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# Strategic Management of Corporate Sustainability: Value and Performance Based Sustainable Strategic Management Model

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**Abstract**

In recent years, sustainability has become a major factor in strategic management. Companies now focus on sustainable practices to ensure their operations are environmentally friendly and can continue operating in a cost-effective manner. Strategic management is a process of making decisions and taking action to achieve long-term goals. It involves setting goals, developing strategies and implementing plans to achieve those goals. Sustainability is an important consideration when conducting strategic planning because it helps to ensure that resources are used responsibly and efficiently. By incorporating sustainability into strategic management, companies can minimize their environmental impact while continuing to achieve the results they desire. In this study, an initial-level study on whether a model developed by Ulusoy et al., (2022) can be a strategic management model has been presented for discussion on the academic platform.

Keywords: Sustainability, Strategic Management, Modelling

## 1. Introduction

Sustainability and strategic management are two important elements of business operations today. As businesses become more aware of their impact on the environment, they must take steps to ensure their operations are sustainable and their strategies align with environmental factors.

Sustainability requires companies to consider their carbon footprint, climate risks and other environmental factors when making decisions. Strategic management involves understanding how these factors can affect a company's profitability and creating strategies that maximize profits while minimizing risks. Sustainable finance is also becoming increasingly important as companies look for ways to invest in green startups and reduce their environmental impact.

Sustainability and strategic management are two of the most important issues in today's business community. Companies need to be aware of their environmental impact and the risks posed by climate change, as well as how to manage their carbon footprint. They also have to take environmental factors into account when making decisions about their operations and finances. That's where sustainability and strategic management come in; they provide a framework for companies to ensure that their decisions align with both their long-term goals of profitability and protecting the environment. Sustainability and strategic management are two important concepts that organisations should consider when looking to the future. As climate risks, environmental factors and sustainable finance become increasingly important, organisations must be aware of the impact of carbon footprints and decisions on the environment. Strategic management is necessary to ensure sustainability goals are achieved while also taking into account other factors such as economic viability and customer satisfaction. This paper will explore how organizations can effectively manage sustainability and strategic management to create a more sustainable future. This chapter will focus on the importance of sustainability and strategic management when it comes to managing the environmental risks facing our environment. To prepare for climate change, it's crucial that you manage your carbon footprint, knowing how and where to strategically invest your finances. How How organisations can incorporate environmental factors into their decisions and strategies will be discussed, and

different approaches to sustainable finance will be analyzed. Finally, the potential consequences of not taking these matters seriously will be looked at. While all this is being done, a model proposal based on the concepts of Sustainable Strategic Management (SSY), Sustainable Strategic Planning (SSP) will be discussed in the evaluation portion of this study.

## 2. Sustainability-Strategic Management

Research on this issue shows that almost all of them, without distinction, are studies that make the most general statements on sustainability and ultimately don't really address the main elements of sustainable management very much. Primarily there will be talk of what the elements of management are, and the definitions will be linked to the most widely accepted shapes and the concept of sustainability.
The scientific world agrees when management of Drucker approaches, considered the father of management, are the best telling parts. According to Drucker
• Management is a key body of an organization
• Management takes place through a series of tasks.
• In management, setting goals, improving efficiency, organizing social impact and responsibilities are at the forefront
• Motivation for working in management is important.
• Components of management's purpose function include innovation, productivity, market position, financial resources, profitability, managerial performance and development, employee performance and social responsibility
• Setting Organizational objectives in management enhances management based on goals aligned with vision and mission.

Sustainability offers an approach to optimizing an institution's resource structure so that it can conveniently conduct its sustainability assessment. The original assessment here is a source code for closing deficits if there is management and for improvements to the sustainability roadmap. Planning is done by measuring key conditions in the sustainability approach and their objectives are determined by Haggar and Samaha (2019) as follows:

• Setting a sustainability strategy for resources
• Setting performance criteria with what design support tools can be in production (service/product)
• Setting smart strategic goals
• Review strategic initiatives and action plans based on the day's correspondence.
• Realize a sustainable performance analysis and management in line with ecological development
• Ensuring continuity of steps

Communication is one of the main keys to sustainable strategic management. Civek and Bebas (2022) outlined the basic rules of communication as follows:

• Accurate Information (Right Knowledge-Right Intent): The sender has information they want to pass on to others.
• Correct Channel -Forwarding Shape (right Transmission): The sender transmits information through an accurate channel
• Right Return (Right Feedback): Sender's return that the recipient understands the information and is available information
• Accurate Meaning (Right Interpretation): Creating information that correctly meets the purpose of the sender and the purpose of the recipient following transmission.

Ulusoy et al (2022)., acts primarily because a company has to determine how much company value-based thinking is in how much company performance-based thinking is in it. It is necessary to determine WHAT the strategies for risk, human resources, marketing sales distribution, IT technologies may be. It is important that the cycle on how to implement strategies is determined within the governance plans. Table 1 is mainly used for switching between management and governance concepts. There has been talk of how value-based and activity-based intellectual processes will impact when discussing the distinguishability of what and how questions in management and governance. This study opened up the discussion of whether the model could be a model for the SSM of processes called FVBT and FPBT. Let us first talk about what the value and activity-based thinking model is Achieving viable results at this point will be possible by determining which digits to go through for sustainable strategic management, since value-based and performance-based thinking systems cannot be separated.

FVBT can be defined most generally by identifying strategies, creating long-term plans related to strategies, and making programs. This is where risk, HR, sales and marketing, IT is planned separately, creating innovation governance plans. FVBT represents the governance part. The FPBT section (Ulusoy et al., 2022) represents the administration.

Sustainable Strategic Management combines economic and social angles to act as a bridge between the goal of non-perturbing the environmental cycle and achieving competitive advantage. Furthermore, the concept is about fulfilling the sensitivity to the ecological environment experienced by the community where businesses produce products and services. The concept, which has infiltrated processes ranging from establishing organizational visions and missions to goals and strategies, predates the objective of keeping the company's agile sensitivity in view of its implementation and evaluation processes (Stead and Stead, 2014).

**Tablo 1:** FVBT and FPBT Karşılaştırması

| *Firm Value Based Thinking –FVBT* | *Firm Performance Based Thinking –FPBT* |
| --- | --- |
| WHAT will be the framework goals of human resource management in Company A? | HOW would it be for human resource management to achieve set goals? |
| WHAT is in the name of capturing the future of the IT technologies it embodies in Company A? doable | HOW should IT be done to help IT capture the future? |
| WHAT will be the marketing, sales and distribution strategies in Company A? | HOW will marketing, sales and distribution strategies be implemented? |
| In A Company, in risk management, in corporate governance, WHAT are the elements that make up the pool of risks? | How will risks be eliminated? |
| WHAT should be paid attention to improve efficiency in operations at company A? | HOW will the main issues of productivity improvement be implemented and disseminated? |

*Kaynak: Ulusoy et.al, 2022*

The role of strategic management is looked at as processes that enable all processes in the business to proceed in competitive order, where the role and contributions of their stakeholders are almost certain to be determined, where the objectives and the business and transactions attached to these objectives are defined. Sustainability is a process for domestic and external stakeholders to live their lives with ease. So that inside, corporate partners, employees and people who are out there in debt/receivable relationships, those who are not in government and relationship but who are affected by the company's positive or negative communication with nature are involved in sustainability processes (Ulusoy,2019).

## 3. Literature

| | |
| --- | --- |
| Kodama (2018) | This chapter discusses the "sustainable strategic innovation model" that achieves "external and internal congruence in capabilities" that lead to sustainable strategic innovation |
| Barbosa and Ayarza, (2020) | The objective of this research was to develop a management model called Sustainable Strategic Management - GES. |
| Carraher et.al., (2008) | This paper examines some of the major challenges in performing research on SSM with the concepts of alpha, beta and gamma change are introduced. |
| 1987: Brundtland Report | Defines: Sustainable development is based on three fundamental pillars: social, economic and environmental. |
| Stead and Stead (2014) | Presenting an enterprise-strategy-based model of SSM designed to guide organisations as they attempt to integrate SSM at the corporate, competitive and functional strategy levels |
| Mozos et.al.,(2020) | Fill the gap in the social sciences and business management literature by providing a theoretical SSMM proposal for the Fourth Sector (4S), SMEs, Hotel companies (4S-SM-HCs), |

| Stead and Stead (2019) | Although Porter and Kramer's creating shared value (CSV) concept is a step toward SSM, it is still based on the unrealistic, neo-classical economic assumption of the economy as a closed system. |
|---|---|
| Baldasarre et. al. (2020) | Contribute to theory by connecting sustainable business model innovation with business experimentation and strategic design, two innovation approaches that leverage prototyping as a way to iteratively implement business ideas early on. |
| Vitari and David (2017) | This paper helps meet this challenge by exploring possible innovative management models that could help in pursuing sustainability by aligning enterprises with socio-ecological realities. |

## 4. Method

Integrating sustainability into strategic management is a process that begins with recognizing the laws of the country on which the workplace depends. If the standards of sustainability are protected by laws and regulations, what is absolute will be the control of whether these laws and laws are enforced. Then a desk run for SSY on what strategic goals are at the point of compliance with the targets mentioned in yularu, and how sustainable strategic goals differ, will be useful. Transparency should be at the forefront of the SSP names, which make up SSY applications for all processes. It is essential that all loss-timelines are prepared, starting with the integration of the Occupational Safety and Health Processes at SSY. When setting standards of institutional compliance, it is essential that the human factor is not forgotten from points of compliance with the nature of the environment and compliance with the ecological system (Ulusoy and Civek, 2020).

There is one aspect that is important in the Integration of Sustainability into Strategic Management, which is that the CEO and the Board of Directors adopt the processes of SSY and SSP. As the process progresses, adoption must be completed at the point of audit, compliance, decision-making, selection of projects suitable for purposes and objectives. It is important that stakeholders are included within the SSP if it is addressed more broadly here.

The environmental performance, economic performance of the business can be combined with the profit and performance criteria addressed in the previous section. Thus, it can be determined how many times between performance and value will be included in the slice. On the other hand, where to be in the environmental performance and economic performance brackets can also be set among the objectives.



Figure 1: SSY Diagram

When environmental performance is matriculated into an economic performance value and activity-based thinking matrix with a clearer expression;
Value-based thinking percentage (fvbt%) + activity-based thinking percentage (fpbt%) = 100% is accepted.

**En-va%** is a measure that refers to the environmental performance of a% value-based thinking business (market cap-to-share value) by the slice.

**Eco-va%** is a measure that refers to the economic performance of a% value-based thinking business (market cap-to-share value) by a slice.

**En-pe%** is a measure that refers to the environmental performance of a business (profit-sales) based on performance.

Eco-pe% is a measure that refers to the economic performance of a business (profit-sales) based on operating performance by a percentage point.

|  | Environmental Performance | Economic Performance |
|---|---|---|
| Value Based Thinking – fvbt | En-va % | Eco-va % |
| Performance Based Thinking – fpbt | En-pe % | Eco-pe % |

Figure 2: Value and Performance Based SSM Model

## 5. Result

From this point forward, the Value and Performance Based is how to calculate the 4 independent sensitivity percentages defined in the SSM Model debate, as well as the questions to ask and the scale to create.

Looking at the value and performance-based sustainable strategic management model, it is clear that the business will receive a percentage in all four parts. It is unthinkable for the SSY that the business will only think value-based and not activity-based, but will place more emphasis on its economic performance. Moreover, it would not be a false hypothesis for businesses to say that they are value-based thinkers and think more about their economic performance. The accuracy of a hypothesis like this is an irrefutable fact, even though most non-institutional firms are now working. Of course such an approach would apply to businesses that have not made SSP or set off thinking SSY. If this model is to be used in the work that will take place thereafter, it can be said that businesses that care almost equally about their economic and environmental performance will act in accordance with the more exile strategic management model. Researchers can easily say that the midpoint or the equilibrium point may be as shown in Figure 3, but in reality, it may never be optimal for a business.

|  | Environmental Performance | Economic Performance |
|---|---|---|
| Value Based Thinking – fvbt | En-va %  25 | Eco-va % 25 |
| Performance Based Thinking – fpbt | En-pe % 25 | Eco-pe % 25 |

Figure 3: Medium Sensitivity Point

Perhaps the acceptance of the most accurate should be this way: It is certain that differentiations can occur in every sector, in every region, but it is important to ensure that the business; it is most likely that giving its priority to continuity, not sustainability, will come across as a final outcome.

It should be debated which (qualitative or quantitative) techniques will be effective in developing or measuring the scale of the four sensitivity percentages (En-va, Eco-va, En-pe, Eco-pe) indicated in future studies.

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# Interconnectedness of Libyan Financial and Real Sectors[1]

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**Abstract**

The Global Financial Crisis of 2008 has motivated modern economists to investigate the link between economies as well as between real and financial sectors. Thus, in last decade the existence of real and financial connectedness has become a corner stone in policy making when understanding how financial shocks impact real economy (Uluceviz & Yılmaz, 2018). Therefore, the aim of this chapter is to analyse the interconnectedness between the real and financial sectors of Libya. To accomplish the chapter's aim, firstly it discusses roles of real and financial sector. Secondly, this chapter shed light on a recent related empirical literature. Methods used in measuring the connectedness between financial and real sectors are drown thirdly. In the fourth section, this chapter illustrates the method used and the model for measuring the Libyan real and financial sectors dependency, in addition to variables selection. Fifthly, our empirical results are displayed. Finally, a conclusion will be highlighted.

**Keywords:** Interconnectedness, Libyan Real Sector, Libyan Financial Sector

## 1. Introduction : Role of the Real Sector in the Economy

According to Anyanwu (2010, p. 31) breaks down the real sector into activities of  industry, agriculture, construction, building and services. Moreover, Mordi (2014, p. 5) thinks households and firms that participate in goods and services productions, are element of the real sector. However, a wider view is made by  Greene (2018, p. 2), according to him,  the real sector consists of expenditure and production in the economy, and that widely called national accounts. Thus, this sector fundamentally functions an important role in the economy. Indeed, Klimenko et al. (2021, p. 2) considers that the real sector as the soul creation of "a surplus production" in the economy that assures the financial sector functions. Therefore, it appears that the fact that the real sector is the basis for the derivation of value added in the economy.

Anyanwu (2010, p. 31) essentially highlights a number of reasons which makes the real sector strategic, i.e., satisfying the aggregate demand by the production of goods and services, measuring the macroeconomic policies effectiveness, releasing the pressure on the external sector, and finally generating income and employment. The point is that the real sector has played a crucial role affecting the living standard directly or indirectly, and also affecting the welfare as a result of applied macroeconomic policies. It is, therefore, that the real sector creates connections in the economy between the product market and factor market. In this regard, the real sector links the household, who receives income by selling their capital, i.e., labor and savings, with the firms, which buy. In another level the real sector is about linking in the product market where the households become the buyers of goods and services and the firms are the sellers.

## 2. Role of the Financial System in the Economy

The previous chapter has discussed the Libyan financial sector outlook without discussing its role in the economy. It might be necessary to shed some lights the financial sector's functions in the economy. It is well known that the major role of the financial system is to link lenders and borrowers (Ulusoy and Ugur,2020). In other words, its main role to provide the deficit units with the needed supply from surplus units. linking surplus units with deficit units may be efficient as it results low costs of information, transaction and enforcement (Mordi, 2014, p. 10; Zhuang et al., 2009, p. 3). This is also supported by Kaur (2017, p. 1868) who believed the efficient allocation of resources is the core function of financial sector and return maximization which all resulting economic growth. Thus, the financial sector throughout its institution

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connects these units easily and efficiently. At this point, it may be useful to consider the concepts of company value and financial risk (Ulusoy,2008).

However, Krippner (2011, p. 11) referred to Giovanni Arriighi's theory where profits come from material expansion, the first phase and the late phase of financial channels. This indeed demonstrates the expanded role of financial sector. For example, banks as financial intermediations undertake a critical role in finance provision. A contractual relationship is the base of banks' function between the units of surplus and deficits. Similarly, other institutions like financial markets are channels funds flow through different types of instruments that also provide the units to pool their risks. Indeed, Levine (2004, pp. 5) provided an extensive literature on the functions of financial system and identified five key roles that enhance economic growth; "providing information on potential investments, monitoring investments and implementing corporate governance, facilitating trade, diversification and risk management, savings mobilization and pooling, and exchange of goods and services". Nonetheless, payment mechanism has not been taken into consideration by Levine (2004) even though he identified key points which could indirectly refer to payment mechanism. Governance has a key role in economic growth and linking firms (Ulusoy et al., 2022)

In sum, the financial sector has been playing a critical role to meet the needs of deficit units/ borrowers with surplus units/ lenders. Therefore, it seems to be the fact that financial sector via its institutions collects funds and direct these funds towards other economic activities which lead to economic growth.

## 3.  Linkages Between Financial and Real Sectors: Related Literature

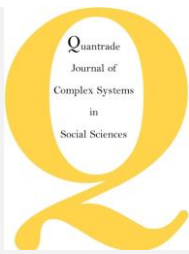The literature generally believes the sectors are related in several ways, and thus development in one sector may have a direct or an indirect effect on the other. For instance, according to  Greene (2018, p. 5-6) highlights that a change in a fiscal policy by increasing the desire to consume more leads to impact the financial sector by decreasing the amount of savings. Furthermore, if the monetary policy were relaxed, this would increase consumption and/or investment through higher lending. Hence, it may be said that the higher investment or consumption, the higher economic growth rate. Moreover, it has been suggested that the Global Financial Crises indicated the impact of the financial architecture on the systematic risk negatively or positively according to authorities policy (Acemoglu et al., 2015, p. 564; Ahelegbey et al., 2016, p. 371). This is because "When a bank experiences financial stress, its troubles could spill over to other banks and threaten to contaminate the broader financial system. This is what regulators refer to when they define and measure systemic risk." (Greenwood et al., 2015, p. 471). Therefore, measuring the interconnectedness between financial institutions has received significant attention for the last decade. This tendency of research could be reasoned to the lack of information about the network obligation between the financial institutions (Gai & Kapadia, 2010, p. 6; Glasserman & Young, 2016, p. 779).

To start our analysis with Eisenberg & Noe (2001) who questioned the independency of a firm's debt to other firms' debt. Thus, they developed a model of nodes representing the financial institutions vector payments to the other nodes. Simply, the model indicates which node was affected by a default of another node. Furthermore, Gai & Kapadia (2010) constructed an artificial statistical model to analyze the banks network and the effect of an idiosyncratic shock on the linkages between banks that compromised 80% external assets and also the banks were from developed countries. Recently, there has been many studies applied network models, which specified models for interconnectedness between financial institutions and liabilities. Studies of Gai et al. (2011) , Markose et al. (2012),  Anand et al. (2013) and Acemoglu et al. (2015) and Glasserman & Young (2016) are examples of method based of nodes network. However, there may be some limitations such as the models did not account for what could have caused default nodes which perhaps could be due to a dynamic process of households or nonfinancial institutions.

Other studies endeavored to investigate the interconnectedness between the global financial institutions applying other approaches. For instance, evidence on measuring interlinkages between systematically banks and insurers of U.S, Asia and European Union using a vector autoregressive (VAR) model on daily equity returns (Malik & Xu, 2017). In addition, a similar study by Andrieş et al. (2022) investigated the interconnectedness between global systematically important institutions and banks and the global financial system. Their method was based on several approaches to assess the interconnectedness between these institutions and the global financial system. For example, Bayesian Graphical VAR model and Granger causality networks were among the methods applied in their study to account for the spillover effect. The two sets of data used were, on one hand, balance sheet data of market equity, total assets and book equity regarding systematically important institutions and banks, and on the other hand, market indices related to the global financial system. In another side, Abedifar et al. (2017) employed systemic risk measures and graphical network models to measure interlinkages between Islamic banks, conventional banks and conventional banks with Islamic windows in the GCC countries. It seems that the importance of the financial institutions' role has given space to literature to emerge characterizing the systematic risk of these institutions and an idiosyncratic shock on the other related financial institutions.

For more empirical analysis about the interdependency of institutions and markets employing network graphs see for example, Giudici et al. (2020), Battiston & Martinez-Jaramillo (2018) and Giudici & Spelta (2016).

Interconnectedness between cryptocurrencies has also attracted recent research. For instance, Paolo Giudici & Pagnottoni (2020) investigated the connectedness of major eight Bitcoin returns using vector error correction models. Another study applied a unit root testing approach to determine whether the cryptocurrencies explosive behaviors are interlinked (Agosto & Cafferata, 2020). While others like Paolo Giudici & Pagnottoni (2020) attempted to measure the interconnectedness between Bitcoin and gold, crude oil and 12 developed equities applying Bayesian time-varying parameter vector autoregressive and cross-quantilogram to detect the directional predictability and dependence between the variables. This suggests the importance of understanding the connection between the cryptocurrency markets and other assets (Kendirli et. al.,2022)(Kendirli and Şenol, 2021)(Konak and Özkahveci,2023).

However, research has also accounted for measuring interconnectedness with respect to the real economy. For example, Acemoglu et al. (2012) investigated the shocks of sectoral inputs on aggregate output in the U.S using a network approach. The sectoral inputs were captured by the value spent on commodity, which was considered as an input to another sector, and the aggregate output represented by total added value. Even though they attempted to measure the interlinkages between microlevel and macrolevel, they did not account for the financial sector. In contrast, Ahelegbey et al. (2016) endeavoured to measure the interconnectedness in the U.S between the real economy and the financial sector using Bayesian Graphical VAR model. The real sector was represented by a several response virials while the financial sector was determined by thirteen predictor variables. A unidirectional connectedness from financial sector to the real sector was captured during 2007-2009, and from 2010 to 2013 a bidirectional connectedness between the sector were suggested by their results.  Later study used a similar approach but different model inputs. Uluceviz & Yılmaz, (2018) evaluated the connectedness between real and financial sectors using VAR model in U.S based on representative indices for the real economy, and data representing the financial side were the returns of the stock, bond, and foreign exchange markets. They conducted a real activity index (ARI) based on real GDP, employment, and initial claims. The other index representing real economy was the already published index of Aruoba-Diebold-Scotti (ADS). Their results appeared to be mixed where the ADS showed the real sector interconnected with the financial sector, while RAI showed a reserve connectedness. This may be due to the different deriving methods of ADS and RAI indices where the former contains financial observations and the later does not.

## 4.  Tools of Interconnectedness Measurements

The literature provides a handful of approaches that are employed to detect the interconnectedness between the economic sectors. For example, Li et al. (2012, Table 1) summarized five methods for interconnectedness analysis such as correlation, cointegration analyses, panel analyses, VAR and dynamic factor analyses. Similarly, Bricco & Xu (2019, pp. 18-19) provided a summery of interconnectedness measurment approches and their applicaplity. And thus, a researcher should consider each method's limitations in undertaking interconnectedness measures. For instances, for more discussion on methodologies limitations see,  Li et al. (2012, Table 1) and Andrieş et al. (2022, Table 1). Moreover, the availability of data plays a cruciel role in determining the measurment approach as was mentioned by  Bricco & Xu (2019, p. 38).

