (Arkan and Telci, 2014: 91).

DATA SET, METHOD AND EMPIRICAL DISCOVERIES

Scale and Hypotheses

The main question of the study is to investigate whether Turkcell’s consumer perceptions of holistic marketing practices operating in the mobile communication industry have an impact on the repurchase intention of this brand. In order to collect data, a questionnaire consisting of three parts was prepared. The first part of this questionnaire consists of questions related to demographic variables. The second part includes Perceived Holistic Marketing dimension questions consisting of 63 items and four dimensions. The scales used to determine the perceived holistic marketing perception are: Integrated Marketing Communication Scale (22 questions): Jenkinson & Mathews (2007); Relational Marketing Scale (16 questions): Lin et al. (2003); Internal Marketing Scale (15 questions): Foreman & Money (1995); Social Responsibility Marketing Scale (10 questions): Podnar & Golob (2007) and Polonsky et al. (2005). In the third part, there are questions related to the main dimension of repurchase intent, consisting of six items and one dimension. A large number of scales were used for repurchase intent questions: Repurchase Intent Scale (6 questions): Srinivasan et al., (2002); Rauyruen et al., (2009); Harris & Goode, (2004); Özbek et al., (2012). Five-point Likert scale was used for the questions in the second and third parts of the research. In the study, data was collected between 15.12.2019-15.01.2020 using face-to-face survey method. The target audience in the research are Turkcell subscribers residing in Konya. The margin of error is set at 0,05. As a result of the sample

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number calculation formulas, it was aimed to reach at least 384 people and 398 questionnaires were reached between the relevant dates.

Research Hypotheses

H_1 =*Integrated Marketing Communication Variable*, one of the sub-dimensions of Holistic Marketing, is statistically significant in predicting *Repurchase Intent Variable*.

H_2 =*Relational Marketing Variable*, one of the Holistic Marketing sub-dimensions, is statistically significant in predicting *Repurchase Intent Variable*.

H_3 =*Internal Marketing Variable*, one of the Holistic Marketing sub-dimensions, is statistically significant in predicting *Repurchase Intent Variable*.

H_4 =*Social Responsibility Marketing Variable*, which is one of the Holistic Marketing sub-dimensions, is statistically significant in predicting *Repurchase Intent Variable*.

H_5 =*Perceived Holistic Marketing Variable* is statistically significant in predicting *Repurchase Intent Variable*.

H_6 =There is a positive relationship between the *Perceived Integrated Marketing Communication Variable* and *Repurchase Intent Variable*.

H_7 =There is a positive relationship between the *Perceived Relational Marketing Variable* and *Repurchase Intent Variable*.

H_8 =There is a positive relationship between *Perceived Internal Marketing Variable* and *Repurchase Intent Variable*.

H_9 =There is a positive relationship between *Perceived Social Responsibility Marketing Variable* and *Repurchase Intent Variable*.

H_{10} =There is a positive relationship between the *Perceived Holistic Marketing Variable* and *Repurchase Intent Variable*.

Analysis and Findings

In analyzing the data, SPSS computer program was used.

General Statistics (Frequency Analysis)

The demographic characteristics of 398 participants are presented below:

Table 1. Frequency Distribution of Demographic Characteristics of Participants

Demographic Variables	Value	Frequency	Percentage	Demographic Variables	Value	Frequency	Percentage
Gender	Male	219	55,0	Marital Status	Single	271	68,1
	Female	179	45,0		Married	127	31,9
	Total	398	100		Total	398	100
Age	Under 20 Years	67	16,8	Education Status	Elementary School	19	4,8
	21–39	266	66,8		High School	58	14,6
	40-55	65	16,3		Associate Degree	117	29,4
	Total	398	100		University	123	30,9
					Graduate	81	20,4
					Total	398	100
Occupation	Expert	60	15,1	Monthly Income Status	2000 TL or less	194	48,7
	Artisan	48	12,1		2001–3500 TL	83	20,9
	Worker	46	11,6		3501–5000 TL	68	17,1
	Officer	64	16,1		5001-7500 TL	37	9,3
	Student	148	37,2		7501 TL and above	16	4,0
	Housewife	19	4,8		Total	398	100
	Instructor	13	3,3				
	Total	398	100				

Participant profile consists of young and middle aged population who are generally educated or working. (66,8% are in the 21-39 age group and 16,8% are under the age of twenty.) For this reason, the low marriage rate can be considered normal. (31,9% of the participants are married and 68,1% are single.) It can be said that other demographic data of the participants reflect the general public. For example, the distribution of participants by gender is close to half (55% male, 45% female) and is compatible with the general structure of the society. In terms of age group,

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the low percentage of participants aged 20 and under (16,8%) is only due to the proportionally low number of participants in the 18-20 age group. The rate of associate degree university and graduate in the total has a high percentage of 80,7%. It is possible to talk about a diversity suitable for social distribution in terms of professional groups. (Student; 37,2%, officer; 16,1%, expert; 15,1% and artisan; 12,1%). The low income level is also due to the fact that a significant portion of the participants are students or young people who are just starting out in business life. (2000 TL and below; 48,7% and 2001-3500 TL; 20,9%)

Dimensions and Importance Levels

Participation levels of the participants in the expressions of the “Perceived Integrated Marketing Communication Dimension”: Participants stated that they agree with the statements about “Integrated Marketing Communication” even if they are not at very high percentages. As a matter of fact, the level of participation in the statements directed to the participants ranges from 3,25 to 3,79. In other words, all the statements are above the 3 levels on the Likert scale, which means “Neither agree nor disagree”.