## 5.  Measuring Libyan Real-Financial sector interconnectedness

According to Li et al. (2012, pp. 138–139), measuring interlinkages among economies are accounted for different endogenous economic variables when VAR employed. They also add that impulse response functions (IRFs) and decompositions of variance are usually introduced by VAR, the former measures response of a variable to another variable's shocks and the later measure shocks' relative importance. More importantly, because of this chapter's purpose and considering each method limitations, VAR will be considered an optimal selection to measure interconnectedness between real and financial sector in Libya. This can evidenced by Bricco & Xu (2019, p. 38) when they argued the VAR is the selection if the purpose to analyze the interdependency between macro-financial variables . In addition, a recent research measuring the interconnectedness between macro-financial variables, VAR was widely adopted in empirical research (Acemoglu et al., 2015; Ahelegbey et al., 2016; Andrieş et al., 2022; Giudici & Pagnottoni, 2020; Uluceviz & Yılmaz, 2018).

### 5.1 Bayesian VAR Approach

In this section, Bayesian Theorem is mentioned briefly, according to Thomas Bayes the relationship of two random events is described under their conditional probabilities.

$$P\left(\frac{x}{y}\right) = \frac{P(y)P(y|x)}{P(x)} \qquad \text{Eq. 1}$$

Where $P(x)$ represents a random event probability of $x$, and $P(y)$ represents a random event probability of $y$. That is known as prior probability. The term $P(y|x)$ represents the occurrence of event $y$ conditioned to the event $x$ occurrence. Also, $P(x|y)$ represents the occurrence of event $x$ conditioned to the event $y$ occurrence. That is known as posterior probability. Thus, Bayesian Theorem can also be stated as

$$P_p = L_i \times p_p \qquad \text{Eq. 2}$$

Whare $P_p$ and $p_p$ stands for the posterior probability and prior probability, respectively.

Generally, the variables dynamic can be modelled in SVAR process (structural vector autoregressive process) as in Ahelegbey et al. (2016)

$$Y_t = \beta_0 Y_t + \sum_{i=1}^{\rho} \beta_i Y_{t-i} + \sum_{i=1}^{\rho} C_i Z_{t-i} + \varepsilon_t \qquad \text{Eq. 3}$$

Where $Z_t$ is a $n_z$ predictor variables vector, $\beta_0$ is $n_y \times n_y$ coefficients matrix of structural contemporaneous, $\beta_i$ and $C_i$ are respectively $n_y \times n_y$ and $n_y \times n_z$ structural coefficients vector and $\varepsilon_t$ is $n_y$ structural error term vector, and $t = 1,,,,$ T.

According to Ahelegbey et al. (2016) Andrieş et al. (2022), not only the applicability of estimating Eq. 3 and also over parameterized problem in SVAR model was considered. Thus, *to* solve these problems, Let $X_t = (Y_t , Z_t)$` be $n_y + n_z = n$ observed variables dimensional matrix at time *t*, and $\beta_i^* = (\beta_i, C_i)$, $1 \le i \le \rho$, and $n_y \times n$ are unknown coefficients of response and predictor variables matrices. The equation 5 can be expressed in a reduced form of VAR as

$$Y_t = \sum_{i=1}^{\rho} A_i X_{t-i} + A_0^{-1} \varepsilon_t \qquad \text{Eq. 4}$$

For $t = 1,,,,$ T, where $A_0 = (I_{n_y} - \beta_0)$ is $n_y \times n_y$ matrix, $I_{n_y}$ is the $n_y$ dimensional identity vector, $A_i$ (dimension of $n_y \times n$ ) $= A_0^{-1} \beta_i^*$, $1 \le i \le \rho$ are the coefficient matrices of the reduced form VAR model. $u_t = A_0^{-1} \varepsilon_t$ is reduced form errors of $n_y$ dimensional matrix and $u_t \overset{i.i.d}{\sim} N(0, \sum u)$.

The dynamic of the reduced Var model is given through variance decompositions or impulse response functions by estimating $A_0$ and $\sum \varepsilon$ from the following errors covariance matrix based on Eq. 6. First, following recent literature i.e. Ahelegbey et al., (2016) we assume the prior distribution of covariance is Minnesota, thus, $A_+ \sim N(A, V)$.

Conducting total index of interconnectedness (D-Y) is introduced by Diebold & Yilmaz (2009), to measure the spillover between returns and their volatility, developed later by Diebold & Yilmaz (2012) considering the impulse response functions and the forecast error variance decomposition. Therefore, we conduct the same measure for interconnectedness. However, the forecast error variance decomposition is influenced by variable ordering. Hence, this is dealt with according to Ankargren et al. (2017) and variable order becomes GDP, Gross Capital Formation, inflation, Government Debt, M1, m2, Un-official Exchange rate and Domestic Private Credit by Banks.

The main attention is on the h-stet error variance decomposition of variable $i$ is caused by variable $j$ shocks, that expressed mathematically as

$$\tilde{\varphi}_{ij,t}^{g}(h) = \frac{\sum_{t=1}^{h-1} \Psi_{ij,t}^{2,g}}{\sum_{i=1}^{N} \sum_{t=1}^{h-1} \Psi_{ij,t}^{2,g}} \qquad \text{Eq. 5}$$

Where $\tilde{\varphi}_{ij,t}^{g}(h)$ indicates the h-step ahead forecast error variance decomposition, $\Psi_{ij,t}^{g} = S_{ij,t}^{\frac{-1}{2}} A_{h,t} \sum_t \varepsilon_{ij,t}$, $\sum_t$ the error term $\varepsilon_{ij,t}$ covariance matrix. Based on Eq. 5 total connectedness index is constructed as

$$C_t^{g}(h) = \frac{\sum_{i,j=1,i\neq j}^{N} \tilde{\varphi}_{ij,t}^{g}(h)}{\sum_{j=1}^{N} \tilde{\varphi}_{ij,t}^{g}(h)} \times 100 \qquad \text{Eq. 6}$$

Firstly, the spillovers of variable $i$ to all others $j$ is calculated indicating the total directional connectedness to others as

$$C_{i \to j,t}^{g}(h) = \frac{\sum_{j=1, i \neq j}^{N} \tilde{\varphi}_{ji,t}^{g}(h)}{\sum_{j=1}^{N} \tilde{\varphi}_{ji,t}^{g}(h)} \times 100 \qquad \text{Eq. 7}$$

Secondly, the computation of the spillovers of all variables $j$ to variable $i$, describing the total directional connectedness from others as

$$C_{i \leftarrow j,t}^{g}(h) = \frac{\sum_{j=1, i \neq j}^{N} \tilde{\varphi}_{ij,t}^{g}(h)}{\sum_{i=1}^{N} \tilde{\varphi}_{ij,t}^{g}(h)} \times 100 \qquad \text{Eq. 8}$$

Thirdly, the differences between the total directional connectedness to others and from others to obtain the net total directional connectedness $C_{i,t}^{g}$ is calculated as

$$C_{i,t}^{g}(h) = C_{i \to j,t}^{g}(h) - C_{i \leftarrow j,t}^{g}(h) \qquad \text{Eq. 9}$$

The sign of the net total directional connectedness shows whether the variable $i$ is driving or driven by the others.

The final step is the calculation of the net total directional connectedness to investigate the bidirectional connections by calculating the net pairwise directional connectedness (NPDC) as

$$NPDC_{ij}(h) = \frac{\tilde{\varphi}_{ji,t}^{g}(h) - \tilde{\varphi}_{ij,t}^{g}(h)}{N} \times 100 \qquad \text{Eq. 10}$$

## 5.2 Data and model variables selection

The research organized in this chapter depends on annually secondary data, perhaps from 1973 to 2020. Taking into account the authenticity of the results, the selection of the variable was in line with the literature i.e. Bricco & Xu (2019, p. 38). In the case of Libya in which a researcher could suffer some limitations in terms of data availability and data time horizon, the selected variables are; GDP (Ahelegbey et al., 2016; Ibadin et al., 2014; Uluceviz & Yılmaz, 2018), gross fixed capital formation (GCF) (Ibadin et al., 2014), M1, M2 (Ahelegbey et al., 2016), government debt (Andrieş et al., 2022), inflation (INF) (Ahelegbey et al., 2016) and Unofficial exchange rate (MBER) (Uluceviz & Yılmaz, 2018; Ahelegbey et al., 2016 who used effective exchange rate). Also, we capture the Libyan finacial sector by dmestic private credit by banks (DPCB).

Regarding data collection, there has been a use of different sources. For example, GDP and gross capital formation were obtained from United Nations National Accounts. M1, M2  and dmestic private credit by banks (DPCB) for the period from 1973 to 2017 were obtained from Monetary and Financial Statistics (1966-2017) (Central Bank of LIBYA, n.d.,  tab. 2) and from 2018 to 2020 was gathered from (Central Bank of LIBYA, 2021, tab. 3). Government debt and Inflation were obtained from IMF data sources. Finally, the unofficial exchange rate was surveyed through historical records of Al-Mushir Market- Tripoli-Libya.

## 5.3 Empirical Results and Diagnostics

Before proceeding further, it may be worth mentioning statistical results related to the empirical results.

### 5.3.1  Descriptive Statistics

Results of descriptive statistics are shown in Table 5.1 displaying the number of observations mean and standard deviation of the variables.

**Table 5.1.** Descriptive Statistics

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| GDP | 48 | 35440.3 | 35684.685 | 2401.197 | 116721.42 |
| Gross Capital Formation | 48 | 7.864e+09 | 4.411e+09 | 2.274e+09 | 1.879e+10 |
| Inflation Rate | 48 | 6.263 | 7.754 | -9.798 | 29.38 |
| Government debt | 48 | 25067.373 | 54121.758 | 152.476 | 201517.74 |
| M1 | 48 | 24452.165 | 34927.761 | 514 | 122950.3 |

| | | | | | |
|---|---|---|---|---|---|
| M2 | 48 | 26692.919 | 35452.781 | 810.9 | 125543 |
| Un-official   Exchange Rate | 48 | 1.932 | 1.695 | .31 | 7.2 |
| Domestic  Private  Credit by Banks | 48 | 7711.087 | 9552.493 | 212.617 | 40729.164 |

### 5.3.2   Correlation Test

Table 5.2 shows pairwise test results of correlation between the variables. According to the results GDP only is correlated positively with GCF and adversely government debt which also has same relation with GCF.

**Table 5.2.** Correlation Matrix

| Variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| (1) gdp | 1.000 | | | | | | | |
| (2) GCF | 0.568* | 1.000 | | | | | | |
| (3) inflation | -0.370 | -0.339 | 1.000 | | | | | |
| (4) gov_debt | -0.444* | -0.378* | 0.312 | 1.000 | | | | |
| (5) m1 | 0.255 | 0.096 | 0.242 | 0.123 | 1.000 | | | |
| (6) m2 | 0.226 | 0.144 | 0.233 | 0.112 | 0.866* | 1.000 | | |
| (7) bmer | -0.083 | 0.022 | 0.204 | -0.156 | 0.125 | 0.037 | 1.000 | |
| (8) pcbs | -0.027 | 0.052 | 0.018 | 0.352 | 0.291 | 0.407* | -0.114 | 1.000 |

*** p<0.01, ** p<0.05, * p<0.1*

### 5.3.3   Testing for Unit Root

The stationarity test is carried out in this section for all variables. As shown in Table 5.3, the null hypothesis of non-stationary is rejected at I (0). Yet, the null is not rejected at I (1), the Un-official exchange rate is still stationary and thus becomes stationary at I (2).

**Table 5.3.** Results of Augmented Dickey–Fuller Tests

| Variables | I (0) | | | I (1) | | |
|---|---|---|---|---|---|---|
| | Z | p-value | lags | Z | p-value | lags |
| GDP | -1.395 | .585 | 1 | -3.038 | .032 | 1 |
| Gross Capital Formation | -2.464 | .124 | 1 | -5.543 | .000 | 1 |
| Inflation | -3.724 | .004 | 1 | -6.411 | .000 | 1 |
| Gov.debt | -1.15 | .695 | 1 | -6.089 | .000 | 1 |
| M1 | -.12 | .947 | 1 | -3.51 | .008 | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| M2 | .07 3 | .964 | 1 | - 3.61 | .006 | 1 |
| Black market exchange rate | - 1.364 | .599 | 1 | - 2.66 | .081 | 1 |
| Domestic_priva~a | - 1.533 | 0.517 | 1 | - 4.185 | .000 | 1 |

Black market exchange rate becomes stationary at I (2).

### 5.3.4    Optimal lag number

In all VAR(p) models, the selection of lag order is important. In this part we conduct the test of the lag order for BVAR(p). The results of the test in Table 5.4 confirms only the first lag may be included in the model and thus our model becomes BVAR (1).

**Table 5.4** Bayesian model tests: Optimal Lag Selection

| | log (ML) | P(M) | P(My) |
|---|---|---|---|
| lag1 | -170.395 | 0.250 | 0.991 |
| lag2 | -175.078 | 0.250 | 0.009 |
| lag3 | -189.114 | 0.250 | 0.000 |
| lag4 | -182.815 | 0.250 | 0.000 |

### 5.3.5    Stability Condition

To process our model BVAR (1), the model must be stable, therefore, checking for the model stability is performed and the results are displayed in Table 5.5. The results confirm the condition of stability, that is, eigenvalues lie inside the unit circle meaning our model BVAR (1) satisfies the stability condition.

**Table 5.5** Bayesian VAR (1) Stability Condition Test

Eigenvalue stability condition                 Companion matrix size =    8
MCMC sample size     = 80000

| Eigenvalue modulus | Mean | Std. | dev. | MCSE | Median | [95% cred. interval] |
|---|---|---|---|---|---|---|
| 1 | 0.904 | 0.179 | 0.001 | 0.878 | 0.633 | 1.344 |
| 2 | 0.744 | 0.122 | 0.000 | 0.735 | 0.527 | 1.002 |
| 3 | 0.647 | 0.106 | 0.000 | 0.643 | 0.450 | 0.866 |
| 4 | 0.567 | 0.099 | 0.000 | 0.565 | 0.379 | 0.767 |
| 5 | 0.493 | 0.098 | 0.000 | 0.493 | 0.302 | 0.686 |
| 6 | 0.414 | 0.103 | 0.000 | 0.415 | 0.209 | 0.611 |
| 7 | 0.316 | 0.113 | 0.000 | 0.317 | 0.099 | 0.532 |
| 8 | 0.189 | 0.118 | 0.000 | 0.179 | 0.010 | 0.433 |

Pr(eigenvalues lie inside the unit circle) = 0.7605

### 5.3.6    Impulse Response Function

#### GDP Shocks

Figure 5.1 below which reports the impulse response results to GDP shocks. The results reveal that Inflation and government Debt are positively highly sensitive to GDP shocks while M1, M2, domestic private credits by banks and the un-official exchange rate seem to have less positive sensitivity to GDP shocks. In contrast, gross capital formation shows a negative response to the GDP shocks.

**Figure 5.1** Impulse Response Functions to GDP shocks
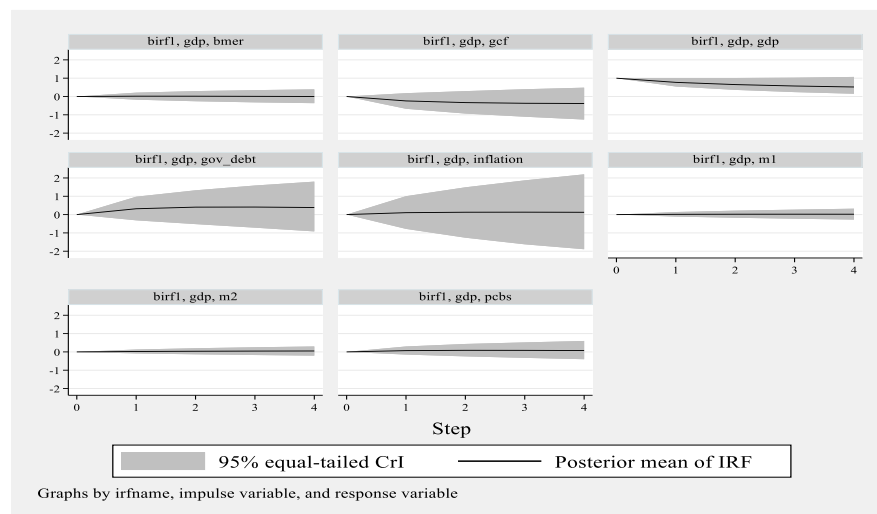


#### Gross Capital Formation Shocks

Figure 5.2 reports the responses to changes in gross capital formation. As shown in the figure, homogenous responses from unofficial exchange rate, M1, M2 and domestic private credit by banks to changes in gross capital formation. However, inflation shows a high sensitivity to gross capital formation shocks even though the inflation response is just above zero. The noticeable responding can be seen from government debt, that is a positive respond is generated from a positive shock of gross capital formation. GDP, on the other hand, reveals negative respond to gross capital formation.

#### Inflation Shocks

From Figure 5.3 below, it is evident that one standard deviation shock of inflation has a positive impact on gross capital formation and negatively affects government debt. According to the other variables, a shock of inflation has no impact on them.

#### Government Debt Shocks

Figure 5.4 reports the impulse response functions to government shocks. Homogenous responses to the government debt shocks are from unofficial exchange rate, M1 and M2. Domestic private credit by banks shows a negative steady response reaching almost -1% in the fourth period to 1% change in government debt. Similar responses are recorded by GDP and gross capital formation to a shock in government debt, that is both recorded a positive response by 1% from almost the second period and upwards to the fourth period due to 1% change in government debt.

**Figure 5.2** Impulse Response Functions to Gross Capital Formation Shocks
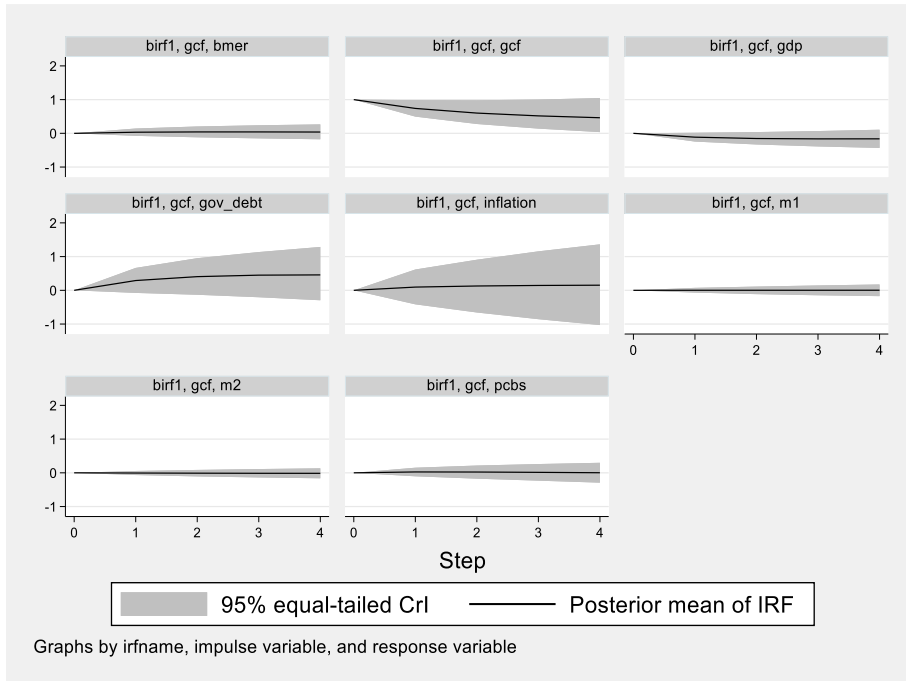


**Figure 5.3** Impulse Response Functions to Inflation
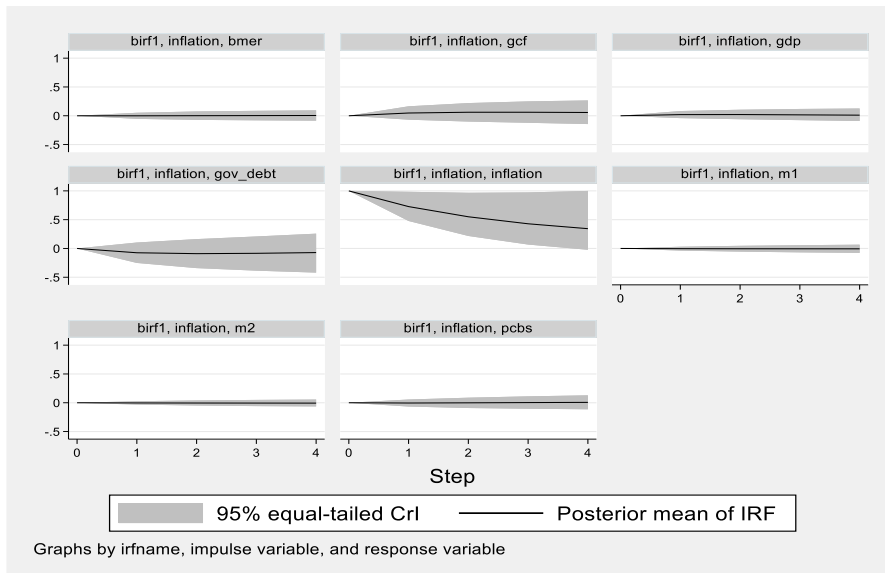
**Figure 5.4** Impulse Response Functions to Government Debt Shocks



Graphs by irfname, impulse variable, and response variable
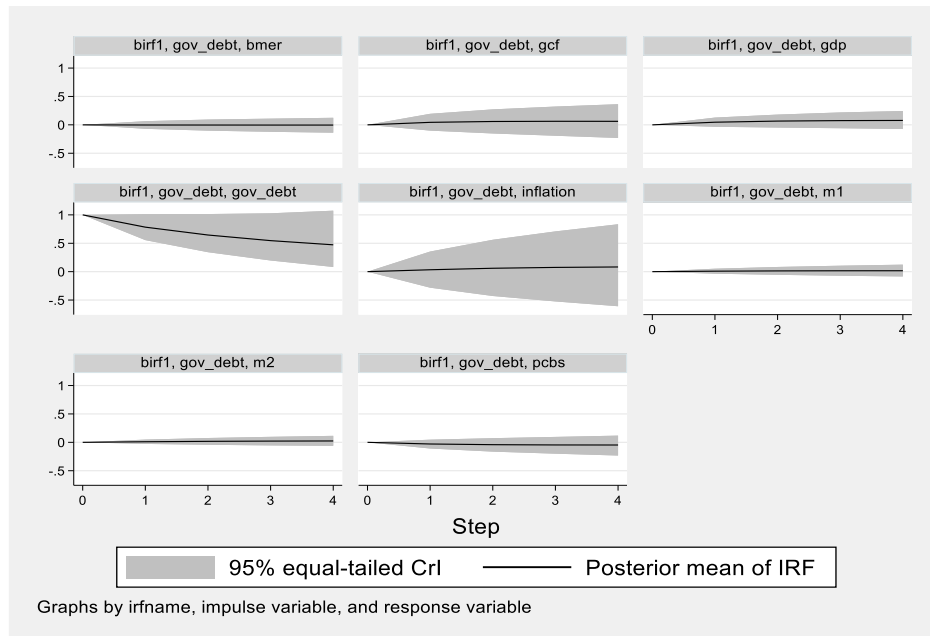
*M1 Shocks*

Responds to M1 shocks somehow different as shown in Figure 5.5. For example, not only un-official exchange rate and M2 seems to be negatively responding to M1 shocks but also government debt can be seen highly negatively sensitive to M1 shock.  Inflation also is recorded to have positive response to M1 shocks. Moreover, gross capital formation seems responding positively to M1 shocks. Similar low positive responses are recorded for GDP and domestic private credit by banks to M1 shocks.