Participation levels of the participants in the expressions of the “Perceived Relational Marketing Dimension”: Participants declared that they agree with the statements related to Turkcell’s “Relational Marketing” activities in general. However, it is not possible to talk about a very high level of participation. This is because the value of 4, which indicates a clear participation, was not reached in any statement.

Participation levels of the participants in the expressions of the “Perceived Internal Marketing Dimension”: The remarkable result about the “Internal Marketing” dimension is that the levels of participation in the statements are very close to each other (Ranges from 3,25 to 3,47). Therefore, although there is a general participation in the statements, it can be said that this participation is partial.

Participation levels of the participants in the expressions of the “Perceived Social Responsibility Marketing Dimension”: Participation levels in “Social Responsibility Marketing” dimension questions are close to each other. (Range from 3,45 to 3,77) and almost all are above the level of 3,50. However, it is not possible to talk about a very high participation. Because for any expression, four values showing clear participation could not be achieved.

Participation levels of the participants in the expressions of the “Repurchase Intention”: There was no significant difference between the variables related to repurchase intention according to the Friedman test result ($p=0,202>0,05$). So making a comment would not be correct.

Correlation and Regression Analysis

The reliability of the scales in the questionnaire was evaluated before making the analysis. In this context, Cronbach's Alpha coefficient was used and these coefficients are presented in Table 2.

Table 2. Reliability Coefficients of Scales Used in Research

Scale Dimensions	Number of Questions	(Cronbach Alpha)	Mean	Standard Deviation
Perceived Holistic Marketing	59	0,824	3,49	0,54
Repurchase Intention	6	0,952	3,72	1,01
Integrated Marketing Communication	21	0,936	3,56	0.60
Relational Marketing	14	0,919	3,49	0,73
Internal Marketing	14	0,939	3,33	0,59
Social Responsibility Marketing	10	0,932	3,60	0,76

In the examination made on the reliability of the scales used in the research, the following results were reached: Perceived Integrated Marketing Communication Dimension; 0,936; Perceived Relational Marketing Dimension; 0,919; Perceived Internal Marketing Dimension; 0,939. Perceived Social Responsibility Marketing Dimension; 0,932 and Repurchase Intention Dimension; 0,952. The scale is considered reliable when Cronbach's Alpha value is 0,70 and above (Durmus et al., 2016: 89). The perceived holistic marketing scale ($\alpha = 0,82$) and the repurchase intention scale ($\alpha=0,95$) used in the study indicate that the scales used are reliable.

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Table 3. Correlation Analysis Results of the Sub-Dimensions of the Scales Used in the Research Model

		Perceived Holistic Marketing	Repurchase Intention	Perceived Integrated Marketing Communication	Perceived Relational Marketing	Perceived Internal Marketing	Perceived Social Responsibility Marketing
Perceived Holistic Marketing	r	1					
	p						
Repurchase Intention	r	,688**	1				
	p	,000					
Perceived Integrated Marketing Communication	r	,892**	,633**	1			
	p	,000	,000				
Perceived Relational Marketing	r	,825**	,528**	,599**	1		
	p	,000	,000	,000			
Perceived Internal Marketing	r	,770**	,441**	,628**	,481**	1	
	p	,000	,000	,000	,000		
Perceived Social Responsibility Marketing	r	,762**	,652**	,600**	,554**	,444**	1
	p	,000	,000	,000	,000	,000	

** Correlation is significant at the 0,01 level.

As seen in Table 3;

- A positive and significant relationship has been determined between *Perceived Holistic Marketing* and *Repurchase Intention* ($r=,688$; $p<0,01$). According to these findings, H_{10} hypothesis was accepted.

When the relationship is examined in terms of sub-dimensions;

- It is seen that there is a positive significant relationship between *Perceived Integrated Marketing Communication* and *Repurchase Intention* ($r=,633$; $p<0,01$). According to these findings, the H_6 hypothesis was accepted.
- It is seen that there is a positive significant relationship between *Perceived Relational Marketing* and *Repurchase Intention* ($r=,528$; $p<0,01$). According to these findings, the H_7 hypothesis was accepted.

- It is seen that there is a positive significant relationship between *Perceived Internal Marketing* and *Repurchase Intention* ($r=.441$; $p<0,01$). According to these findings, H_8 hypothesis was accepted.
- It is seen that there is a positive significant relationship between *Perceived Social Responsibility Marketing* and *Repurchase Intention* ($r=.652$; $p<0,01$). According to these findings, the H_9 hypothesis was accepted.