*M2 Shocks*

Figure 5.6 reports impulse response functions to M2 shocks. Homogenous responses to M2 shocks are documented by unofficial exchange rate, GDP, and gross capital formation, while M1 and domestic private credit by banks recorded negative responses in the fourth period to M2 shocks. High sensitivity response to M2 shocks is recorded by government debt and even higher negative response by inflation.

*Black Market Exchange Rate Shocks*

Figure 5.7 displays standard deviation shock of inflation on the other variables. Significantly, one shock in unofficial exchange rate leads to decrease in inflation rate while government debt responds positively to inflation shock. Others, however, show undetectable reaction to a standard deviation shock in unofficial exchange rate.

**Figure 5.5** Impulse Response Functions to M1
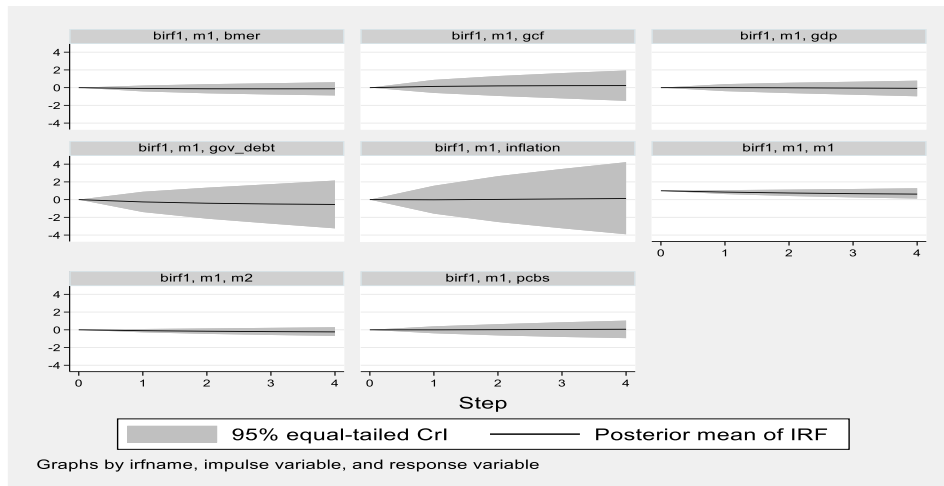


**Figure 5.6** Impulse Response Functions to M2
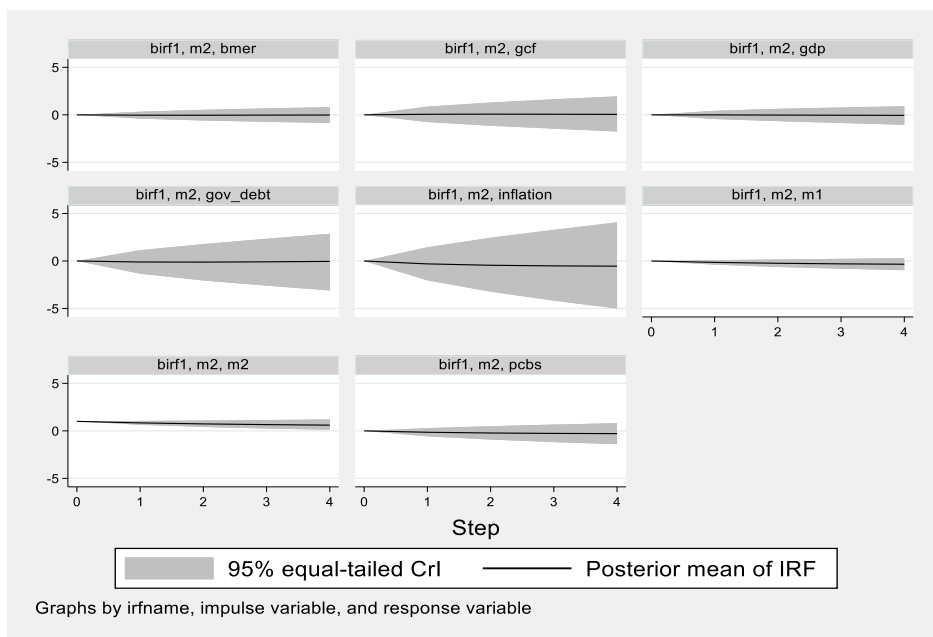
**Figure 5.7** Impulse Response Functions to Inflation
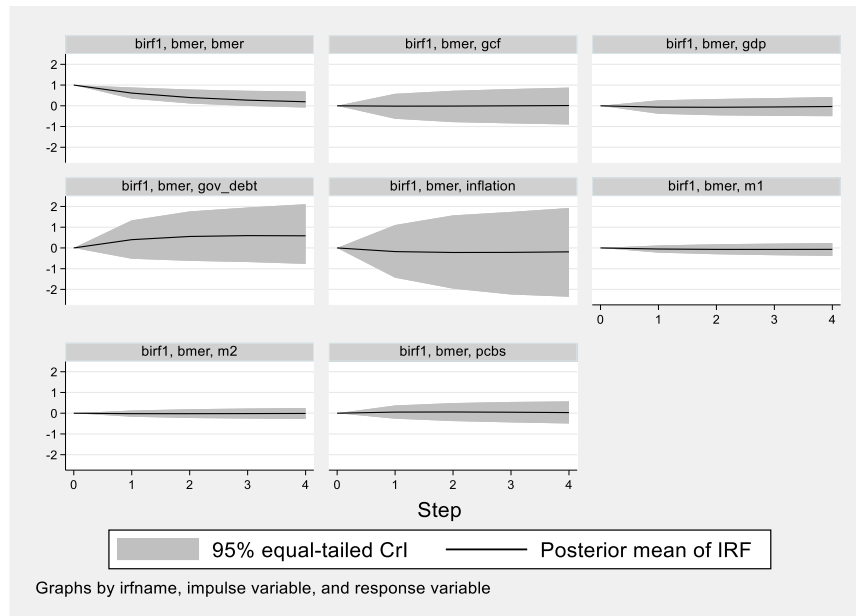


Domestic Private Credit by Banks Shocks

The impulse response functions to shocks of domestic private credit by banks are reported in Figure 5.8. Noticeably, the mean of responses for unofficial exchange rate, GDP, M1 and M2 remains steady and almost zero. However, inflation shows being highly sensitive to domestic private credit by banks followed by government debt and gross capital formation, respectively, while the latter records a negative response in the fourth period.

**Figure 5.8** Impulse Response Functions to Domestic Private Credit by Banks
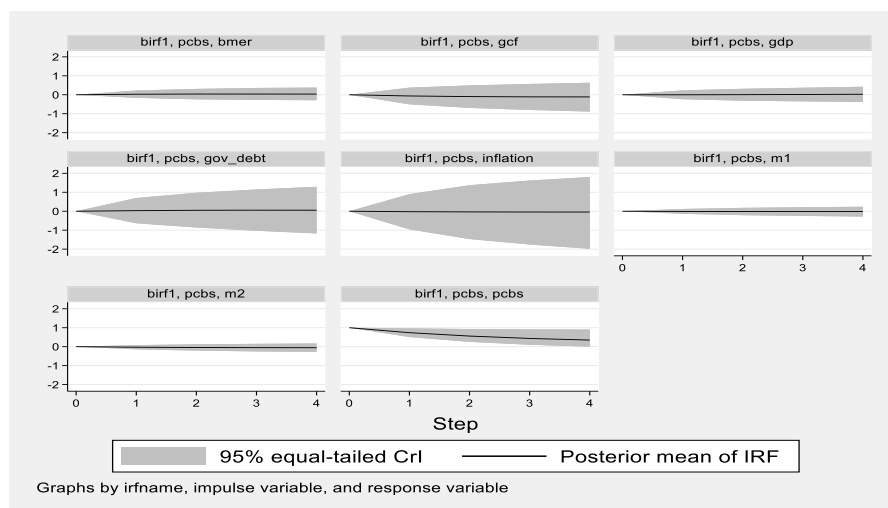


### 5.3.7    Variance Decomposition Results

The dynamic analysis of variance decomposition is given in Table 5.6. With respect to GDP, it explains its prognostic standard deviation by 48% in the first year but for coming years other variables increasingly engage in explaining the error of GDP. Gross capital formation error is increasingly explained by other from about 40% in the first year to almost 55% in the fifth year. Inflation seems to be highly self-explaining its own variance by of 78% in the first year and gradually

decreased to 56% in the fifth year, and this also almost the same for government debt. However, M1 standard deviation appears to explain its own error by 52% and gradually decreases to explain 46% of its variance. In the case of M2, it explains 60% of its own prognostic error in the for the first and second years but slightly declines to explain 53% of its prognostic error in the fifth year. Unofficial exchange rate variance, on the other hand, explains 97% of its own error in the first year and this drops to account for 67% of its own error. Finally, domestic private credit by banks decreasingly interferes to explain its own prognostic error from 100% in the first year to nearly 71% in the fifth year.

**Table 5.6** Cholesky Variance Decomposition

| Step | GDP | GCF | Inf | Gov.debt | M1 | M2 | BMER | DPCB |
|------|------|------|------|------|------|------|------|------|
| 1 | 48.8% | 60.9% | 78.3% | 76.7% | 54.2% | 60.7% | 97.6% | 100.0% |
| 2 | 48.1% | 57.8% | 73.0% | 73.2% | 52.7% | 60.6% | 83.2% | 92.9% |
| 3 | 46.0% | 52.9% | 66.6% | 67.6% | 50.7% | 58.7% | 75.6% | 84.5% |
| 4 | 43.6% | 48.3% | 61.4% | 61.9% | 48.6% | 56.0% | 70.9% | 77.2% |
| 5 | 41.5% | 44.4% | 56.9% | 56.9% | 46.5% | 53.0% | 67.6% | 71.0% |

Source: Author based on the BVAR (1) results.

*Variance Decomposition – GDP*

Table 5.7 declares the amount of information that the variables contribute to GDP. Apart from how much GDP explains its own error, higher contributions come from gross capital formation and government debt, however, their contribution decreases over time. Inflation, M1, M2, unofficial exchange rate and domestic private credit by banks have an increasing contribution to explain GDP error.

**Table 5.7** Cholesky Variance Decomposition of GDP

| Step | GDP | GCF | Inf | Gov.debt | M1 | M2 | BMER | DPCB |
|------|------|------|------|------|------|------|------|------|
| 1 | 48.8% | 25.4% | 3.3% | 15.1% | 1.5% | 1.7% | 1.6% | 2.5% |
| 2 | 48.1% | 24.4% | 3.8% | 13.2% | 2.2% | 2.4% | 2.8% | 3.1% |
| 3 | 46.0% | 23.5% | 4.4% | 12.4% | 3.0% | 3.2% | 3.5% | 4.1% |
| 4 | 43.6% | 22.7% | 5.0% | 12.2% | 3.7% | 3.8% | 4.0% | 4.9% |
| 5 | 41.5% | 22.0% | 5.5% | 12.3% | 4.2% | 4.4% | 4.4% | 5.6% |

Source: Author based on the BVAR (1) results.

*Variance Decomposition of Gross Capital Formation*

Table 5.8 confirms high contribution of GDP, M1, M2, unofficial exchange rate and domestic private credit by banks in explaining the error of gross capital formation. Inflation and government debt decreasing contribute to gross capital formation.

*Variance Decomposition of Inflation*

Increasingly contribution to inflation is found to be by all variables over time as in Table 5.9. The highest contribution to inflation error comes from M2 and M1 respectively.

**Table 5.8** Cholesky Variance Decomposition of Gross Capital Formation

| Step | GDP | GCF | Inf | Gov.debt | M1 | M2 | BMER | DPCB |
|------|------|------|------|------|------|------|------|------|
| 1 | .. | 60.9% | 9.3% | 11.2% | 5.2% | 3.4% | 6.5% | 3.4% |
| 2 | 4.2% | 57.8% | 8.5% | 9.2% | 5.6% | 4.0% | 6.7% | 4.1% |
| 3 | 8.7% | 52.9% | 8.1% | 8.4% | 6.0% | 4.5% | 6.8% | 4.7% |
| 4 | 11.9% | 48.3% | 8.2% | 8.2% | 6.4% | 5.0% | 6.9% | 5.2% |
| 5 | 13.9% | 44.4% | 8.2% | 8.3% | 6.9% | 5.5% | 7.0% | 5.7% |

Source: Author based on the BVAR (1) results.

**Table 5.9** Cholesky Variance Decomposition of Inflation

| Step | GDP | GCF | Inf | Gov.debt | M1 | M2 | BMER | DPCB |
|------|-----|-----|-----|----------|-----|-----|------|------|
| 1 | .. | .. | 78.3% | 2.2% | 4.7% | 9.7% | 2.5% | 2.7% |
| 2 | 1.4% | 1.8% | 73.0% | 3.0% | 4.7% | 9.5% | 3.4% | 3.3% |
| 3 | 2.7% | 3.7% | 66.6% | 4.0% | 5.2% | 9.5% | 4.2% | 4.1% |
| 4 | 3.7% | 5.1% | 61.4% | 4.8% | 5.8% | 9.7% | 4.7% | 4.9% |
| 5 | 4.4% | 6.2% | 56.9% | 5.5% | 6.4% | 9.9% | 5.1% | 5.6% |

Source: Author based on the BVAR (1) results.

*Variance Decomposition of Government Debt*

Table 5.10 shows the results of government debt variance decomposition. Noticeably, the variables have a growth contribution to government debt error, except domestic private credit by banks which has 6.8% to 6.6% contribution to government debt error.

**Table 5.10** Cholesky Variance Decomposition of Government Debt

| Step | GDP | GCF | Inf | Gov.debt | M1 | M2 | BMER | DPCB |
|------|-----|-----|-----|----------|-----|-----|------|------|
| 1 | .. | .. | .. | 76.7% | 4.9% | 3.1% | 8.6% | 6.8% |
| 2 | 1.8% | 1.1% | 0.9% | 73.2% | 5.7% | 3.4% | 8.2% | 5.7% |
| 3 | 3.7% | 2.2% | 2.0% | 67.6% | 6.6% | 4.2% | 8.1% | 5.8% |
| 4 | 5.2% | 3.3% | 3.0% | 61.9% | 7.4% | 4.9% | 8.1% | 6.1% |
| 5 | 6.5% | 4.2% | 4.0% | 56.9% | 7.9% | 5.6% | 8.3% | 6.6% |

Source: Author based on the BVAR (1) results.

*Variance Decomposition of M1*

Table 5.11 below illustrates how much the variables contribute to M1.  From around 0.5% in the first year to about 3% in the fifth year can be linked to GDP, GCF, inflation and government debt. M2, on the other hand, has a decreasing contribution to account for M1 error. Unofficial exchange rates and domestic private credit by banks increasingly contribute to M1 over time.

**Table 5.11** Cholesky Variance Decomposition of M1

| Step | GDP | GCF | Inf | Gov.debt | M1 | M2 | BMER | DPCB |
|------|-----|-----|-----|----------|-----|-----|------|------|
| 1 | .. | .. | .. | .. | 54.2% | 38.4% | 4.9% | 2.5% |
| 2 | 0.6% | 0.7% | 0.7% | 0.6% | 52.7% | 36.7% | 5.2% | 2.8% |
| 3 | 1.3% | 1.5% | 1.5% | 1.3% | 50.7% | 34.6% | 5.7% | 3.3% |
| 4 | 2.0% | 2.3% | 2.3% | 2.0% | 48.6% | 32.8% | 6.2% | 3.9% |
| 5 | 2.7% | 3.0% | 3.0% | 2.6% | 46.5% | 31.1% | 6.5% | 4.4% |

Source: Author based on the BVAR (1) results.

*Variance Decomposition of M2*

Table 5.12 shows M2 variance decomposition. As can be seen in the first year, the contribution to M2 comes from domestic private credit by 31% followed by 8.3% from unofficial exchange rate. However, despite the steady contribution of unofficial exchange rate, domestic private credit by banks decreases over time to account only for 19% of M2 error. The other variables start in the second year contributing to M2, the highest contribution among them comes from M1.

**Table 5.12** Cholesky Variance Decomposition of M2

| Step | GDP | GCF | Inf | Gov. debt | M1 | M2 | BMER | DPCB |
|------|-----|-----|-----|-----------|-----|------|------|------|
| 1 | .. | .. | .. | .. | .. | 60.7% | 8.3% | 31.0% |
| 2 | 0.8% | 0.8% | 0.8% | 0.8% | 1.4% | 60.6% | 8.3% | 26.5% |
| 3 | 1.6% | 1.6% | 1.6% | 1.9% | 3.2% | 58.7% | 8.2% | 23.3% |
| 4 | 2.3% | 2.5% | 2.5% | 2.5% | 5.1% | 56.0% | 8.4% | 20.8% |
| 5 | 2.9% | 3.2% | 3.7% | 3.2% | 6.8% | 53.0% | 8.3% | 19.0% |

*Source: Author based on the BVAR (1) results.*

*Variance Decomposition of Unofficial Exchange Rate*

Table 5.13 shows un-official exchange rate variance decomposition. In the first year, only domestic private credit by banks contributes 2.4% of the unofficial exchange rate error. However, from the second year all variables, over time, increasingly contribute to unofficial exchange rate variance that their contribution in total is 32.4%.

**Table 5.13** Cholesky Variance Decomposition of Unofficial Exchange Rate

| Step | GDP | GCF | Inf | Gov. debt | M1 | M2 | BMER | DPCB |
|------|-----|-----|-----|-----------|-----|-----|------|------|
| 1 | .. | .. | .. | .. | .. | .. | 97.6% | 2.4% |
| 2 | 1.9% | 1.9% | 2.0% | 3.1% | 2.2% | 1.7% | 83.2% | 4.1% |
| 3 | 2.7% | 2.7% | 3.1% | 4.9% | 3.3% | 2.7% | 75.6% | 4.9% |
| 4 | 3.2% | 3.3% | 3.8% | 6.1% | 4.1% | 3.3% | 70.9% | 5.4% |
| 5 | 3.6% | 3.7% | 4.2% | 6.9% | 4.6% | 3.7% | 67.6% | 5.7% |

Source: Author based on the BVAR (1) results.

*Variance Decomposition of Domestic Private Credit by Banks*

The domestic variance decomposition of domestic private credit by banks is shown in Table 5.14. in the first year non-of the variables contributes to domestic private credit by banks. However, increasing contribution from all variables over time is recorded to account for 29%, in total, of the error of domestic private credit by banks.

**Table 5.14** Cholesky Variance Decomposition of Domestic Private Credit by Banks

| Step | GDP | GCF | Inf | Gov. debt | M1 | M2 | BMER | DPCB |
|------|-----|-----|-----|-----------|-----|-----|------|------|
| 1 | .. | .. | .. | .. | .. | .. | .. | 100.00% |
| 2 | 1.0% | 1.0% | 0.9% | 1.0% | 0.9% | 1.3% | 1.1% | 92.9% |
| 3 | 1.9% | 2.2% | 2.1% | 2.1% | 2.1% | 3.0% | 2.2% | 84.5% |
| 4 | 2.9% | 3.2% | 3.1% | 2.9% | 3.2% | 4.5% | 2.9% | 77.2% |
| 5 | 3.7% | 4.1% | 4.1% | 3.8% | 4.2% | 5.9% | 3.4% | 71.0% |

Source: Author based on the BVAR (1) results.

### 5.3.8   Uncertainty spillovers

The analysis now will shed light to examine the uncertainty spillovers between the variables. Panels A and B of Table 5.15 display the effect of uncertainty between the decomposed components. It can be observed from the panels the contribution originating FROM and TO any given variable increase as time horizons increases. Therefore, this indicates uncertainty spillovers between the variables seem to be significant with a lag. This finding of increasing uncertainty spillovers corporates with Antonakakis et al., (2018) and Biljanovska et al. (2017).

Panel C of Table 5.15 shows the net spillovers for the selected variables. The signs of the net spillovers indicate the transmission direction. For example, GDP and GDF net spillovers are being driven by other variables, while M2 and

domestic private credit by banks net spillovers signs indicating the two are driving variables. The total net directional connectedness lies between 22.9% and 21.9% implying the total net spillovers of the entire network.

**Table 5.15** Decomposed Components - connectedness

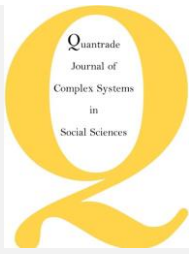| S tep | GDP | GCF | Inf | Gov.deb t | M1 | M2 | BME R | DPC B |
|---|---|---|---|---|---|---|---|---|
| | | | Panel A: Contribution FROM others | | | | | |
| 1 | 51.2 | 39.1 | 21.7 | 23.3 | 45.8 | 39.3 | 2.4 | - |
| 2 | 51.9 | 42.3 | 27.1 | 26.8 | 47.3 | 39.4 | 16.8 | 7.1 |
| 3 | 54.1 | 47.1 | 33.4 | 32.4 | 49.3 | 41.3 | 24.4 | 15.5 |
| 4 | 56.4 | 51.7 | 38.7 | 38.1 | 51.5 | 44.1 | 29.1 | 22.8 |
| 5 | 58.5 | 55.6 | 43.1 | 43.1 | 53.5 | 47 | 32.4 | 29 |
| | | | Panel B: Contribution TO others | | | | | |
| 1 | - | 25.4 | 12.6 | 28.5 | 16.3 | 78.6 | 32.4 | 51.4 |
| 2 | 11.8 | 31.7 | 17.5 | 30.8 | 22.7 | 82.9 | 35.6 | 49.6 |
| 3 | 22.7 | 37.5 | 22.7 | 34.8 | 29.3 | 85.8 | 38.6 | 50.1 |
| 4 | 31.2 | 42.5 | 27.9 | 38.7 | 35.6 | 87.3 | 41.2 | 51.2 |
| 5 | 37.6 | 46.4 | 32.6 | 42.6 | 40.9 | 88.1 | 43.1 | 52.7 |
| | | | Panel C: Net Spill Over | | | | | |
| 1 | -51.2 | -13.6 | -9.2 | 5.2 | -29.5 | 39.3 | 29.9 | 51.4 |
| 2 | -40.1 | -10.5 | -9.6 | 4 | -24.6 | 43.5 | 18.8 | 42.5 |
| 3 | -31.4 | -9.6 | -10.6 | 2.4 | -20 | 44.5 | 14.2 | 34.6 |
| 4 | -25.2 | -9.2 | -10.8 | 0.6 | -15.8 | 43.2 | 12.1 | 28.3 |
| 5 | -20.9 | -9.2 | -10.5 | -0.5 | -12.5 | 41.2 | 10.6 | 23.7 |

Note: All numbers are percentages.

### 5.3.9    Dynamic Connectedness results

To further compute the NPDC, now we turn dynamic connectedness calculation based on BVAR (1) model. Tables 5.16 to 5.20 illustrate the calculation steps using D-Y index. The index results are summarized in Table 5.21. From Table 5.21, we can see the system total connectedness increases over time, reaching up to 45% for the fifth component. This finding perhaps gives an indication that in the long run the economy adjusts over time to any potential domestic uncertainty sources. The analyses in Tables 5.16 to 5.20 reveal that longer spam changes in mostly M2, domestic private credit by banks and unofficial exchange rate tend to be important for GDP and GFC. Overall, it is found that uncertainty spillover tends to be decreasing over time except for M2, and also the transmission directions are constant (the sings of net spillovers) revealing aging the importance of M2, domestic private credit by banks and unofficial exchange rate, respectively.

**Table 5.16** Uncertainty spillover connectedness for the 1st component

| | GDP | GCF | Inf | Gov.debt | M1 | M2 | BMER | DPCB | FROM |
|---|---|---|---|---|---|---|---|---|---|
| GDP | 48,83 | 25,44 | 3,27 | 15,14 | 1,46 | 1,71 | 1,61 | 2,54 | 51,17 |
| GCF | 0,00 | 60,94 | 9,29 | 11,20 | 5,22 | 3,44 | 6,49 | 3,44 | 39,06 |
| Inf | 0,00 | 0,00 | 78,25 | 2,18 | 4,73 | 9,65 | 2,46 | 2,73 | 21,75 |
| Gov.debt | 0,00 | 0,00 | 0,00 | 76,66 | 4,91 | 3,05 | 8,62 | 6,76 | 23,34 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| M1 | 0,00 | 0,00 | 0,00 | 0,00 | 54,15 | 38,44 | 4,89 | 2,51 | 45,85 |
| M2 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 60,74 | 8,31 | 30,95 | 39,26 |
| BMER | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 97,55 | 2,45 | 2,45 |
| DPCB | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 100 | 0,00 |
| Contribution TO others | 0,00 | 25,439 | 12,559 | 28,516 | 16,320 | 56,281 | 32,381 | 51,370 | 222,87 |
| Contribution including own | 48.83 | 111.82 | 103.37 | 133.69 | 86.79 | 173.31 | 162.32 | 202.74 | |
| Net spillovers | -51.17 | -13.62 | -9.19 | 5.17 | -29.53 | 17.03 | 29.93 | 51.37 | **27.86** |

Note: All numbers are percentages. The diagonal values indicate self-contribution, and the off-diagonal values indicate spillover rates. The bold number (bottom right corner) is the system total connectedness.

**Table 5.17** Uncertainty spillover connectedness for the 2nd component

| | GDP | GCF | Inf | Gov.debt | M1 | M2 | BMER | DPCB | FROM |
|---|---|---|---|---|---|---|---|---|---|
| GDP | 48.13 | 24.44 | 3.80 | 13.16 | 2.19 | 2.41 | 2.78 | 3.10 | 51.87 |
| GCF | 4.24 | 57.75 | 8.47 | 9.20 | 5.57 | 4.00 | 6.66 | 4.12 | 42.25 |
| Inf | 1.43 | 1.79 | 72.95 | 2.95 | 4.73 | 9.46 | 3.39 | 3.30 | 27.05 |
| Gov.debt | 1.83 | 1.10 | 0.85 | 73.20 | 5.72 | 3.41 | 8.16 | 5.72 | 26.80 |
| M1 | 0.61 | 0.74 | 0.67 | 0.61 | 52.72 | 36.65 | 5.18 | 2.82 | 47.28 |
| M2 | 0.83 | 0.83 | 0.83 | 0.83 | 1.38 | 60.61 | 8.26 | 26.45 | 39.39 |
| BMER | 1.85 | 1.85 | 1.98 | 3.09 | 2.22 | 1.73 | 83.19 | 4.08 | 16.81 |
| DPCB | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 | 1.28 | 1.14 | 92.89 | 7.11 |
| Contribution TO others | 11.77 | 31.74 | 17.45 | 30.82 | 22.67 | 58.94 | 35.57 | 49.60 | 258.57 |
| Contribution including own | 59.90 | 121.22 | 107.85 | 134.84 | 98.07 | 178.48 | 154.34 | 192.08 | |
| Net spillovers | -40.10 | -10.52 | -9.60 | 4.02 | -24.60 | 19.54 | 18.76 | 42.48 | **32.32** |

Note: All numbers are percentages. The diagonal values indicate self-contribution, and the off-diagonal values indicate spillover rates. The bold number (bottom right corner) is the system total connectedness.
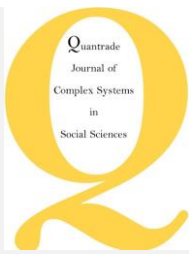
**Table 5.18** Uncertainty spillover connectedness for the 3rd component

| | GDP | GCF | Inf | Gov.debt | M1 | M2 | BMER | DPCB | FROM |
|---|---|---|---|---|---|---|---|---|---|
| GDP | 45.95 | 23.46 | 4.43 | 12.36 | 2.99 | 3.22 | 3.51 | 4.08 | 54.05 |
| GCF | 8.71 | 52.92 | 8.13 | 8.36 | 5.96 | 4.47 | 6.76 | 4.70 | 47.08 |
| Inf | 2.69 | 3.74 | 66.64 | 4.00 | 5.21 | 9.47 | 4.17 | 4.08 | 33.36 |
| Gov.debt | 3.70 | 2.19 | 1.96 | 67.55 | 6.58 | 4.16 | 8.08 | 5.77 | 32.45 |
| M1 | 1.33 | 1.54 | 1.47 | 1.33 | 50.74 | 34.62 | 5.68 | 3.29 | 49.26 |
| M2 | 1.59 | 1.59 | 1.59 | 1.85 | 3.17 | 58.73 | 8.20 | 23.28 | 41.27 |
| BMER | 2.74 | 2.74 | 3.10 | 4.89 | 3.34 | 2.74 | 75.57 | 4.89 | 24.43 |
| DPCB | 1.92 | 2.19 | 2.06 | 2.06 | 2.06 | 3.02 | 2.19 | 84.50 | 15.50 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Contribution TO others | 22.67 | 37.46 | 22.74 | 34.85 | 29.31 | 61.69 | 38.59 | 50.10 | 297.41 |
| Contribution including own | 68.62 | 127.83 | 112.12 | 137.25 | 109.36 | 182.11 | 152.75 | 184.69 | |
| Net spillovers | -31.38 | -9.62 | -10.62 | 2.40 | -19.95 | 20.42 | 14.16 | 34.60 | **37.18** |

Note: All numbers are percentages. The diagonal values indicate self-contribution, and the off-diagonal values indicate spillover rates. The bold number (bottom right corner) is the system total connectedness.

**Table 5.19** Uncertainty spillover connectedness for the 4th component

| | GDP | GCF | Inf | Gov.debt | M1 | M2 | BMER | DPCB | FROM |
|---|---|---|---|---|---|---|---|---|---|
| GDP | 43.62 | 22.70 | 5.00 | 12.20 | 3.66 | 3.84 | 4.03 | 4.94 | 56.38 |
| GCF | 11.86 | 48.31 | 8.16 | 8.16 | 6.42 | 5.01 | 6.86 | 5.22 | 51.69 |
| Inf | 3.67 | 5.12 | 61.35 | 4.78 | 5.80 | 9.73 | 4.69 | 4.86 | 38.65 |
| Gov.debt | 5.23 | 3.34 | 3.01 | 61.92 | 7.35 | 4.90 | 8.13 | 6.12 | 38.08 |
| M1 | 2.03 | 2.33 | 2.33 | 1.96 | 48.55 | 32.78 | 6.18 | 3.85 | 51.45 |
| M2 | 2.28 | 2.53 | 2.53 | 2.53 | 5.06 | 55.95 | 8.35 | 20.76 | 44.05 |
| BMER | 3.17 | 3.29 | 3.76 | 6.10 | 4.11 | 3.29 | 70.89 | 5.40 | 29.11 |
| DPCB | 2.94 | 3.20 | 3.07 | 2.94 | 3.20 | 4.54 | 2.94 | 77.17 | 22.83 |
| Contribution TO others | 31.18 | 42.50 | 27.85 | 38.68 | 35.61 | 64.08 | 41.17 | 51.16 | 332.24 |
| Contribution including own | 74.81 | 133.32 | 117.06 | 139.27 | 119.76 | 184.11 | 153.24 | 179.50 | |
| Net spillovers | -25.19 | -9.18 | -10.80 | 0.59 | -15.85 | 20.03 | 12.07 | 28.33 | **41.53** |

Note: All numbers are percentages. The diagonal values indicate self-contribution, and the off-diagonal values indicate spillover rates. The bold number (bottom right corner) is the system total connectedness.

**Table 5.20** Uncertainty spillover connectedness for the 5th component

| | GDP | GCF | Inf | Gov.debt | M1 | M2 | BMER | DPCB | FROM |
|---|---|---|---|---|---|---|---|---|---|
| GDP | 41.50 | 21.99 | 5.50 | 12.34 | 4.22 | 4.41 | 4.41 | 5.63 | 58.50 |
| GCF | 13.87 | 44.42 | 8.24 | 8.34 | 6.88 | 5.53 | 6.99 | 5.74 | 55.58 |
| Inf | 4.37 | 6.22 | 56.89 | 5.46 | 6.39 | 9.92 | 5.13 | 5.63 | 43.11 |
| Gov.debt | 6.49 | 4.22 | 4.00 | 56.86 | 7.89 | 5.62 | 8.32 | 6.59 | 43.14 |
| M1 | 2.71 | 3.01 | 3.01 | 2.63 | 46.54 | 31.13 | 6.54 | 4.44 | 53.46 |
| M2 | 2.92 | 3.16 | 3.65 | 3.16 | 6.81 | 53.04 | 8.27 | 18.98 | 46.96 |
| BMER | 3.62 | 3.73 | 4.20 | 6.88 | 4.55 | 3.73 | 67.56 | 5.72 | 32.44 |
| DPCB | 3.66 | 4.05 | 4.05 | 3.79 | 4.18 | 5.87 | 3.39 | 71.02 | 28.98 |
| Contribution TO others | 37.62 | 46.38 | 32.64 | 42.61 | 40.92 | 66.21 | 43.06 | 52.72 | 362.16 |
| Contribution including own | 79.12 | 137.18 | 122.17 | 142.08 | 128.38 | 185.47 | 153.67 | 176.46 | |
| Net spillovers | -20.88 | -9.20 | -10.47 | -0.53 | -12.54 | 19.25 | 10.62 | 23.74 | **45.27** |

Note: All numbers are percentages. The diagonal values indicate self-contribution, and the off-diagonal values indicate spillover rates. The bold number (bottom right corner) is the system total connectedness.
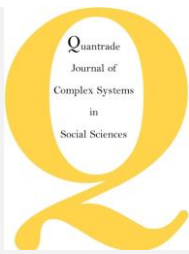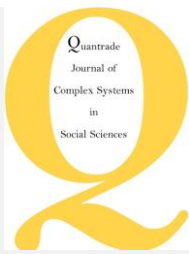
**Table 5.21** Total Connectedness Index

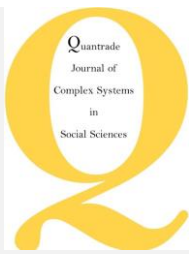| Component | Value |
|-----------|-------|
| 1 | 27.86 |
| 2 | 32.32 |
| 3 | 37.18 |
| 4 | 41.53 |
| 5 | 45.27 |

## 6. Conclusions

In this research, the spillovers existence in the Libyan economy was investigated using a Bayesian Vector Autoregressive model. To achieve the chapter purpose, D-Y index of Diebold & Yilmaz (2012) was followed to figure out the system interconnectedness of the Libyan economy. The empirical findings suggest the uncertainty spillovers between the variables seem to be a significant emphasizing transmission direction, and this finding corporates with Antonakakis et al., (2018) and Biljanovska et al. (2017). Moreover, the dynamic connectedness calculation reveals that the system total connectedness increases over time, reaching up to 45% for the fifth component. In addition, the transmission direction implies the importance of M2, domestic private credit by banks and unofficial exchange rate, respectively.

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# Homesickness: It's Essence and Ramifications [1]

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**Abstract**

When a person finds themselves in a solitary state within an unfamiliar setting, there is an increased probability of them encountering the emotional state known as "Homesickness". When an immigrant or an employee from a different country goes through the process of adapting to a new job or location, they will face various distinctive challenges. This article aims to scrutinize and assess the most significant written works on the subject of homesickness, using a systematic and critical approach. The results show that homesickness is a complex and multifaceted phenomenon that affects different groups of people in different ways, and that it has significant implications for their well-being, performance, and integration. The article also discusses some of the limitations and gaps in the existing literature, and suggests some directions for future research and practice.

**Keywords** Individual, Alone, New environment, Psychological sensation, Homesickness, Immigrant, Employee, Nation, Unique problems.

## 1. Introduction

Homesickness is a psychological response that occurs when a person is confronted with a new situation and is alone(Basuki & Riani, 2018). It can be triggered by moving away from home or by experiencing social alienation in a new environment. Homesickness has been linked to various adjustment problems, health issues, and clinical disorders (Stroebe et al., 2015).  The concept of homesickness has evolved over time, and it has been related to other phenomena such as culture shock, which refers to the anxiety and stress caused by coming into contact with a new culture (Lei et al., 2004). Many studies have explored the factors that contribute to homesickness and the strategies that help to cope with its negative consequences (Hack-Polay, 2012). Some scholars have come to create the phrase culture shock to describe the worry and tension caused by coming into touch with a new culture, as well as the following emotions of loss and confusion. Since Oberg's first finding, a whole area of study has sprung up around cross-cultural encounters(Lei et al., 2004). In some other literatures, homesickness was defined as "a negative emotional condition marked by craving for and concern with home, and frequently with problems adapting to a new location, mainly owing to separation from home and attachment persons." (Nauta et al., 2020).

In today's culture, large-scale migration emphasizes the need of understanding the complicated experience of leaving home and moving inside or beyond one's own nation. Discrete kinds of stresses linked with geographic changes need distinct consideration since they are likely to be associated with different (but mutually aggravating) correlates and effects, perhaps leading to diagnosis. Homesickness (HS) is a common symptom of relocation, and it's been linked to a variety of adjustment issues, health issues, and clinical illnesses(Stroebe et al., 2015).

The goal of this study is to have a better theoretical understanding of homesickness, how the concept has born throughout time,   reasons behind it and the strategies that help to cope with its consequences and negative feelings.
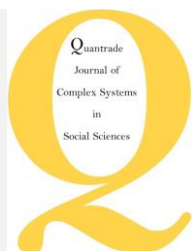
The process of conducting this existing research may offer some guidance and help with addressing the aforementioned problems from a theoretical perspective. The most significant literature on the subject of homesickness will be examined and discussed in this study. We shall research the effects of home sickness. This essay doesn't have a specific group in mind since it seeks to evaluate homesickness in the context of the aforementioned perspectives..

## 2. The origins of the concept and its evolution process

Homesickness is an illness that affects young people and old people alike who are socially isolated in other lands and can be debilitating or even lead to death. A dissertation on the subject, published in Basel in 1678 and written by physician

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Johannes Hofer was the first time that the word "nostalgia" appeared in the medical literature. The absence of refined Swiss air among Swiss soldiers stationed in France was thought to be the cause of nostalgic feelings(Rosen, 1975).

In a study performed by Baier & Welch,1992,  the concept of homesickness is examined, which follows the paradigm for concept analysis given by Chinn and Jacobs. Concept analysis is a procedure that is used to get a deeper understanding of a concept that has been discovered first via clinical practice. It is the purpose of this concept analysis to clarify and explain the idea of homesickness, and to differentiate it from other concepts such as separation anxiety, school phobia, translocation syndrome, and the consequences of relocation. The thorough definition of homesickness and the absence of homesickness has resulted in the development of criteria that may be used to other cases with comparable features to ensure that they are properly classified. In addition, research questions and nursing interventions are generated as a result of the literature evaluation and selection criteria. As a result, a study of the literature on home sickness and associated topics such as separation anxiety, school phobia, relocation consequences, and translocation syndrome has led to a thorough definition of home sickness and a concept was born

(Baier & Welch, 1992).

Furthermore, van Tilburg et al.,1999, concluded in their research that homesickness is a longing for the mentality and atmosphere of one's home environment. A distinction can be drawn between homesick subjects who exhibit signs of psychopathology, such as compulsive checking of the house, agoraphobia, adverse attachment experiences, separation anxiety, and homesickness experiences as a child, and those who do not exhibit such signs. There seems to be a more pathological type of homesickness, which appears to be linked to anxiety disorders such as agoraphobia and obsessive checking as well as poor attachment experiences and separation anxiety in childhood. This may be a form of separation anxiety characterized by an insecure or anxious attachment style.(M. A. L. van Tilburg et al., 1999).

Moreover, Stockdale's research, 2004, examines the community impacts and migrant experiences associated with present rural out-migration processes in order to link them to the future well-being of rural communities. The recent Countryside March 1 demonstrated the level of dissatisfaction and fury associated with the future of rural areas. An "endogenous or bottom-up" approach to rural development has existed for some time. Out-migration has been hidden as a research topic due to the counter-urbanization trend, which has been virtually prominent in the literature as an explanation for rural development. The purpose of this essay is to rectify this imbalance by explaining current out-migrations patterns and their consequences for current rural development initiatives(Stockdale, 2004).

According to Ferrara, 2020, homesickness is a term that encompasses an extensive range of individual thoughts, feelings, and attitudes, with a primary focus on the former home and family. Ferrara, (2020), states that Fisher and colleagues (1985) concluded after conducting a study that homesickness was a phenomenon. This research led to the discovery that some of the literature review had contradictory results (Fisher et al., 1985; Fisher & Hood 1987).

Morse & Mudgett, 2017, have carried out a study of migration, and concluded that historical investigations of homesickness tend to be centered on the longing for family and familiar constructed settings. This mixed-methods study examines the environmental nostalgia experienced by rural out-migrants in their new surroundings. From the eighteenth century to the present, Vermonters who have left the state have repeatedly voiced a desire for the natural environment. The study proposes that we broaden our conceptions of home to encompass the natural world as well. This mixed-methods study, performed by a geographer and a historian, examines the environmental nostalgia experienced by rural out-migrants in their new surroundings(Morse & Mudgett, 2017).

The study is indicating that out-migrants are the exact elements needed for rural communities to engage in rural development. In Scotland, a strategy to keep young people in rural areas is being implemented in an effort to maintain human resources. Out-migration enables a person to gain the information, skills, independence and drive to achieve that are essential for success. Exogenous or "top down" methods are required to attract the necessary human resources to depopulating regions. For rational expectations, migratory workers must return home(Morse & Mudgett, 2017).

According to the results of the survey, immigrants have a strong desire to go back to their countries of origin. Nearly everyone, at some time in their life, may experience feelings of homesickness and longing for the company of family and friends as it is simply our human nature..

## 3.  Understanding homesickness

Understanding the meaning of homesickness is extremely important because of the vast range of negative effects it has on people's lives. The idea of homesickness is not new, and numerous research have been prepared to determine how it really affects people's social and psychological well-being.

Thurber & Walton, 2007, have indicated that homesickness has been mentioned in the Old Testament as far back as the book of Exodus and Homer's Odyssey. Hippocrates (460–377 BC) was a Greek physician who believed that homesickness was caused by an excess of black bile in the blood. The Swiss physician Johannes Hofer (1688) argued that
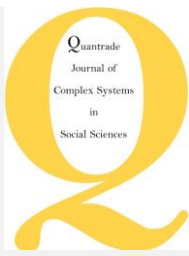
leaving home is a developmental milestone that everyone goes through at some point in their lives.(Thurber & Walton, 2007).

The researchers who carried out this study assert clearly that the causes for homesickness have been uncovered and are prepared to share their results with the general public. Not only so, but in addition to that, they argue that the repercussions of this occurrence may be prevented and dealt with in the event that they do occur in the future.

Scharp et al.,2016, stated in their study that even if it's in the distant past, most people feel homesick at some point in their lives. People who are feeling homesick remember events (100%), relatives (97%) emotions (100%) and locations (97%). While the majority of participants said that they did not reach out to their family and friends while they were homesick, it was found that they sought assistance both via personal means and through others. Directions for future research and practical applications are covered (Scharp et al., 2016). For many Americans, home is a source of comfort and serenity. No one knows what homesick people truly miss. Some U.S. research offers insight into the phenomena of home sickness in the United States. Findings show that daily dialogue creates home and gives it significance

## 4.  Theories to explain homesickness

Watt & Badger,2009, indicated that according to belongingness theory, individuals have an innate need for a limited number of long-term interpersonal relationships. When people move, they leave their existing social networks and the authors propose that this may be a cause of homesickness. A further finding is that Individuals who felt accepted in their community had a decreased sense of homeliness. This has nothing to do with a significant number of friends, but shows a vital link between societal views and adaptability. Study: Homesickness is linked to the need to belong and acceptability in a new place.

Findings did not support the notion of substitution. Future study should examine the role of social ties in homesickness. This research emphasizes the value of belongingness. It also offers information relevant to belongingness theory..

## 5.  Reasons for traveling abroad and why people leave home

According to Celik,2017, teaching in a foreign country has always provided an excellent chance for academic and social growth. Working abroad provides instructors with the opportunity to see how teachers in different nations conduct themselves in the classroom. Teachers can gain knowledge of classroom management techniques, developing lesson materials and incorporating technology into lessons. At the same time, students will broaden their understanding of the subject topic(Celik, 2017).

While working overseas, it is feasible to observe teachers. The benefits of teaching abroad are the primary emphasis of this study. As a result of the subject matter's high level of specialized nature, a customized search is required to find relevant information. Little consideration is given to the drawbacks of Arab instructors teaching in Arab schools in Turkey.

Sahito & Vaisanen,2019, Legault et al. (2006) have claimed that in order to better understand the variables that motivate teacher educators in the Departments of Education at universities in Pakistan's Sindh region, a research study was carried out. The data was gathered and analyzed using the story analysis method, which was used as part of the qualitative study design. According to the findings of the article, the existing literature on motivation would be a suitable and reliable addition to the available literature. (Daniels & Araposthathis, 2005).
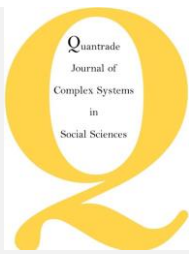
According to Toraman et al.,2020, Turkish instructors taught Turkish and Turkish culture to Turkish students in Germany and France. Researchers have detailed that Turkish instructors attempt to work in other countries for a number of reasons, with varying levels of success. The study's findings revealed that there was a specific driving factor that encouraged instructors to teach overseas. This driving energy manifested itself as a feeling of wonder and pride at having been selected to teach in another country.