Table 4. Impact of Turkcell's Consumer Perceptions on Holistic Marketing Practices on Repurchase Intent

Dependent Variable	R ² / Adjusted R ²	Independent Variable	B	Standard Error	t	p	F	p
Repurchase Intention	,473 / ,471	Fixed Variate	-0,758	0,240	-3,154	0,002	355,050	0,000
		Holistic Marketing	1,281	0,068	18,843	0,000		

When Table 4 is analyzed, it is found that Turkcell's holistic marketing practices are statistically significant in predicting customers' repurchase intent. Accordingly, H_3 hypothesis was accepted. The model was found to be significant ($F=355,050$; $p=0,000$; $R^2=0,447$). According to these results, approximately 47,3% of the concept of repurchase intention can be explained by holistic marketing variable.

Table 5. The Impact of Consumer Perception of Turkcell's Holistic Marketing Practices on Repurchase Intention (In the context of Sub Dimensions)

Dependent Variable	R ² / Adjusted R ²	Independent Variable	B	Standard Error	t	p	F	p
Repurchase Intention	,524 / ,519	Fixed Variate	-0,689	0,233	-2,958	0,003	108,280	0,000
		Integrated Marketing Communication	0,547	0,088	0,6200	0,000		
		Relational Marketing	0,154	0,064	2,424	0,016		
		Internal Marketing	0,015	0,077	0,200	0,842		
		Social Responsibility Marketing	0,518	0,061	8,534	0,000		

When Table 5 is examined, it is seen that the model is generally meaningful. ($F=108,280$; $p=0,000$; Adjusted $R^2=0,519$). It was determined that the internal marketing ($p=0,842$) variable, which is one of the independent variables in the model, does not have a positive effect on repurchase intent ($0,842>0,05$). Accordingly, the H_3 hypothesis was rejected. However, other holistic marketing

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sub-dimensions (Integrated Marketing Communication, Relational Marketing and Social Responsibility Marketing) were found to have a significant effect on perceived repurchase intent. Therefore, H_1 , H_2 and H_4 hypotheses are accepted.

CONCLUSION

It is important that company employees feel ready to market every day in order to be successful and to establish loyal relationships with customers. This does not mean that customers are constantly facing them to market or to pressure them to buy products / services. With holistic marketing, this relationship can be developed with a more natural approach. For example, approaching customers like a new friend will give them confidence. However, the feeling of selling on customers should never be evoked (Purcarea & Ratiu, 2011: 44). Some important studies on the relationship of holistic marketing practices with different variables are presented below: As a result of the work carried out by Tushi (2014: 7) on banking, energy service industry, insurance companies, oil and gas services distribution companies, it has been concluded that there is a positive and significant relationship between holistic service marketing strategy and customer satisfaction. In the study conducted by Asfour (2016: 1), it was concluded that there is a positive and meaningful relationship between implementing a holistic marketing strategy and increasing customer satisfaction. As a result of the work carried out by household electrical appliances companies by Soliman (2016: 42), it is concluded that there is a positive relationship between all dimensions of holistic marketing and overall organizational performance. In a study conducted in the banking sector (Žugić, 2016: 227), it has been stated that the globalization of the modern market and the ever-increasing conditions of strong competition require a holistic approach to marketing in banks. The results of the study carried out on the banking sector in the West Java Region (Sofianti & Limakrisna, 2017: 117) have reached the conclusion that holistic marketing practices affect the trust and banking image, as well as the trust created by the perceptions of managers and customers affect the corporate image.

The aim of the research is to determine whether holistic marketing practices have an effect on repurchase intent. The study was carried out on customers who reside in Konya city center and subscribe to Turkcell. As a result of the analysis, it was seen that customers generally agree with the statements about the dimensions of holistic marketing. Participation levels are in the range of 3,20–3,81. The highest level of

participation is the statement that indicates the company's close communication with its customers. Although the participation value is not very high, the result can be considered as a success for the company. Because in today's marketing approach, long-term communication and lifetime value approaches with customers have come to the fore. The statement with the lowest level of participation is "Turkcell offers its members opportunities to exchange ideas." (3,20). This can be interpreted as the company offers partially less opportunities to its customers' ideas despite its success in communication with customers. All hypotheses were accepted from these hypotheses except the third one. (H_3 = Internal Marketing Variable, one of the Holistic Marketing sub-dimensions, is statistically significant in Predicting The Repurchase Intention Variable ($0,842 > 0,05$)). The main feature of the study is that "the relationship between holistic marketing and repurchase intention" and "the effect of holistic marketing on repurchase intention" is the first study in the mobile communication industry. For this reason, it is thought that it will contribute to marketing professionals and academicians, especially those working in the mobile communication sector. Suggestions for future studies: This study was carried out in the mobile communication sector, and future studies can be carried out in different sectors. Another suggestion is to carry out the work outside the center of Konya. (in different provinces, regions, countries, etc.) Finally, in this study, the role of holistic marketing on repurchase has been investigated. In the future studies, the role of holistic marketing on many different variables can be investigated (customer satisfaction, customer loyalty, brand equity, reputation management etc.)

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