Serbes,2017, has argued that teaching English in a foreign country has always been a fantastic opportunity for both academic and social growth. His article focuses on five reasons dealing with the issue why instructors choose to teach abroad rather than in their own country. It is critical to emphasize that instructors with foreign experience are more effective teachers who can make a greater contribution to the academic performance of their pupils. Teaching in a foreign country may assist instructors in developing their efficiency and effectiveness abilities. (Serbes, 2017).

Teaching overseas helps teachers socially and professionally. The research concludes that instructors need certain talents. Education is critical for future generations' progress. Teaching overseas may be beneficial.

## 6.  Negative influences of homesickness

Niziurski & Berntsen,2018, determined that homesickness has been demonstrated to have a negative influence on a person's physical, social, and cognitive well-being, according to research. To create predictions, the authors used

personality, depression, and autobiographical memory measurements that were all gathered prior to deployment. The study's prospective approach and utilization of a military sample set it apart from past studies.(Niziurski & Berntsen, 2018).

Furthermore, this research discovered that some major groups in society, such as teachers in other countries, must be researched in order to disclose the influence of homesickness on individuals, as was the case in our study, in order to better understand the phenomena of homesickness.

According to Sumalinog,2021, This research looks at the experiences of 10 Filipino ESL and EFL teachers who live and work in different parts of the globe. Skype and Facebook Messenger are used to gather virtual data. According to the study, time spent in a foreign nation benefited teachers' professional life by strengthening their abilities. It was determined that before a teacher chose to go overseas, they all agreed that internal and external assistance should be available to ensure that working away from home could be tolerated. Researchers may delve deeply into the cultural interactions that informants have with their students and colleagues.(Sumalinog, 2021).

According to this study, there are two primary reasons for visiting abroad: First, there are monetary issues. Personal motivations are a further source of worry. This study investigates the reasons why foreign instructors seek jobs in other nations.

## 7. Factors that might affect homesickness

Nijhof & Engels, 2008, Students raised by authoritative or permissive parents are less likely to experience feelings of homesickness than students raised by permissive or uninvolved parents. Students with parents who advocated an authoritarian parenting style had more internalizing and externalization difficulties in response to feeling homesick; they also used less efficient coping mechanisms. The findings showed that a caring and welcoming home environment is critical for the development and expression of homesickness's(Nijhof & Engels, 2008).

In general, being able to recognize homesickness in students early on is crucial, as is not dismissing students who show their sadness by externalizing their problems.

The relevance of parents' responsiveness while raising children, for the development of homesickness, and for the way students cope with their issues, is highlighted by the mix of parenting styles that result in the expression of homesickness and the development of coping methods.

Eurelings-Bontekoe et al.,1994, have indicated that their research focuses on the personality traits and behavioral features of military solders who are missing their families. In thier study, the participants were divided into two groups: healthy volunteers and recruits suffering from various mental disorders. Despite the fact that the two uncontrolled groups have many characteristics in common with the healthy group, homesick subjects exhibit some distinct characteristics that are either not observed in the psychiatric control group. (Eurelings-Bontekoe et al., 1994).

Current study surveyed soldiers with severe homesickness to better understand their personality and behavioral antecedents. The research also identifies behavioral and psychological aspects that increase homesickness. This research revealed behavioral and psychological aspects that may increase homesickness.
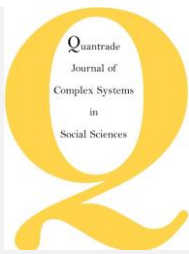
Meeks, 1968, when children are admitted to residential treatment, they may feel severe homesickness. This disease seems to be linked to separation issues and an inability to develop internal self-esteem management. It is also essential to examine the ramifications of object loss, as well as efforts to recover the item. The triggering factors, including as home visits, staff rejection, and narcissistic traumas that occur both within and outside of therapy, are well addressed. We explain and show, using a case study, how the suggested techniques for active engagement with the child and his family may be utilized successfully(Meeks, 1968).

In order to produce healthy children, this research suggests that parents should monitor their children's development (1968). This sickness is caused by a lack of belief in one's own worth. Spending time with their family and learning to have a positive self-image may be advantageous for children (Meeks, 1968).

## 8. Dealing with Homesickness

Zulkarnain et al.,2019, maintained that students' perspective of a stressor may be changed by social support from peers in their new surroundings. Boys and girls may feel homesickness in a variety of situations, such as camp or boarding school, depending on their age. Students benefit from social assistance because it helps them adjust more quickly and make their experiences in unfamiliar settings more pleasant. According to the findings of this research, children with an authoritative parenting style are more likely to cope with difficult situations during the transition from home to college life. A good attitude at boarding schools may be fostered via activities or hobbies that foster interaction with others in the surrounding area of the boarding school(Zulkarnain et al., 2019).

The findings of this research suggest that significant progress has been made in understanding the reasons and circumstances that contribute to homesickness; nevertheless, the research does not explain how those factors may impact workers who are employed in other countries.

Saravanan et al.,2017, specified that students who study in foreign nations for their higher education experience a variety of psychological difficulties, including homesickness and depression. This study sought to identify differences between students who received and did not receive brief individual cognitive behavioral therapy (CBT) for depression. The goal of the study was to determine whether brief individual CBT for depression reduces the level of homesickness(Saravanan et al., 2017).

The majority of foreign students are hesitant to seek help from mental health experts because of mental health fears and social stigma. 27.3 percent of the foreign students who were depressed were also suffering from homesickness. The researchers came to the conclusion that short cognitive behavioral therapy (CBT) for depression is helpful. Mental health practitioners should use CBT as it is manual-based and helpful in the treatment of depression and depression symptoms.(Saravanan et al., 2017).

This study is a noteworthy addition to the field since it demonstrates the progress that has been done in the studies of homesickness and its effects on particular venerable groups, such as students. Despite the fact that the scope of this study has been expanded to include strategies for dealing with the real-world ramifications of this theoretical notion, it has remained concentrated on the theoretical concept itself.

Furthermore, unlike in our research, there is no proof of professors who really teach in other countries, which is an issue that must be addressed.

Hendrickson et al., 2011, stated that in this study, students from the host country and other nations become friends with foreign students. More host country friends have been linked to higher levels of social connectedness and pleasure. Less than half of foreign students polled said they were content with their lives. In contrast to previous studies, foreign students had less native contacts. (Hendrickson et al., 2011).

This study contributes to the field of research on cross-cultural adaptation by examining how foreign students utilize social resources while studying abroad. It uses a novel, comprehensive technique for evaluating individual buddy networks and network theory concepts to explain observed occurrences. Most significantly, this study's results show the value of having both strong and weak ties with locals in one's social network(Hendrickson et al., 2011). This research, which contributes to the existing body of information on cross-cultural adaptation, explores the ways in which foreign students make use of financial help while they are studying abroad. Again, this research reveals tremendous advancement in the study of the concept of homesickness; yet, a vacuum still exists in all of these literatures, and that vacuum is the study of the influence that homesickness has on the work flow of foreign workers.

M. Al Van Tilburg et al., 1999, Researchers have carried out a research on female students of coping strategies and essential personality types. The selection of homesick female students split in those who were homesick chronically and those who had not, to examine if certain coping methods and personality types were related with homesickness chronicity. Analyzes of logistic regression showed that Coping Style, mental flight and the personality attribute of neuroticism forecasts the chronicity of home disease. Since neuroticism has a greater influence on the quick recovery of household disease than any coping technique, personality is more important than coping style(M. Al Van Tilburg et al., 1999). The conclusion reached by the researchers' shows that the major objective of the study was to investigate the possibility of treating homesickness via a variety of different ways.
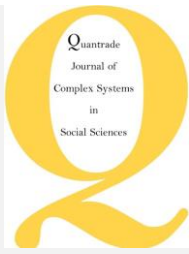
## 9. Ways to cope with the negative emotions

According to Kaur et al.,2021, Pre-service teachers (PST) benefit professionally and personally by participating in an International Teaching Practicum (ITP). Challenges encountered during ITPs can act as stresses, obstructing PSTs' learning and harming their emotional and psychological well-being, which may affect their identity as future teachers. In this research, we looked into the experiences of 12 PSTs during their foreign teaching practicum(Kaur et al., 2021).

The phenomena studied in this research was PSTs' support system experiences during ITP.  The majority of the data was associated with emotional experiences, and categorizing a few of them proved to be a tough job. Four main themes emerged from the data analysis, each of which had numerous sub themes. "His presence (the supervisor) lifted my mood like a caffeine kick early in the morning," has a connotation of positive emotional well-being as well as a motivational appeal to continue with zeal and enthusiasm with the practicum requirement(Kaur et al., 2021).

## 10. Dealing with homesickness academically

As per Archer et al., 1998, Fisher Hood and his co-authors examined the association between the scale's component structure and happiness, as well as whether the person left their spouse at home. The results for the comparison of homesick and non-homesick groups on the MHQ scales and the CFQ corroborated past findings, and the meta-analysis of current and previous data showed that all five measures were significantly higher among homesick students. Data from three samples were analyzed by examining the scale's factor structure, comparing each item in groups based on their scores on Fisher Hood's single-item measure of homesickness, and calculating correlations between the 33-item questionnaire's total scores and Fisher Hood's single-item measure (1987, 1988). A single-item homesickness scale
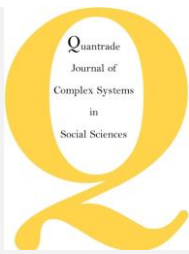
correlates well with the CFQ and MHQ. Correlations varied from.62 for depression to.89 for obsessional symptoms. Every loss must be evaluated against prospective advantages.

## Conclusion

Several articles and books on the topic of "Homesickness" have been mentioned during the course of this study. The academic works covered in these articles all dealt with "Homesickness" in various ways. Numerous publications have addressed the conceptual side of it, and this was in the very beginning, when the idea initially emerged and began to be acknowledged.
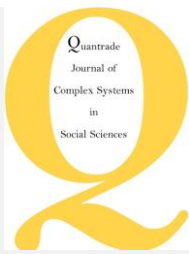
Other study has addressed the nature and realism of this idea, as well as the issue of whether it is a physiological or physical entity. Other articles have elaborated on the elements that might be responsible for this sentiment. Others have investigated the potentially harmful repercussions of such emotions, as well as the variables that create an environment in which they may appear and become prominent. Significant study has been conducted on the topic of "Homesickness," and these findings have been published. Some experts have focused their attention on the phenomenon known as "Homesickness," which affects youngsters when they are in unfamiliar environments like a nursery or school. The consequences of "Homesickness" on students is a topic that has been researched by a number of other academics. In conclusion, the literature review came to the conclusion that this body of material is missing in the area of the affects that "Homesickness" has on the flow of work.

As a direct consequence of this, the investigation into the impact of "Homesickness" on the daily operations of Arab schools in Ankara is a new subject that has to be discussed.

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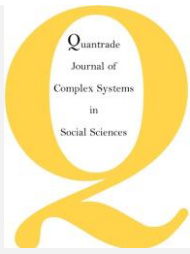
# Davranışsal Finansta Anomaliler: Yatırımcı Kararları ve Borsa İstanbul'da Bir Uygulama[1]

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**Özet**

Geleneksel finans yaklaşımı, yatırımcıların rasyonel olduğu modelleri kullanarak finansal piyasaları anlamaya çalışır. Ama gerçekte insanlar yatırım yaparken irrasyonel davranma eğilimindedirler. Yapılan çalışmalar insanların karar verirken öngörülemeyen sonuçlardan dolayı belirsizlik ile karşılaştıklarında benzer şekilde irrasyonellik, tutarsızlık ve yetersizlik gösterdiğini ortaya koymuştur. Davranışsal finans, bu tür rasyonel olmayan insan davranışlarının nedenlerini bulmaya, duyguların ve bilişsel dinamiklerin yatırımcıları nasıl etkilediğini daha iyi anlamaya ve açıklamaya çalışır ve psikolojik yönlerine odaklanır. Ayrıca psikoloji ve diğer sosyal bilimlerin yardımıyla davranışsal finans birçok finansal piyasa anomalisini, piyasa balonlarını ve finansal krizleri açıklama üzerine bir ışık tutabilir. Bu makalede davranışsal finansın anlam ve önemi ile yatırım kararlarına olan etkisi Borsa İstanbul'da alım-satım yapan yatırımcılar özelinde incelenecektir. Araştırmanın yöntemi olarak 5'li Likert ölçeğine göre hazırlanmış ve güvenilirlik testinden geçmiş anket uygulanmıştır. Bu çalışmanın amacı yatırımcıların psikolojik ve sosyolojik faktörlerden ne kadar etkilendiğini ve bu etkiler sonucunda yatırımlarını nasıl şekillendirdiğini araştırmaktır.

**Anahtar Kelimeler:** Davranışsal Finans, Yatırımcı Kararı, Finansal Anomali.

# Anomalies in Behavioral Finance: Investor Decisions and an Application in Borsa Istanbul

**Abstract**

The traditional financial approach seeks to understand financial markets by using models where investors are rational. But in reality, people tend to be irrational when investing. Studies have shown that people show similar irrationality, inconsistency and inadequacy when they encounter uncertainty due to unpredictable results when making decisions. Behavioral finance seeks to find the causes of such non-rational human behavior, to better understand and explain how emotions and cognitive dynamics affect investors, and to focus on their psychological aspects. In addition, behavioral finance with the help of psychology and other social sciences can shed a significant light on explaining many financial market anomalies, market bubbles and financial crises. In this article, the meaning and importance of behavioral finance and its impact on investment decisions will be examined specially for investors trading on Istanbul Stock Exchange. As the method of the study the questionnaire which was prepared according to 5-point Likert scale and passed the reliability test was applied. The aim of this study is to investigate how investors are affected by psychological and sociological factors and how they shape their investments as a result of these effects.
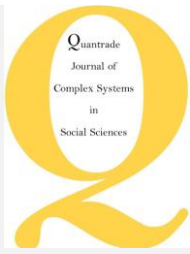
Keywords: Behavioral Finance, Investor Decision, Financial Anomaly.

## 1. Giriş

Geleneksel finansa göre finans teorileri ve modelleri yatırımcıların rasyonel davrandıklarını ve karar alma sürecinde tüm bilgileri dikkate aldıklarını belirtmektedir. Klasik ve neo-klasik iktisadi insan modeli olan "Homo economicus" karar ve davranışlarında fayda ve kar maksimizasyonu hedef alan rasyonel insanı tanımlamaktadır. Ayrıca 1960'lı yıllarda Fama tarafından ortaya konan, Etkin Piyasa Hipotezine (EPH) göre de yatırımcılar finansal karar alma sürecinde tüm bilgileri analiz edip göz önünde bulundurarak rasyonel davranmaktadırlar. Fakat gerçekte yatırımcıların rasyonel davranmadıkları, finansal teorilerin çoğu zaman

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piyasalara uymadığı ve anomaliler yaşandığı ortaya çıkmıştır. Bu durum finansal kararları, varlık fiyatlarını ve piyasaları etkilemektedir. Geleneksel finans teorileri bu anomalileri açıklamakta zorlanmaktadır ve eksik kalmaktadır. Zihinsel muhasebe (Kendirli ve Cihangir, 2023), davranışsal iktisat, sosyo-fizik, davranışsal finans kavramları yatırımcıların rasyonel değil normal kabul edilmesi gerektiğini belirterek bu boşluğu doldurma çabasındadır.

İnsanlar verdikleri kararlarda, bilişsel önyargılar, inanç, aşırı güven ve geçmiş tecrübelere olduğundan fazla değer vermek gibi durumlar nedeniyle sistematik hatalar yapabilmektedirler. Davranışsal finans yatırımcıların karar verme süreçlerindeki belirli bilişsel hataların ve önyargıların nasıl karar mekanizmalarını etkilediğini anlamaya ve açıklamaya çalışmaktadır. Karar verme sürecindeki bu irrasyonel davranışlar, geleneksel finans paradigmasına meydan okuyan çeşitli piyasa anormalliklerine yol açmaktadır. Yaşanılan COVİD 19 pandemisinin de insan ihtiyaçlarını değiştirdiği varsayımı altında (Ulusoy ve Civek, 2020) hiyararşik ihtiyaçların değişmesi ile insanın piyasa değişkenlerine verdiği tepkiler hatta yatırım stratejilerin değiştirmesi normal kabul edilmektedir. Davranışsal finans geleneksel finans modellerinin göz ardı ettiği bireyin kararlarındaki duygusal durumun önemini vurgulamıştır. Bu duygusal durumun ise bireylerin yatırım kararlarına yansırken yatırım kararlarında birden fazla faktörün etkili olduğunu yapılan ampirik çalışmalar ile ispatlanmıştır (Ulusoy ve Civek,2021; Ormancı vd., 2022)
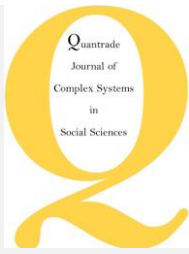
EPH'ne göre piyasalar rasyoneldir ve hisse senedi fiyatları mevcut tüm bilgileri tam yansıtmaktadır. Gerçekte yatırımcılar kaybeden hisse senetlerini erken satıp aşırı reaksiyon göstererek ya da tersine kazanan hisse senetlerine yetersiz reaksiyon göstererek aceleci ve irrasyonel davranabilmektedir. Bu tür yatırımcı davranışları hisse senedi fiyatlarının rasyonel piyasa değerlerinden farklı değerlere sapmasına neden olmaktadır. Bu tür sapmalar anomali olarak tanımlanır. Finansal piyasalarda anormallikler, bir menkul kıymetin veya menkul kıymet grubunun etkin piyasalar kavramına aykırı hareket ettiği durumlardır. Anomaliler teknik, temel veya takvim ile ilgili olabilir.

## 2.  Kavramsal Çerçeve

1950'lerde doğmuş olan "Davranışsal Ekonomi", 1970'lere kadar giderek gelişmiştir. Daha sonra Slovic'in (1980) çalışmaları ile daha kapsamlı bir hale gelmiştir. Davranışları olması gerektiği gibi değil, gerçekte olduğu gibi açıklayarak davranışsal yaklaşım neoklasik yaklaşıma göre daha tamamlayıcı ve açıklayıcı olmaktadır. 1970'lerde gerçekleşen çalışmalar sadece insan kararlarının sonuçlarına odaklanmakla kalmadı, aynı zamanda bu kararları oluşturan sürece de odaklandı (Etbiga,2023). 1978'de Kahneman ve Tversky, davranışsal finansmanın ilk kuramsal temeli olarak kabul edilen "Beklenti Teorisini" geliştirdiler. (Schinckus, 2011:12)

Beklenti Teorisine göre insanlar risk ya da belirsizlik gösteren fırsatları onlardan beklenen faydaları karşılaştırarak rasyonel olarak seçim yaparlar. Kahneman ve Tversky'ye göre ise risk altında yatırımcılar karar verirken kesin kazançları içeren seçimlerde riskten kaçınmaya ve kesin kayıpları içeren seçimlerde risk arayışında bulunma eğilimindedirler. Bu eğilime kesinlik etkisi denir. Ayrıca insanlar genel olarak tüm beklentiler tarafından paylaşılan bileşenleri göz ardı ederler. İzolasyon etkisi olarak tarif edilen bu eğilim, aynı seçim farklı biçimlerde sunulduğunda tutarsız tercihlere yol açar. Risk altında verilen kararlar beklenen fayda teorisinin temel ilkeleri ile ilgili tutarsızlık göstermektedir. (Kahneman ve Tversky, 1979:263)

Davranışsal önyargılar, "bilişsel önyargılar ve duygusal önyargılar" olmak üzere iki ana gruba kategorize edilebilir. Bilişsel önyargılar hatalı akıl yürütmeden meydana gelir; daha iyi bilgi ve tavsiye alımıyla genelde düzeltilebilir. Pişmanlık ve kayıptan kaçınma gibi duygusal önyargılar ise bilinçli akıl yürütmeden ziyade

dürtüsel duygular ya da sezgilerden kaynaklanır ve düzeltilmesi neredeyse mümkün değildir. Duygusal önyargılar söz konusu olduğunda yukarı da bahsedildiği gibi insanlar kazançlar söz konusu olduğunda riskten kaçınmakta fakat kayıpları içeren seçimler söz konusu olduğunda risk arayışında bulunmaktadırlar. Yatırımcılar kayıplara kazançlardan daha çok risk hassasiyeti göstermektedirler. Ayrıca yatırımcılar varlıklarını nihai zenginlik ile değil, kazanç ve kayıplara göre değerlendirirler. Son olarak yatırımcılar karar verirken düşük olasılıkları gereğinden çok önemserken, yüksek olasılıklara da az değer biçebilmektedirler. Dayı ve Çetin (2021) elde ettikleri bulgularda sorumluluk kişilik özelliğinin finansal tutum üzerinde anlamlı ve pozitif bir etkisi olduğunu göstermektedir.

Piyasa duyarlılığı da yatırımcıların kararlarını ve davranışlarını etkiler ve ekstra bir risk kaynağı oluşturur. Yatırımcılar belirli bir finansal varlığın risk düzeyinde bir değişiklik olmamasına karşın daha çok risk arayan ya da daha çok risk karşıtı olabilmektedirler. Ekonomik riskler değişmediği sürece yatırımcıların risk alma isteği arttığında aldıkları bu ekstra risk için daha çok karşılık almak isteyeceklerdir. Yatırımcılardaki bu risk duyarlılığı piyasalardaki olumsuz hareketlerle birlikte diğer piyasaları da etkisi altına alarak bir yayılma etkisi yapar. Bir ülkede meydana gelen bir kriz olayı, yatırımcıların genel risk alma duyarlılığını gözden geçirmelerine ve bu bölgedeki durumu yeniden değerlendirmelerine neden olabilir. Bu durum, varlık değerlerinde daha fazla düşüşe yol açacak ve krizi daha da büyütecektir. Kriz dönemlerinde yatırımcı duyarlılığında meydana gelen bu değişim finansal krizlerin hızla büyüyerek yayılmasına ve finansal istikrarsızlığın gelişmesine neden olmaktadır. (Bandopadhyaya ve Truong, 2010:5-6)
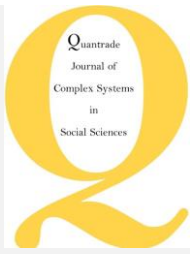
Yatırım kararları genellikle uzun süreli etkilere sahiptir. Bunda sistematik  riskin önemi büyüktür (Ulusoy,2008). Bir yatırım kararı çoğu zaman yönetimin birkaç yıldan fazla süren bir eylem planına tabi olmasına neden olur ve kararda yapılan hatalar yüksek maliyetlere ve zaman kaybına yol açar. Yanlış verilen bir yatırım kararı firmayı iflasa bile sürükleyebilir. (Hespos ve Strassmann, 1965:244)

Yatırım özünde, gelecekte elde edilecek fayda için günümüzde yapılan bir fedakarlıktır. Mevcut zaman nispeten iyi biliniyor olsa da gelecek, her zaman bir belirsizliktir. Bundan dolayı yatırım, belirsiz fayda için yapılan belirli bir fedakârlıktır. (Hirshleifer, 1965:509)

Yatırım orta veya uzun vadede bir kaynak tahsisi olup, beklenen etki yatırım maliyetlerini geri kazanmak ve yüksek bir piyasa değeri ve kar elde etmektir. Ekonomik ve finansal çevredeki dinamikler yatırımları etkiler, bu yüzden beklenen sonuçlar belirsizdir. Yatırım kararları, yatırım projesinin tam bir analizi yapıldıktan sonra yapılır. Kararı etkileyen temel faktörlerden biri yatırımın risk faktörüdür. Bu risk, yatırımın maliyetinin geri kazanılacağı ve kar elde edileceği kesin olmadığı için vardır. (Virlics, 2013:170)

Yatırım kararları riskin doğru bir şekilde analiz edilmesini gerektirir. Risk altında karar alma konusuna Markowitz'in 1950'lerde yayınladığı çalışmaya göre yatırımcı portföyünü seçerken, yapacağı yatırımları gelecekteki getirilerinin bugüne indirgenmiş değerini maksimum düzeye çıkartmaya çalışır. Bu modele göre yatırımcının risk karşısındaki davranışı, riskten kaçınma yönündedir ve yatırımcılar rasyonel karar alırlar. Ayrıca bütün yatırımcılar aynı karar ufkuna sahiptir. Markowitz'in modeli daha sonra genişletilerek modern portföy teorisi adını almıştır. Teoriye göre portföy çeşitlendirmesi yapılırken, portföy riski ile korelasyon katsayısı arasında doğrusal bir ilişki olduğu için korelasyon katsayıları dikkate alınmaktadır. (Aksoy ve Şahin, 2009:6-7)

Geleneksel finans teorileri, yatırımcıların kayıplarını sınırlarken kazançlarını en üst düzeye çıkarmak için risk ve getiri faktörlerini dikkatlice düşündükten sonra rasyonel yatırım kararları aldıklarını göstermektedir. Budhiraja vd. (2018)'e göre geleneksel finans teorisi, insanların rasyonel olduğunu ve ekonomik modellerin

verimli ve yalıtılmış çalıştığını varsayar. Gerçekte yatırımcılar yatırım kararları alırken büyük ölçüde psikolojik ve duygusal faktörlerden etkilenmektedir.

Davranışsal finans, yatırım kararlarının psikolojik ve duygusal faktörlerden büyük ölçüde etkilendiğini gösteren bir çalışma alanıdır. İnsan zihni her zaman rasyonel düşünmez ve piyasalar da her zaman etkin bir performans sergilemez. Açgözlülük ve korku gibi psikolojik faktörler, zihinsel kısa yollar ve önyargılar gibi davranışsal hatalar insanların yatırım kararlarını etkileyebilir. Sosyal medyanın büyük yığınları etkilediği hatta olumsuz politik sonuçlara yer açtığı bir dünyada kişinin sosyal medya aracılığı ile etkilenmesi oldukça kolay oluştur (Kıraç,2020). Finansal piyasalardaki anomaliler çoğu zaman yatırımcılardaki çeşitli önyargılardan kaynaklanmaktadır. Bu önyargılar, sınırsız bilgi işlemek için zaman ve zihinsel kapasite üzerindeki kısıtlamalar nedeniyle insanların zihinsel kısa yollara başvurma eğilimine bağlanabilir. Khresna vd. (2012) hisse senedi fiyatı anormalliklerinin ve finansal karar vermenin psikolojik faktörlerden etkilendiğini yineler. Yatırımcıların rasyonellikten uzaklaşarak gösterdiği davranışlar bilişsel önyargı olarak tanımlanmaktadır. Bilişsel önyargılar yatırımcıların karar verme sürecinde sistematik ve irrasyonel eğilimler göstermesine neden olur. İnsan davranışlarını ve karar verme süreçlerini anlama yolunda psikologlar tarafından birçok bilişsel önyargı ve kestirimler tesis edilmiştir:
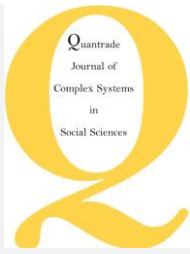
Aşırı güven, insanların sahip olduğu bilgilere olduğundan daha fazla güven duyma ve davranışlarını o yönde değiştirme eğilimi olarak tanımlanabilir. Yatırımcılar arasında en sık gözlenen psikolojik önyargılardan biridir. İnsanları kendi bilgilerini fazla değerlendirmeye, riskleri gözden kaçırmaya ve kontrol edilemeyen olaylar üzerindeki etkilerini abartmalarına neden olur. Özellikle kendi performanslarını akranlarına göre değerlendirirken, çoğu yatırımcı kendini ortalamanın üstünde görür. Risk sever yatırımcılar geçmiş başarıyı yeteneklerine ve başarısızlığı da kötü şansa bağlar ve yüksek getiri elde etmek için algılanan üstün yeteneğini kullanma eğilimindedir. Bu nedenle, yatırımcılar sık sık işlem yaparak aktif hisse senedi yatırımlarının risklerini küçümserler. Üstün bilgi ve ticaret becerisine sahip yatırımcılar, yüksek getiri elde etmek için sıkça yatırım yaparak bu yeteneği kullanacaklardır. Aşırı güven aynı zamanda yatırımcıların tam çeşitlendirilmemiş yüksek riskli portföyleri oluşturmalarına da neden olmaktadır (Chen, vd, 2007:426).

Demir atma, algıları oluşturmak için ilk izlenimleri kullanma eğilimidir. İlk izlenimlerden elde edilen bu ilk algılar sonraki kararları etkiler. Sabitleme yanlılığı olan kişiler, düşünceleri ilgisiz bir referans noktasına sabitleme eğilimindedir. Değerler, her seçeneği kendi başına analiz etmek yerine, seçeneğin diğer seçeneklerle ne kadar çekici olduğuna bağlı olarak bir seçeneğe atanır.

Yatırım kararları açısından, demirleme eğilimi yatırımcıların rasyonel finansal kararları reddetmesini ve ideal olan finansal kararlardan sapmasına yol açar. Hisse senetlerinin tarihsel değerleri çapa olarak kabul edilir ve piyasa fiyatlandırması ve hedeflenen getiri ile hiçbir ilişkisi olmamasına rağmen yatırımcılar kararlarını bunlara dayandırırlar. Nihai bir karar alırken, tahmin bir yerden başlamalıdır ve bu ilk değerin nihai sonuç üzerinde muazzam bir etkisi vardır.

Demir atma etkisi yatırımların kaybeden hisse senetlerini uzun süre ellerinde tutmalarına neden olur. Hisse senedinin optimal fiyatına döneceği ümidiyle yatırımlarını elde tutarak büyük riskler alırlar. Demirleme, yatırımcıların düşük değerli bir yatırımı görmezden gelmek veya aşırı değerli yatırımı çok uzun süre tutmak gibi rasyonel olmayan finansal kararlar almalarına da yol açar.

## 3.  Finansal Piyasalarda Anomaliler

EPH, piyasaların rasyonel olduğunu ve fiyatlarının mevcut tüm bilgileri tam olarak yansıttığını göstermektedir. Yatırımcıların zamanında yaptıkları işlemler nedeniyle hisse senetleri fiyatları yeni bilgilere hızla uyum sağlar ve mevcut tüm bilgileri yansıtır. Dolayısıyla, hiçbir yatırımcının anormal getiri elde ederek piyasayı yenemeyeceği varsayılmaktadır.

1970'lerde EPH, eğer piyasa verimli olsaydı ne gibi bir geri dönüş olması gerektiğini belirtmek için sermaye varlıklarının fiyatlandırması modeli kullanılarak test edilmiş ve böylece her iki teorinin testleri ortak test haline gelmiştir. Teorik beklentilerden bir takım sistematik sapmalar keşfedilmiş; yani, oldukça basit ticaret stratejileri kullanarak anormal getiri elde etmek için öngörülebilir fırsatlar olduğu ortaya çıkmıştır. Bu literatür, 1978'de Finansal Ekonomi dergisinde özel bir konuya konu olmuş ve bu sapmalar "anomaliler" olarak adlandırılmıştır. Bu, kelimenin finansta ilk önemli kullanımını işaret etmiştir (Frankfurter ve McGoun, 2001:413-414). Anomaliler etkin olmayan piyasaların bir göstergesidir, bazı anomaliler sadece bir kez olurken, bazıları da sık sık veya sürekli olarak gerçekleşmektedir.

Finansal varlıkların herhangi bir dönemde sürekli daha iyi veya daha kötü performans göstermesi durumu takvim anomalisi olarak tanımlanmaktadır. Takvim anomalileri, EPH'nin temel varsayımına aykırı olarak geçmiş verilere dayanarak getiriler elde etmeyi olanaklı kılmaktadır. Takvim anomalileri gün anomalileri, ay anomalileri ve tatil anomalileri olarak üç ana sınıfa ayrılır. Takvimsel anomalileri ile hisse senetlerinin herhangi bir dönemde normal sınırların dışında iyi veya kötü performans göstermelerini açıklamak mümkündür. Piyasalarda en sık rastlanılan takvimsel anomalilerden biriside Ocak ayı anomalisidir.
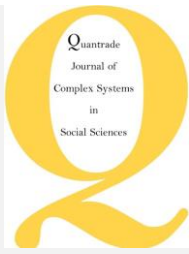
Gültekin ve Gültekin (1983), 17 farklı ülke borsasında ocak ayı anomalisine yönelik çalışma yapmış, çalışma yaptıkları 12 ülkede ocak ayı anomalisi saptamışlardır. Ayrıca bu anomalinin firma büyüklüğü ile bir ilgisinin olmadığını ama kısmen de olsa vergi etkisinden olabileceğini savunmuşlardır.

Yatırımcılar, aralık ayında vergi matrahını düşürmek amacıyla zararla sonuçlanan hisse senetlerini satarak zararlarını telafi etmeye çalışmakta, diğer taraftan ocak ayında piyasadaki düşük fiyatlardan yararlanmak için bu hisse senetlerini yeniden satın alıp etkin piyasa hipotezine aykırı olarak ortalamanın üzerinde bir getiri elde etmektedirler (Ege vd., 2012:177).

Tatil anomalisi, hisse senedi getirilerinin resmi ve dini tatiller ile hafta sonu tatillerinde ortalamanın üzerinde olduğu durumlardır. Tatil anomalileri ile ilgili olarak Özmen (1997) İstanbul Borsası'nda 1988-1996 yılları arasındaki 37 resmi tatili incelemiş ve tatil öncesi getirilerin tatil sonrası getirilerden 14 kat, diğer günlerin getirilerinden ise 5,5 kat daha yüksek gerçekleştiğini çalışmasında açığa çıkarmıştır. Buna göre tatil öncesi getirilerin, tatil sonrası getirilere oranla daha yüksek olduğu görülmüştür.

Fiyat anomalileri ise piyasa etkinliğinden sapma durumunu ifade eden, aşırı ve düşük reaksiyon şeklinde ortaya çıkmaktadır. Düşük reaksiyon bulgularına göre, yatırımcılar, hisse senetleri fiyatları hakkında olan bazı bilgi ya da haberlere, 1-12 aylık dönemde, yetersiz ilgi göstermektedirler. Buna göre, yeni elde edilen haberler, fiyatlara yavaş bir şekilde etki ederek olumlu bir oto-korelasyon oluşturmaktadırlar. Aşırı tepki reaksiyon anomalisine göre ise hisse senetleri fiyatları, 3 ila 5 yıl gibi bir dönemde, aynı kapsamdaki haberlere tutarlı bir şekilde olağan dışı ilgi göstermekte ve aşırı tepkiye sebep olmaktadır. Aşırı tepki uzun vadede, iyi haberlere sahip finansal varlıkların, piyasa değerinin olması gerekenden daha fazla artmasına neden olmakta ve sonraki yıllarda ise ortalama hisse başına karın düşmesine yol açmaktadır (Barak, 2008:209).

Yatırımcılar rasyonellikten uzaklaşarak kaybeden hisse senetlerini erken satarak ya da kazanan hisse senetlerini yüksek fiyattan satın alarak aşırı reaksiyon gösterebilmektedirler. Bazen de tersine düşük reaksiyon

göstermektedirler. Bu tür aşırı reaksiyon ve düşük reaksiyon hisse senedi fiyatlarının etkin piyasa değerinden sapmasına neden olmaktadır.

Firma anomalileri firma büyüklüğü anomalisi ve ihmal edilmiş firma anomalisi olarak ikiye ayrılmaktadır. Firma büyüklüğü anomalisine göre küçük firmaların hisse senedi getirileri büyük sermayeli firmaların hisse senedi getirilerine göre daha yüksek olmaktadır. Küçük sermayeli firmaların daha fazla getiri elde etmelerinin nedeni olarak küçük sermayeye sahip firmaların daha fazla büyüme isteği içinde olmaları ve elde edilen karları ortaklara dağıtmak yerine firma faaliyetlerinde kullanma eğiliminde olmaları gösterilebilir. Diğer bir görüşe göre, küçük sermayeli firmaların risklerinin büyük sermayeli firmalara göre yüksek olması nedeniyle elde edilen anormal getiri katlanılan riskin bir karşılığı olarak düşünülmektedir (Uğurlu ve Demir, 2016:106-107)

Arbel ve Strebel (1982) ihmal edilmiş firma anomalisi çalışmalarında, bir kısım hisse senedi popülerken diğerlerinin yatırım alternatifi olarak yatırımcılar tarafından kabul edilmediği ve bu durumun kurumsal yatırımcıların portföy oluşturma aşamasında geliştirdikleri strateji sonucu ortaya çıktığını öne sürmüştür. Kurumsal yatırımcılar, küçük ve az bilinen şirketlerde görülen yüksek riski üzerlerine almak istememektedirler ve oluşturdukları portföylerde, kaliteli ve doğru bilgi alabildikleri şirketlerin hisse senetlerine yer vermektedirler. Yapılan çalışmalarda; ihmal edilmiş hisse senetlerinin fiyat olarak düşük değerlenmesinin, bu hisse senetlerine yatırım yapacaklar için bilgi eksikliği primi olarak adlandırılan ek bir getirinin varlığına neden olduğunu; bunun da anomalinin sağladığı aşırı getiriyi açıklayabildiği görülmüştür.

## 4. Araştırma Yöntemi

Araştırmada 5'li likert ölçeğine göre hazırlanmış, güvenilirlik testinden geçmiş anket yapılmış ve istatistiki sonuçlar bu doğrultuda yorumlanmıştır. Anketlerin hazırlanması ve uygulanma süreci Google Survey aracılığı ile basılı ve eposta ortamında yatırımcılara ulaşılarak yapılmıştır.
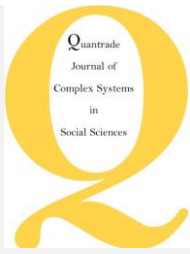
### 4.1. Araştırmanın Amacı ve Önemi

Ankette yatırımcılar psiko-sosyal ölçekteki sorularla sınanmış, davranışlarının davranışsal finanstaki anomali kavramına ne kadar uyduğu ve anomali kavramının temellerinin ne derece gerçekleştiği ölçülerek tespit edilmiştir. Bu çalışmanın amacı Borsa İstanbul'da (BIST) hisse senetleri alım-satım piyasasında yatırımda bulunan ve bir alttaki başlıkta belirtilen evrenden seçilen toplam 150 yatırımcı örnekleminde, bireylerin duygularını yatırımcı davranışlarında belirlemeye ne derece yetkin olduklarını tespit etmektir.

### 4.2. Araştırmanın Kapsamı ve Sınırlılıkları

Buna göre yatırımcının karar verme mekanizmasını etkileyebilecek finansal literatürün kapsadığı aşırı güven, zarardan kaçınma, risk algısı ve sürü davranışı gibi bazı önemli davranışsal finans değişkenlerinin etkisi araştırmanın kapsamına alınmıştır. Sürü davranışı bir taklit içermektedir ve bu taklit finans yazınında yatırım kararlarında, pazarlama yazınında ise tüketici satın alma davranışlarında kendini göstermektedir (Konak vd.,2022).

Araştırmanın en önemli sınırlılığı yatırımcılara istenildiği zaman ulaşılamaması ve vakit ayırmaları için ikna edilip edilmemesidir. Duygulara hitap eden anketin uygulanması ise diğer bir sınırlılıktır. Ankette sorulan soruların cevaplarının yatırımcı tarafından rasyonellik sınırları içerisinde kalması, gerekmektedir. Özellikle vakit darlığında ya da bilgi paylaşımındaki kaçınmadan dolayı anketlerin cevapları rasyonellikten

uzaklaşmaktadır. Bu sınırlılıkları bertaraf edebilmek için anket soruları özenli ve yatırımcıyı rahatsız etmeyecek şekilde hazırlanmıştır.

## 4.3. Araştırmanın Evreni ve Örneklemi

Borsa İstanbul'da hisse senetleri piyasasında yerli ve yabancı yatırımcılar işlem yapmaktadır. BİST'te 2018 yılı itabariyle toplam 1 milyon 163 bin 276 yatırımcı yatırım yapar durumdadır. BIST'te yatırımda bulunan aracı kurumlarla çalışan, belirli bir portföy büyüklüğüne sahip 150 sayıdaki yatırımcıya elektronik ortamda anket yapılacak ve örnekleme ait bulgular araştırma bulguları kısmında tartışılacaktır.

## 4.4. Araştırmanın Sorusu, Varsayımı ve Hipotezleri

Araştırmanın temel sorunsalı yatırımcıların psikolojik ve sosyolojik faktörlerden ne kadar etkilendiğini ve bu etkiler sonucunda yatırımlarını nasıl şekillendirdiğini ortaya çıkarmak olacaktır. Temel varsayımlardan hareket edildiğinde yatırımcılarında birer insan olduğundan hareketle insana özgü tüm pozitif ve negatif davranış kalıplarının yatırımcılara yansıyacağı açıktır. Araştırmanın hipotezi aşağıda belirtilmiştir:

$H_0$: BIST'te yatırımcılara ait davranışsal finans faktörleri. yatırım kararları vermede önceliklidir.

$H_1$: BIST'te yatırımcılara ait davranışsal finans faktörleri. yatırım kararları vermede öncelikli değildir.

5'li Likert Ölçeği yardımıyla sorular anket formuna katılan katılımcılara iletilmiş ve bunun neticesinde oluşan verilere ait önermeler değerlendirilmiştir. Önermeler; kesinlikle katılmıyorum (1), katılmıyorum (2), ne katılıyorum ne katılmıyorum (3), katılıyorum (4), kesinlikle katılıyorum (5) biçiminde derecelendirilmiştir. Daha sonra seçenekler 5'li Likert ölçeği (alt ve üst sınırlar) boyunca aşağıdaki gibi tanımlanmıştır.

**Tablo 1: 5'li Likert Ölçeğine Göre Kategorilerin Bağıl Önemi**

| 5'li Likert Ölçeğine Göre Kategoriler | |
|---|---|
| **Kategoriler** | **Bağıl Önem** |
| 1.00 - (2.33) | Düşük |
| 2.33 - (3.66) | Orta |
| 3.66 - 5.00 | Yüksek |

Kaynak: Yurdakul ve Dalkılıç (2006)

Anketin güvenilirliğini ölçmek için Cronbach alfa güvenilirlik endeksi kullanılmıştır. Güvenilirlik analizi için kullanılan temel analiz Cronbach Alpha (α) değerinin bulunmasıdır. Tüm sorular için elde edilen α değeri o anketin toplam güvenilirliğini gösterir. Alfa katsayısı 0 ile 1 arasında değişir ve 0.7′den büyük olması beklenir,

bu değerden düşük α değerleri anketin zayıf güvenilirliği olduğunu gösterir, α > 0,8 olması ise anketin yüksek güvenilirliğe sahip olduğunu göstermektedir (Kartal ve Dirlik, 2016). Puan ne kadar yüksek olursa, oluşturulan ölçek o kadar güvenilir olacaktır. Cronbach Alfa kullanıldığında, Cronbach alfa katsayısı tüm maddeler için 0,871 olarak bulunmuştur ve (α) 0,821 ila 0,915 değerleri aralığında olup anketin güvenilir olduğu ortaya çıkmıştır. Davranışsal finans değişkenlerinin (α) değerleri Tablo 2'de gösterildiği gibidir.

**Tablo 2: Davranışsal Finans Değişkenlerinin Güvenilirlik Testleri**

| Değişken | Soru Sayısı | Güvenilirlik Katsayısı (α) |
|---|---|---|
| Kayıptan Kaçınma | 5 | 0,881 |
| Aşırı Güven | 5 | 0,834 |
| Sürü Davranışı | 4 | 0,821 |
| Risk Algısı | 6 | 0,915 |
| Davranışsal Yatırım Faktörü | 20 | 0,856 |
| Genel Oran | 33 | 0,871 |

Model değişkenleri arasında çoklu doğrusallığın varlığını test etmek için, bağımsız değişkenler arasında Pearson korelasyon katsayıları hesaplanmış olup, test sonuçları korelasyon matrisleri ve varyans enflasyon faktörü (VEF) testi ile aşağıdaki gibi açıklanmıştır.

**Tablo 3: Bağımsız Değişkenler için Çoklu Doğrusallık Testi**

| Değişken | Kayıptan Kaçınma | Aşırı Güven | Sürü Davranışı | Risk Algısı |
|---|---|---|---|---|
| Kayıptan Kaçınma | 1,000 | | | |
| Aşırı Güven | 0,144 | 1,000 | | |
| Sürü Davranışı | 0,169 | 0,147 | 1,000 | |
| Risk Algısı | 0,355 | 0,106 | 0,312 | 1,000 |

p = 0,05 düzeyinde anlamlıdır.

Tablo 3, korelasyon katsayısının maksimum değerinin (Kayıptan Kaçınma) ve (Risk Algısı) arasında olduğunu gösterir, diğer türlü değerler (0,355) değerinden daha düşük. Bu durum değişkenler arasında mükemmel bir ilişki olmadığı anlamına gelmektedir. İstatistik literatüründe (0,80) değeri ve daha fazlası, çoklu doğrusallığın varlığının bir göstergesi olarak kabul edilmektedir. Yukarıdaki sonuçları desteklemek için, Varyans Enflasyon Faktörü (VEF) hesaplanmıştır, sonuçlar Tablo 5 de gösterilmiştir.

**Tablo 4: Bağımsız Değişkenler için Varyans Enflasyon Faktörü**

| Değişken | VEF | Tolerans |
|---|---|---|
| Kayıptan Kaçınma | 1,163 | 0,86 |
| Aşırı Güven | 1,038 | 0,963 |
| Sürü Davranışı | 1,128 | 0,887 |
| Risk Algısı | 1,238 | 0,808 |

Tablo 4, VEF değerlerinin (1) den büyük ve (5) den küçük olduğunu göstermektedir. Bu da bağımsız değişkenler arasında çoklu doğrusallığın olmadığını ifade eder.

Normallik testi, örneklemin normal olarak dağılıp dağılmadığını araştırır. Test de, örneklem dağılım değerleri normal dağılım ortalaması ve standart sapma ile karşılaştırılmış ve örneklemin normal dağılıma aykırı sapmalar göstermediği bulunmuştur. Test hipotezi, "örneklem dağılımı normal" dir. Test anlamlıysa, dağılım normal değildir. Normallik değerlendirmesi için ana testler Kolmogrov-Semernov (K-S) testi ve Shapiro-Wilk testidir. Tablo 5 normallik testinin sonuçlarını göstermektedir.

**Tablo 5: Normallik Testi**

| Değişkenler | Kolmogrov-Semirnov | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|
|  | İstatistik | df | p | İstatistik | df | p |
| Kayıptan Kaçınma | 0,069 | 150 | 0,200 | 0,981 | 150 | 0,122 |
| Aşırı Güven | 0,073 | 150 | 0,150 | 0,977 | 150 | 0,061 |
| Sürü Davranışı | 0,060 | 150 | 0,200 | 0,988 | 150 | 0,200 |
| Risk Algısı | 0,070 | 150 | 0,165 | 0,983 | 150 | 0,141 |
| Hisse Senedi Yatırım Kararları | 0,075 | 150 | 0,095 | 0,978 | 150 | 0,064 |

Tablo 5, testin tüm değerlerinin anlamlı olmadığını ortaya koymaktadır (p > 0.05). Bu durum örneklemin normal dağılım gösterdiği anlamına gelmektedir.

**Tablo 6: Davranışsal Değişkenlerin Ortalama, Standart Sapma ve Bağıl Önemi**

| No | Faktörler | Ortalama | Standart Sapma | Bağıl Önem | Sıra |
|---|---|---|---|---|---|
| 1 | Kayıptan Kaçınma | 3,385 | 0,612 | Orta | 2 |
| 2 | Aşırı Güven | 3,449 | 0,471 | Orta | 1 |
| 3 | Sürü Davranışı | 2,952 | 0,556 | Orta | 4 |

| | | | | | |
|---|---|---|---|---|---|
| 4 | Risk Algısı | 3,189 | 0,534 | Orta | 3 |
| | Davranışsal Finansal Faktörlerin Genel Ortalaması | 3,244 | 0,307 | Orta | |

Tablo 6, davranışsal finans faktörlerinin (0,307)'lik standart sapma değeri ile genel ortalamasının (3,244) ve orta derecede bağıl önemi olduğunu göstermektedir. Ayrıca, BİST'deki yatırımcıların davranışsal finans faktörlerinin, genel olarak yatırımcıların davranışlarında belirli bir faktör olmadan genel olarak ılımlı olduğunu ve bunun, zayıf verimlilik ve aynı zamanda karakterize edilen BİST'in doğasından kaynaklanabileceğini göstermektedir. Ayrıca birçok yatırımcının aracı kuruluşlara danışmanlığına güvendiğini ifade etmektedir.
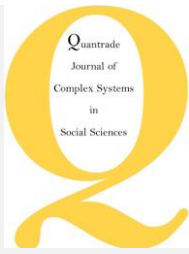
## 5.  Sonuç ve Öneriler

Fama, 1970 yılında tanımladığı piyasa etkinliğini üç kere revize etmiş ve her seferinde de biraz daha esnetmiş olsa da piyasa etkinliği kavramı son kırk yılın en çok tartışılan önermelerinden biri olmuştur. Bu konuda yapılmış olan çalışmalar, neredeyse hiçbir menkul kıymet borsasının güçlü formda etkin olmadığını diğer bir ifade ile arz ve talebe göre oluşan fiyatların tüm bilgileri tam olarak yansıtamadığını göstermiştir. Ayrıca araştırmacılar, geleneksel finans teorisi ile örtüşmeyen bulgulara ulaşmış ve bu bulgular anomali olarak değerlendirmişlerdir. Piyasalarda anomalilerin varlığı, etkin piyasalar hipotezinin savunmakta olduğu, "hiçbir yatırımcının pazar getirisi üzerinde bir getiri elde edemeyeceği" varsayımının da geçersiz olduğunu gözler önüne sermektedir.

Davranışsal finansın asıl amacının geleneksel finans yaklaşımlarının yanlış olduğunun ispatı değil, yatırımcıların yatırım kararları sürecinde finansal teknikler kullanmasının yanı sıra bu karar verme sürecinde psikolojik faktörlere de önem vererek sonuçlarının daha da optimal hale gelebildiğini göstermektir. Davranışsal finans kısaca yatırımcıların karar verme süreçlerinde yaptıkları "sistematik hataların" nedenlerinin açıklanmaya çalışıldığı bir alandır. Bu çalışmada davranışsal finansın anlam ve önemi ile davranışsal finans faktörlerinin yatırım kararlarına olan etkisi Borsa İstanbul'da alım-satım yapan yatırımcılar özelinde incelenmiştir.
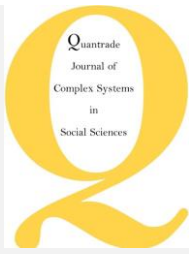
Çalışmanın bütünü değerlendirildiğinde BİST'deki yatırımcıların davranışsal finans faktörlerinden etkilendikleri ve bu faktörlerin yatırım kararlarında öncelikli oldukları görülmektedir. Hisse senedi alımlarında kompleks bir düşünce yapısına göre hareket etmektedirler. Geleneksel finansta piyasa belirli bir durumdayken davranışsal finansta bu durum belirsizlik yelpazesine bürünmüştür. Yani piyasayı bilen ve bilmeyenler olarak düşündüğümüzde bilenlerin de bir yere kadar profesyonel davranışlar sergiledikleri görülmektedir. Araştırmada, BİST'de aşırı güven, kayıptan kaçınma, sürü davranışı ve risk algısı bağımsız değişkenleri ile tanımlanan davranışsal finans faktörlerinin hisse senedi yatırımı kararı üzerinde önemli bir etkisi olduğu sonucuna varılmıştır.

Sonuçlar, davranışsal finans faktörlerinden kayıp kaçınma, aşırı güven ve risk algısının BİST'deki bireysel yatırımcıların hisse senedi kararları üzerinde önemli bir etkiye sahip olduğunu, diğer yandan sürü davranışının da göreceli olarak daha az bir etkiye sahip olduğunu göstermiştir.

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# Muhasebe Eğitimi Alan Bireylerin Muhasebe Mesleğine Yönelik Turizm Sektöründe Çalışma Niyetleri

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**Özet**

Küreselleşen dünyada faaliyetlerini sürdüren işletmeler, sürekliliği sağlayabilmek ve rekabet avantajını yakalayabilmek için bir takım bilgi ve istatistiklere ihtiyaç duymaktadırlar. İhtiyaç duyulan bilgilere erişmenin yolu muhasebe sisteminden ve nitelikli muhasebe çalışanlarından geçmektedir. Vasıflı muhasebe meslek elemanları iyi bir muhasebe eğitimi almış ve kendini geliştirmiş olan kişiler olarak nitelendirilmektedir. Turizm sektörü, içerisinde pek çok alt sektör barındıran bir sektördür. Bu sektörde kullanılan muhasebe bilgi sistemi ve istihdam edilen nitelikli personeller finansal açıdan sağlıklı bilgileri elde etmeye odaklanmaktadırlar. Turizm işletmelerinin finansal durumu ve yapısı, bütçe planlaması, işletme faaliyetlerine yönelik karar verme süreci ve yönetim politikalarının oluşturulması iyi bir muhasebe sisteminden ve nitelikli personeller vasıtasıyla oluşmaktadır. Bu çalışma muhasebe eğitimi almış olan bireylerin turizm sektörüne yönelik tutumlarını tespit etmek ve bu tutumlarının turizm sektöründe çalışma niyetlerine etkisini ortaya koymak amacıyla ele alınmıştır. Çalışma grubu olarak 30 kişilik bir çalışma grubu oluşturulmuştur. Mülakat tekniği ile elde edilen veriler betimsel analiz ile çalışmaya aktarılmıştır. Araştırma sonucunda; kişilerin turizm sektörüne yönelik muhasebe elemanı olarak çalışmalarına etki eden faktörler belirlenmiştir. Bu faktörlerin ortadan kaldırılması sonucunda katılımcılar turizm sektöründe muhasebe meslek elemanı olarak istihdam edilebileceklerini vurgulamışlardır.

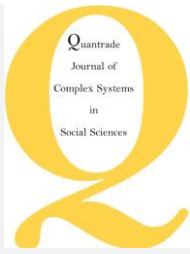**Anahtar kelimeler**: Muhasebe, Muhasebe Eğitimi, Turizm

# Intentions of Individuals Receiving Accounting Education to Work in the Tourism Industry in the Accounting Profession

**Abstract**

In order to ensure continuity and gain a competitive advantage in the globalized world, businesses require a range of information and statistics. Accessing the necessary information relies on the accounting system and qualified accounting professionals. Qualified accounting professionals are considered individuals who have received proper accounting education and have developed themselves. The tourism industry is a sector that encompasses various subsectors. The accounting information system used in this sector, along with the employment of qualified personnel, focuses on obtaining financially sound information. The financial status and structure of tourism businesses, budget planning, decision-making processes regarding business operations, and the formulation of management policies all rely on a robust accounting system and qualified personnel. This study aims to determine the attitudes of individuals who have received accounting education towards the tourism industry and to elucidate the impact of these attitudes on their intentions to work in the tourism sector. A study group of 30 individuals was formed for data collection, employing interviews as the research technique. The data obtained through interviews were analyzed descriptively. The research results identified the factors influencing individuals' decision to work as accounting professionals in the tourism sector. Participants emphasized that once these factors are addressed, they would be willing to work as accounting professionals in the tourism sector.

**Key words**: Account, Accounting Education, Tourism

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## 1. Giriş

İşletmeler giderek artan ekonomik sorunlara karşı bir büyüme süreci içerisindedir. İşletme yönetiminin asıl görevi, artan ekonomik sorunlara karşı işletmelerin yaşamlarını sürekli kılma ve gelişmeleri için uygun koşulları sağlamaktır. Fakat yöneticilerin işletmenin amaçları doğrultusunda bu görevi başarılı bir şekilde yerine getirmelerinin ana koşulu yönetim süreci için gerekli bilgileri sağlamaktır. Bu bağlamda işletme yöneticilerine karar vermelerine olanak sağlayacak bilgi sistemine ihtiyaç duyulmaktadır (Acar ve Tetik, 2013). İşletmelerin değişen ihtiyaçları ve zorunlulukları karşılamak üzere ortaya çıkan parasal durumların bilgi sistemi ile yöneticilere aktarılması muhasebe bilgi sistemi ile gerçekleşmektedir (Hassan, 2022; Yavuz, 2014).   İşletmelerin hacmi ve kuruluş yapısı fark etmeksizin faaliyetlerinin büyük bir kısmı mali işlemlere neden olmaktadır. Bu durum işletmelerin kaynaklarında ve varlıklarında değişim meydana getirmektedir (Acar ve Tetik, 2000). Karmaşık olan işletme faaliyetlerinin düzenlenmesi ve belirli kurallar çerçevesinde oluşturulması muhasebe sistemi ile olanaklı olmaktadır (Ganyam ve Ayoor, 2019). Bu bağlamda muhasebe; işletmelerin faaliyetleri sonucunda; kaynaklarının oluşumunu, kullanımını, kaynaklarda meydana gelen artış ve azalışları finansal açıdan inceleyen ve ilgili birim veya kuruluşlara ileten bir bilgi sistemidir (Sevilengül, 2003).

Muhasebe bilgi sisteminin eksiksiz ve aksamadan çalışması muhasebe eğitimi almış nitelikli personellerden oluşmaktadır (Pu, Shengwei, Shufang ve Xiaolei, 2009). Muhasebe bilgi üretme süreci, insan yeterliliğine ihtiyaç duyan bir sistemdir. Bu sistemin eğitimli personeller tarafından yönetilmesi o şirketin mali olaylarını daha net ve doğru yönetmesini sağlamaktadır (Gönen, 2007). Muhasebe, turizm işletmeleri için hayati bir rol oynamaktadır. İşletmelerin mali kaynaklarının doğru bir şekilde yönetilmesi, finansal raporlamaların yapılması ve vergi yükümlülüklerinin yerine getirilmesi için etkili muhasebe uygulamaları gerekmektedir (Bekci, Altunay ve Köse, 2022).
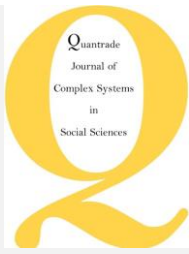
Turizm sektörü, günümüzde hızla büyüyen ve gelişen bir sektördür (Yıldız, 2011). Bu sektörde faaliyet gösteren işletmeler, başarılı olabilmek ve rekabet avantajı elde edebilmek için nitelikli personele büyük ihtiyaç duymaktadır (Gönen, 2007; Çılgınoğlu, 2018). Nitelikli muhasebe personeli, finansal verileri analiz edebilme, değerlendirebilme, mali tabloları hazırlayabilme, maliyet analizleri yapabilme, bütçe yönetimi ve stratejik karar alabilme gibi becerilere sahip olmaktadır. Ayrıca, turizm işletmelerinin farklı hizmet birimleri ve maliyet merkezleri bulunabileceği göz önüne alındığında, muhasebe personeli bu farklı birimlerin bütçeleme ve raporlama süreçlerini koordine ederek muhasebe kullanıcılarına doğru bilgiyi doğru zamanda vermektedir.

Yüksek kaliteli hizmet sunumu, rekabet avantajı, müşteri memnuniyeti, inovasyon, gelişim, iş verimliliği ve sosyal kar gibi faydaların sağlanmasında nitelikli personelin rolü büyüktür.Nitelikli personelin pandemi sonrası gelişen ihtiyaçları doğrultusunda iş tanımlarının yeniden yapıldığı (Ulusoy ve Civek,2020)  ile kadınların iş hayatında daha fazla yer almalarının teşvik edilmesi (Civek ve Ulusoy,2021) gibi hususlar gündelik yönetim fonksiyonları içinde yar (Çelik vd., 2022) almaktadır. Eğitimli ve nitelikli muhasebe personelinin de turizm işletmelerine katkı sağlaması turizm işletmelerine büyük bir avantaj sağlar. Bu bağlamda muhasebe eğitimi almış kişilerin turizm sektöründe kariyer yapma niyetlerinin tespit edilmesi ve bu niyetlerinde olumsuz durumlar varsa altında yatan sorunların araştırılması gerekliliği ortaya çıkmıştır. Muhasebe eğitimi alan bireylerin nitelikli personel olarak turizm sektöründe istihdam edilmesinin altında yatan sorunların tespit edilmesi bu çalışmanın amacını oluşturmaktadır. Bu bağlamda tespit edilen sorunlara yönelik çözüm önerileri getirilmesi de amaçlanmaktadır.

## 1.1 Muhasebe Mesleğine Genel Bakış

Türk Dil Kurumu (TDK)'a göre muhasebe; "*hesap işlerinin yürütüldüğü yer, hesap işleriyle uğraşma, hesaplaşma, karşılıklı hesap görme*" şeklinde ifade edilmiştir. Sevilengül, (2005)' e göre ise muhasebe; bir organizasyonun kaynaklarının bileşimini, nelerden oluştuğunu, bu kaynakların nasıl kullanıldığını, organizasyonun faaliyetleri sonucu bu kaynaklarda meydana gelen artış veya azalışları, aynı zamanda organizasyonun finansal durumunu açıklayan bilgileri üreten ve bu bilgileri ilgili herkese, kurum ve kuruluşlarla paylaşan bir bilgi sistemidir. Özkan, (2020)'e göre muhasebe, mali işlemleri sistematik olarak kaydeden, sınıflandıran, özetleyen ve yorumlayan bir süreçtir. Bu süreç sonucunda, işletmenin sahipleri, yöneticileri ve ilgili taraflar için işletmenin mali durumu hakkında anlamlı ve yararlı bilgiler sunar. Bu bağlamda Muhasebe, işletmeler için bir dizi önemli nedenle kritik bir rol oynamaktadır.

Artan rekabet ortamı, günümüzde hızla büyüyen işletmelerinin faaliyetlerini karmaşıklaştırmış ve yönetimin doğru ve güvenilir finansal bilgilere olan ihtiyacını artırmıştır (Ersoy, 2014). İşletme sahipleri ve yöneticileri, varlıklarını korumak, hataları ortadan kaldırmak ve işletme politikalarını değerlendirmek için doğru bilgilere ihtiyaç duymaktadır. İşletme yöneticileri için, bilgi olmadan ileriye dönük planlama, uygulama ve kontrol etme yeteneği zorlaşmıştır. Bu bağlamda,

doğru, güvenilir ve zamanında bilgilere dayalı kararlar alınabilmesi için işletme içinde etkin bir muhasebe organizasyonunun oluşturulması gerekliliği ortaya çıkmıştır (Kurtcebe, 2008). İşletmelerin güvenilir finansal bilgilere erişim sağlaması; yönetim süreçlerinin desteklenmesinde, stratejik karar verme sürecinde kullanmasında, bilginin ihtiyaçlara uygun bir şekilde üretilmesinde, işletme sahipleri ve yöneticilerinin ileriye dönük planlarını etkili bir şekilde oluşturmasında büyük önem taşımaktadır (Yay Özer, 2023).  Günümüz şartlarında işletmelerin finansal durumları toplumun pek çok kesimi tarafından talep edilir hale gelmiştir. Muhasebe işlemleri sonucunda elde edilen bilgiler bireyler, kurum ve kuruluşlar için önemli hale gelmiştir. Bu bilgiler; hissedarlar, yatırımcılar, işletme çalışanları, kredi ve finansman kuruluşları, devlet, sektörde bulunan diğer işletmeler açısından önem arz etmektedir (Demirkan, 2001).

Firmalar, elde ettikleri gelirler karşılığında devlete ödemekle yükümlü oldukları vergi miktarını belirlemek, ortaklara dağıtılacak kâr tutarını saptamak, işletmenin başarı durumunu değerlendirmek ve yatırım yapma kararını vermek gibi nedenlerle karlarını hesaplamak zorundadırlar. Muhasebe, işletmelerin finansal durumlarının izlenmesini, belirlenmesini, yorumlanmasını ve kaydedilmesini sağlayarak vergi ödemelerinin hesaplanmasında, kar dağıtımında ve yatırım kararlarında önemli bir rol oynamaktadır (Yıldız, 2013).

İşletmelerin finansal nitelikteki olaylarını kaydetme, sınıflandırma, özetleme, analiz etme, yorumlama ve raporlama buna bağlı olarak finansal tablo, beyanname oluşturma gibi faaliyetler muhasebe meslek konusunun içeriğini oluşturmaktadır (Kutlu, 2008). Muhasebe mesleği, işletmelerin finansal kayıtlarının ilgili taraflar tarafından belirlenen kurallar çerçevesinde tarafsız, zamanında, bağımlı ve bağımsız bir şekilde yürütülmesini içerir. Bu meslek, işletmelerin finansal bilgilerini doğru ve güvenilir bir şekilde kaydedip raporlamak için muhasebe prensiplerine ve standartlarına dayanır (Yıldırım, 2018).  Muhasebe standartları, finansal bilgilerin hazırlanması ve sunulmasında tutarlılık ve güvenirlik sağlamak amacıyla kılavuz niteliğindedir. Bu standartlar, muhasebe uygulamalarını bir çerçevede düzenleyerek; finansal tablo kullanıcılarının bilgilere güvenmelerini, farklı işletmelerin mali sonuçlarını karşılaştırmalarını ve finansal analiz yapmalarını kolaylaştırmaktadır. Böylece işletmelerin ve yatırımcıların daha iyi kararlar almalarına yardımcı olur ve finansal piyasaların şeffaflığını artırır. Bu nedenle, muhasebe standartları finansal bilgilerin güvenilir, doğru ve karşılaştırılabilir olmasını sağlayarak iş dünyasında önemli bir rol oynamaktadır (Yılmaz, 2007).

Muhasebe mesleğinde ele alınan konular, 3568 sayılı kanun tarafından belirlenmektedir. Bu kanun, muhasebe mesleğini sadece vergi tespitine odaklanan bir meslek olarak değil, aynı zamanda çeşitli kâr dağıtımı, yatırım politikalarının belirlenmesi ve mali kararların alınması gibi sorumlulukları da içeren bir meslek olarak görmektedir (Kutlu, 2008). Civelek ve Durukan (1997) tarafından ise, muhasebeci, mesleki kurallar çerçevesinde sadece müşteri potansiyeline sahip şirketlere veya bireylere değil, aynı zamanda mali hesaplarla ilgili hizmet talep eden herkese hizmet veren bir profesyoneldir. Ayrıca muhasebeci, kazandığı bilgi, beceri ve tecrübeleri eğitim ve pratik yoluyla elde ederek, tüm bu birikimleri aktaran bir uzman olduğu ifade edilmiştir (Civelek ve Durukan, 1997). Sürmen (1998) tarafından, muhasebe mesleğinin konusu 6 madde olarak ifade edilmiştir. Bunlar; alacak ve borç ilişkilerinin izlenmesi, işletme yönetimine yardımcı olunması, işletmeye ilişkin sonuçların takibi ve kontrolü, işletmeye ilişkin istatistik oluşturulması, işletmeye ilişkin muhasebe kayıtlarının ispat aracı olması, denetleme aracı olmasıdır.

## 1.2 Muhasebe Eğitimi

Teknoloji, ekonomi, ve bilimde ortaya çıkan hızlı değişimler, eğitim sistemini çağın gereksinimlerine uyum sağlayacak şekilde yeniden tasarlamayı zorunlu kılmıştır. Bu bağlamda muhasebe, bu dönüşümün gerekli olduğu alanlardan birini temsil etmektedir (Çelik ve Ecer, 2009). Günümüzde işletmeler, faaliyet alanlarını genişletme isteklerini gerçekleştirmek ve kurumsal bir yapı oluşturmak için etkili bir yönetim anlayışına ihtiyaç duymaktadır. Bu başarılı yönetim anlayışının oluşturulmasında önemli bir rol oynayan unsurlardan biri de muhasebedir. Birçok işletme artık muhasebe çalışanlarını daha profesyonel ve kendini geliştirmiş bireyler arasından tercih etmektedir (Tosunoğlu vd., 2018). Yüksek seviyedeki profesyonellik ve gelişim, etkili bir muhasebe eğitimi almış olmakla mümkün hale gelmektedir (Cantürk, 2022).

Muhasebe meslek mensuplarına, çevresel faktörleri fark edebilme, ortaya çıkan sorunları belirleme ve bu sorunlara yönelik çözümler üretme yeteneklerinin kazandırılması için muhasebe eğitimi önemli bir unsurdur (Persson, 2016). Muhasebe eğitimi ilişkili olduğu alanlar ile (üretim, işletme, finans, hukuk, pazarlama, istatistik vb.) desteklenmesi gerekmektedir. Bu bağlamda muhasebe meslek mensuplarına kazandırılan bilgi ve becerilerin uygulamada sürdürülmesi de ayrı bir öneme sahiptir (Kalmış ve Yılmaz, 2004). Muhasebe eğitiminin amacı, öğrencilere muhasebenin temel kavram ve ilkelerini kazandırmakla birlikte, öğrencilerin bilgi oluşturma sürecine katkıda bulunmasını, bilginin doğruluğunu kontrol etmesini ve analiz ederek yorumlamasını sağlayarak karar alma aşamasında kullanmalarını sağlamaktır (Kelly, Davey, Haigh, 1999; Zaif, 2004; Şengel, 2010). Ayrıca muhasebe eğitiminde, öğrencilere işletmeler için hangi bilgilerin
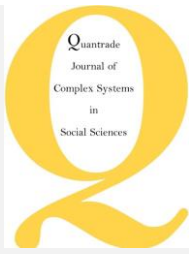
önemli olduğunu, bu bilgilerin nasıl ve hangi şekilde kaydedileceğini, nasıl sınıflandırma yapmaları gerektiğini, bu bilgilerin doğruluğunu nasıl denetleyeceklerini, denetlenen bilgilerin nasıl raporlar halinde düzenleneceğini, raporlanan bilgilerin karar alma süreçlerinde nasıl kullanılacağını ve nasıl uygulanacağını öğretmeyi hedefler. Bu bağlamda öğrencilere, işletmenin gelirleri, giderleri, varlıkları ve borçları gibi önemli verilerin incelenmesini, işletmelerin finansal sağlıklarının değerlendirilebilmesi gibi gerekli olan bilgilerin aktarılması sağlamaktadır (Süer, 2007).

Muhasebe eğitiminde belirlenen hedefe ulaşmak için, eğitim sürecinde etkili olan tüm unsurların, hedefe hizmet edebilecek kaliteye ve niteliklere sahip olması gerekmektedir (Kaya ve Daştan, 2004). Muhasebe eğitiminin kalitesini etkileyen birçok faktör bulunmaktadır. Ancak, bir eğitim sisteminin etkinliği, öğrenci, öğretmen ve öğretilen unsurların belirli bir hedefe doğru uyumlu bir şekilde ilerlemesine bağlıdır (Aydoğan, 2018).

## 1.3 Türkiye'de Muhasebe Eğitimi

Türkiye'de muhasebe eğitimi örgün ve yaygın eğitim kurumları aracılığıyla verilmektedir (Kaya, 2019). Örgün olarak verilen muhasebe eğitimleri, ortaöğretim ve yükseköğretim kurumları tarafından verilirken yaygın öğretim olarak da muhasebe meslek örgütleri, halk eğitimi merkezleri tarafından verilmektedir (Soylu, 2014).  Muhasebe eğitimi, ortaöğretim aşamasında örgün eğitim kapsamında; ticaret meslek liseleri ve çok programlı liselerde, yaygın eğitim kapsamında ise halk eğitimi merkezleri tarafından verilmektedir. Yükseköğretimde muhasebe eğitimi; önlisans, lisans, yüksek lisans, doktora seviyesinde verilerek üniversiteler bu görevi üstlenmektedirler (Karlıklı, 2016).

Muhasebe eğitimi, orta öğretim seviyesinde başlamaktadır. Bu aşamada öğrenciler, muhasebeye karşı tercihlerini belirlemektedirler. Bu noktada, öğrencilerin muhasebe eğitimine yönelik beklentileri ve hedefleri, ilerleyen dönemlerde veya tercih süreçlerinde şekillenmektedir. Lisans ve lisansüstü seviyelere kadar devam etme veya iş hayatına atılma olarak muhasebe eğitimini kendi şartlarına göre şekillendirebilmektedirler (Soylu, 2014).

## 1.4 Turizm ve Muhasebe

Turizm sektörü, hizmet odaklı bir sektördür (Afwa, vd., 2021; Çılgınoğlu ve Dalahmetoğlu, 2021) ve bu nedenle turizm işletmelerinde sunulan hizmetin kalitesi büyük önem taşımaktadır (Kılıç ve Eleren, 2009). İşletmeler yüksek kaliteli hizmet sunabilmek için personellerin eğitimli olması önemli bir unsurdur (Çılgınoğlu ve Aytuğar, 2021). Ülkemizde, turizm sektörünün ihtiyaç duyduğu eğitimli personel talebini karşılamak amacıyla, lise, ön lisans, lisans ve lisansüstü düzeylerinde turizm eğitimi veren kurumlar bulunmaktadır (Süklüm, 2017). Ayrıca yaygın eğitim kapsamında halk eğitimi merkezleri de turizm kapsamında eğitim vermektedir (Dalahmetoğlu ve Sevim, 2021). Bu noktada eğitim kurumları, sektörün ihtiyaç duyduğu eğitimli çalışanları sağlama konusunda önemli bir rol oynamaktadır. Sektörde faaliyet gösteren işletmeler, hizmet sunabilmek için çeşitli maliyetlere katlanmak zorundadır. Bu nedenle, hizmet kalitesinin yanı sıra maliyetlerin kontrolü de önemli bir konudur. Bunun sağlanmasında muhasebe bilgisi büyük rol oynamaktadır. Bu sebeple, turizm eğitimi kapsamında muhasebe derslerinin de yer alması gerekliliği ortaya çıkmaktadır (Süklüm, 2017).

Muhasebe, turizm işletmelerinin gelirlerini, giderlerini, varlıklarını ve borçlarını düzenli bir şekilde kaydetmelerini sağlar, işletmenin günlük finansal faaliyetlerini izler, gelir ve gider kayıtlarını tutar, mali raporları hazırlar ve vergi yükümlülüklerini yerine getirir ayrıca işletmelerin finansal bilgilerin takibini kolaylaştırır. Bu bilgiler, işletmenin mali durumunu değerlendirmek, performansını analiz etmek ve karar verme süreçlerinde yol gösterici olmak için kullanılır (Bekçi, 2003).  Turizm işletmelerinde kullanılan muhasebe sistemi, diğer endüstrilerde kullanılan muhasebe sisteminden farklılık gösterebilmektedir. Özellikle gelirlerin, nakit işlemlerin ve alacakların doğru bir şekilde kaydedilmesi ve kontrol edilmesi titizlik gerektirir. Bu nedenle, turizm işletmelerinde muhasebenin önemi büyük bir yer tutar (Bekçi, Altunay ve Köse, 2022).  Turizm işletmeleri muhasebesinin özelliklerine bakıldığında (Bekci, 2003); Turizm işletmeleri, hizmet yoğun bir sektör olduğundan dolayı harcadıkları personel maliyetleri oldukça yüksektir. Bu maliyetler, işletme gelirlerinin yaklaşık üçte birine kadar ulaşmaktadır, duran varlıkların amortismanları önemli hesap kalemini oluşturmaktadır, üretilen hizmetin stoklanması söz konusu değildir, kredi kartı sistemi yaygın olarak kullanılmaktadır.

## 2. Araştırmanın Yöntemi

Turizm sektörü, hızla büyüyen ve gelişen bir sektör olup, birçok farklı iş fırsatı sunmaktadır (Uzun, 2020). Muhasebe ise herhangi bir işletmenin finansal süreçlerini yönetmek ve kayıtlarını tutmak için önemli bir fonksiyon sağlamaktadır. Bu nedenle, muhasebe eğitimi alan bireylerin turizm sektöründe çalışma niyetleri incelenmesi önemli bir konudur.  Nitelikli personellerin turizm sektöründe istihdam edilmesi turizm sektörünün gelişmesine katkıda bulunmaktadır (Erbaş,
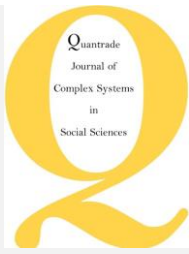
Temizkan ve Cankül, 2015). Bu bağlamda araştırma, muhasebe eğitimi alan bireylerin muhasebe mesleğine yönelik turizm sektöründe çalışma niyetlerini araştırmayı amaçlamaktadır.

Çalışmanın amaç ve kapsamına uygun koşut saptanarak araştırma sorularına güvenilir ve geçerli yanıtlar bulunacak yöntem olarak "Örnek Olay Tarama Modeli" kullanılmıştır.  Tarama modelleri var olan ya da geçmişten süregelen bir olguyu olduğu biçimiyle betimlemeyi amaçlayan ve ayrıca temel stratejileri ve yöntemleri belirleyen yaklaşımdır. Örnek olay tarama modeli ise evrendeki var olan bir ögenin (hastane, birey, okul, dernek) derinliğine ve genişliğine kendisi ve çevresi ile olan bağlantılarını tespit ederek, o olgu hakkında bir sonuca ulaşma amacı güdülen modeldir. (Karasar, 2005). Araştırmada veri toplama aracı olarak görüşme yöntemi kullanılmıştır.

Araştırmada veriler, 2023 yılı içerisinde 01 Mayıs ve 30 Haziran aralığında örgün ve yaygın eğitim kurumları aracılığıyla muhasebe eğitimi almış kişilerden toplanmıştır. Çalışma grubu olarak 30 kişi belirlenmiştir. Ayrıca görüşme esnasında konuşmanın akışına göre sorular yöneltilmiş önemli görülen noktalar not edilmiştir. Yapılandırılmış görüşme formunda yer alan sorulara göre görüşme, gönüllülük esasına dayalı 30 dakika ile 45 dakika arasında yapılmıştır. Not alınan görüşme raporlarından sonra oluşturulan olumlu ve olumsuz temalara göre betimsel analiz tekniği uygulanmıştır. Betimsel analiz, araştırmacının geliştirdiği temaları birbirleri ile ilişkilendirerek veri seti içinde yer alan değişkenler arasındaki farklılıkları ve ilişkileri inceler. Son aşamada ise araştırmacı bu değişkenler arasında bağlantı kurmaya çalışır (Dey, 1993).  Alanında uzman kişiler olarak turizm ve muhasebe alanında görev yapan akademisyenlerin de görüşü alınarak araştırmacılara sorulacak olan sorular düzenlenmiştir.

Üç tane görüşme sorusu hazırlanarak paydaşlara şu sorular yöneltilmiştir;

1- Aldığınız muhasebe eğitimini nasıl değerlendiriyorsunuz?

2-  Turizm sektöründeki muhasebe uygulamalarına karşı düşünceleriniz nelerdir?

3- Turizm sektöründe muhasebe mesleğine yönelik istihdam edilmeyi düşünür müsünüz?

Not alınan görüşme raporları betimsel analiz yöntemiyle önceden belirlenmiş temalar çerçevesinde oluşturulan sorulara göre sınıflandırılmıştır. Nesnel olarak özetlenerek yorumlanmıştır. Bu işlem için öncelikle betimsel analiz için bir çerçeve oluşturulmuş, ikinci aşamada oluşturulan çerçeveye göre elde edilen bulgular ve veriler tanımlanmıştır. Son olarak tanımlanan bulguların açıklanması ve yorumlanması temalar çerçevesi içerisinde bir araya getirilerek yapılmıştır.
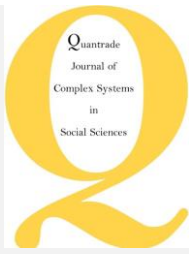
## 3. Bulgular

Bu bölümde araştırmaya katılanların demografik özellikleri ve 3 adet soruya verdikleri yanıtlar tarafsız ve net bir şekilde ifade edilmiştir.

Çalışma grubunda yer alan katılımcıların demografik özellikleri şöyledir: Katılımcılardan 20'si kadın, 10'u ise erkektir. Katılımcıların tamamı (%100) 20 ila 35 yaş aralığındadır. Eğitim durumlarına bakıldığında ise; orta öğretim 3 kişi (%10), önlisans 7 kişi (%23,3), lisans 20 kişi (%66,6) olarak eğitim almış bireylerden oluşmaktadır. Katılımcılardan 10 kişi (%33,3) yaygın eğitim kurumlarında 1 kişi (%3) orta öğretim kurumlarında 9 kişi (%30) ön lisans derecesinde 10 kişi de (%33) lisans derecesinde yükseköğretim kurumlarında muhasebe eğitimi alan kişilerden oluşmaktadır. 10 kişi muhasebe departmanında (%33) çalışmaktadır. Diğer geri kalanlar ise mevcut işsizdir. Frekans dağılımı olarak 20 kişi %66,6'lık kısımdır.

**Tablo: 1.1**. Değişkenlerin Frekans ve Yüzde Dağılımları

| | **Değişkenler** | **f** | **%** |
|---|---|---|---|
| **Yaş Grubu** | 20-35 | 30 | 100 |
| **Cinsiyet** | Kadın | 20 | 66,6 |
| | Erkek | 10 | 33,3 |
| **Eğitim** | Lise | 3 | 10 |
| | Önlisans | 7 | 23 |
| | Lisans | 20 | 66,6 |
| | Lise | 1 | 3 |
| | Ön Lisans | 9 | 30 |

| Muhasebe Eğitimi Aldığı Eğitim Düzeyi | Lisans | 10 | 33,3 |
|---|---|---|---|
|  | Yaygın Eğitim | 10 | 33,3 |
| **Meslek** | Muhasebe Departmanı | 10 | 33,3 |
|  | İşsiz | 20 | 66,6 |

Tablo 1.1'de araştırmada yer alan katılımcıların demografik özelliklerine yer verilmiştir. Bu bağlamda katılımcılara ait yaş grubu, cinsiyet, eğitim, meslek ve muhasebe eğitimi aldığı kuruluşlardaki eğitim düzeyi yer almaktadır.

### 3.1.1. Muhasebe eğitimini nasıl değerlendiriyorsunuz?

Katılımcılara; "Muhasebe eğitimini nasıl değerlendiriyorsunuz" sorusu yöneltilmiştir. Katılımcılar, muhasebe eğitimi genellikle iş dünyasında önemli bir rol oynayan ve çeşitli kariyer fırsatları sunan bir alan olduğunu belirtmişlerdir. Ayrıca muhasebe eğitiminin, gelir ve giderlerin kayıtları, finansal süreçlerin yönetimi, finansal kayıtların tutulması, mali analizlerin yapılaması, raporlama ve vergi beyannamelerinin hazırlanması konularında bilgi ve becerilerin kazandırılmasında önemli ve etkili olduğunu ifade etmişlerdir. Muhasebe eğitimi alan kişilerin işletme yönetimi alanında, SMMM (Serbest Muhasebeci Mali Müşavir) ve YMMM (Yeminli Mali Müşavir) ofislerinde muhasebe personeli olarak, işletmelerin; finans, denetim, ön muhasebe, danışmanlık departmanlarında ve kamu sektörü gibi çeşitli sektörlerde kariyer yapma olanaklarına kapı açtığını belirtmişlerdir. Katılımcıların tamamı (%100) aldıkları muhasebe eğitiminin hem teorik hem de uygulama açısından yeterli olduğunu belirtmişlerdir.

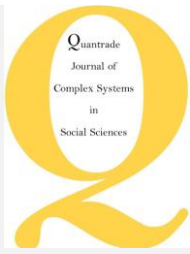### 3.1.2.  Turizm sektöründeki muhasebe uygulamalarına karşı düşünceleriniz nelerdir?

Çalışmada yer alan katılımcılara; "turizm sektöründeki muhasebe uygulamalarına karşı düşünceleriniz nelerdir?" sorusu yöneltilmiştir. Katılımcıların tamamı (30 kişi %100) turizm işletmelerinde uygulanan muhasebe politikalarının karmaşık olduğunu fakat gerekli muhasebe bilgisinin olmasıyla uygulamada sorunsuz bir şekilde işleyebileceğini belirtmişlerdir. Ayrıca katılımcılar turizm işletmeleri içerisinde yer alan konaklama işletmeleri olarak; oteller, tatil köyleri, pansiyonlar ve benzeri yerlerin muhasebe süreçlerinin diğer işletmelerden farklılık gösterebileceğini aktarmışlardır. Bu bağlamda konaklama işletmelerinin faaliyetleri özellikle konaklamanın yanı sıra yeme içme gibi gelir ve gider kalemlerinin kaydedilmesi ve raporlanması açısından spesifik gereksinimler içerdiğini ifade etmişlerdir.

Katılımcılar, konaklama muhasebesinin, turizm işletmeleri açısından finansal verilerini doğru bir şekilde yönetmek ve işletme sahipleri, yöneticiler ve paydaşlar için uygun raporlamaları sağlamak amacıyla önemli olduğunu ve bunun yanı sıra konaklama işletmeleri için maliyet kontrolü, bütçeleme ve performans analizi gibi stratejik kararlarında da muhasebe verilerine özellikle ihtiyaç duyulduğunu belirtmişlerdir.

### 3.1.3. Turizm sektöründe muhasebe mesleğine yönelik istihdam edilmeyi düşünür müsünüz?

Katılımcılara, "turizm sektöründe muhasebe mesleğine yönelik istihdam edilmeyi düşünür müsünüz? Sorusu yöneltilmiştir. Katılımcıların ifadelerine göre %60'ı (18 kişi) bu soruya olumsuz nitelikte cevap vermiştir. Bu soruya olumsuz yönde cevap veren katılımcıların açıklamaları şu yöndedir;  Turizm işletmeleri mevsimsel dalgalanmalardan oldukça etkilenmektedir. Yoğun turist talebinin olduğu mevsimlerde işletmelerin personel ihtiyaçları artmaktadır. Turist talebinin yoğun olmadığı zamanlarda ise işletmeler personellerin işine son vermektedirler. Bu bağlamda devamlı bir iş garantisi sunmadığı için katılımcılar turizm işletmelerinin muhasebeye yönelik kariyer düşünmediklerini belirtmişlerdir.

Bu soruya olumlu yanıt veren katılımcılar (12 kişi %40); muhasebe alanında turizm işletmelerinde kariyer yapabileceklerini belirtmişlerdir. Ayrıca genel muhasebe bilgisiyle birlikte turizm sektörünün muhasebe süreçlerini yürütmek, gereksinimlerini anlamak ve uygulamak için muhasebe bilgi birikimine sahip olduklarını ifade etmişlerdir. Turizm işletmelerinin her alanında nitelikli personele ihtiyaç duyulduğu gibi muhasebe departmanın da nitelikli muhasebe personellerine ihtiyaç olduğunu bu bağlamda turizm sektörünün gelişmesi için gerekli olduğunu ifade etmişlerdir. Ayrıca turizm sektörünün dinamik yapısı içerisinde yer alan çeşitli işletmelerin muhasebe personeline ihtiyaç duyduğunu bu nedenle muhasebe sürecinde becerilerini kullanma ve geliştirme fırsatlarının bulunduğunu ifade etmişlerdir. Muhasebe eğitimi alan katılımcılar, turizm sektörünü kariyerlerini sürdürmek için uygun bir alan olduğunu ifade etmişlerdir.

## 4. Sonuç

Muhasebe meslek elamanlarının mesleki faaliyetlerini kusursuz yürütebilmesi almış oldukları nitelikli muhasebe eğitimi ile olanaklıdır. Örgün ve yaygın eğitim kurumlarında verilen muhasebe eğitimi, alanında uzman kişilerin varlığı ile nitelik kazanmaktadır. Muhasebe eğitiminin teorik ve uygulama olarak verilmesi ayrıca sektörün ihtiyaçlarına göre şekillenmesi eğitim alan kişilerin nitelikli olarak istihdam edilmesine olanak sağlamaktadır. Nitelikli muhasebe personelinin özel-kamu kurum ve kuruluşlarında istihdam edilmesi sektörün gereksinimlerine cevap verebilecek nitelikte bulunması işletmeler açısından olumlu yönde etki edeceği kaçınılmazdır. Turizm sektörü günden güne büyüyen ve ülkeleri ekonomik olarak kalkındıran bir sektör halinde bulunmaktadır. Turizm sektörü emek yoğun bir sektördür. Bu bağlamda istihdam edilen personellerin nitelikli olması turizm işletmelerinin faaliyetlerinin işleyişine katkı sağlamaktadır. Bunlardan biri de nitelikli muhasebe elamanlarıdır. Nitelikli ve donanımlı muhasebe meslek mensuplarının turizm işletmelerinde istihdam edilmesi de turizm işletmelerinin kalkınmasına yarar sağlayacak bu bağlamda bölgesel olarak gelişmesine de etki edeceği düşünülmektedir. Bu çalışmanın amacı, muhasebe eğitimi alan bireylerin turizm sektöründe çalışma niyetlerini değerlendirmek amacıyla gerçekleştirilmiştir. Katılımcılar arasında muhasebe eğitimi alan bireyler ile derinlemesine mülakat tekniğiyle veriler toplanmıştır. Araştırmaya katılan bireylerin verdikleri ifadeler doğrultusunda katılımcıların tamamı aldıkları muhasebe eğitiminin yeterli düzeyde olduğunu ifade etmişlerdir. Turizm işletmelerinde uygulanan muhasebe politikalarına karşı ise aldıkları eğitimin yeterli olduğuna sektörün ihtiyaçlarına cevap verebilecek nitelikte olduklarını belirtmişlerdir. Katılımcılar muhasebe mesleğine yönelik turizm işletmelerinde çalışma niyetleri konusunda ifadelerini belirtmişlerdir. Bu bağlamda katılımcılardan 18 kişi turizm sektöründe çalışmayacağını 12 kişi ise kariyer yapabileceğini belirtmişlerdir. Olumsuz görüşlere bakıldığında, turizm sektörü, mevsimsel dalgalanmalarla birlikte değişken bir yapıya sahip olduğunu ve bu nedenle turizm işletmelerinin genellikle sezonluk çalışma düzenine sahip olduğu ifade edilmiştir. Talep yoğunluğun sezonlara göre değişiklik gösterdiği durumlarda sezon dışı dönemlerde talep düşüşü yaşandığından dolayı turizm işletmeleri personel maliyetlerini düşürmek için işten çıkarmalar yapabileceğini katılımcılar belirmişlerdir. Bu nedenle katılımcılar turizm sektöründe muhasebe personeli olarak çalışmayacaklarını belirtmişlerdir. Katılımcıların olumlu görüşlerine bakıldığında ise kariyer olanaklarının olduğunu, turizm işletmelerinin nitelikli personele ihtiyacı olduğunu belirtmişlerdir. Katılımcılar ayrıca aldıkları eğitimin turizm sektörü içerisinde bilgilerini geliştirme imkanı da bulacaklarını belirtmişlerdir.
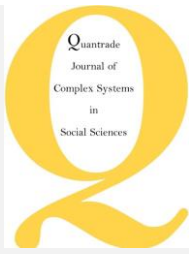
Muhasebe eğitimi almış bireylerin turizm sektöründe muhasebe mesleğine yönelik istihdam edilmesi için turizm işletmelerinin düzenleme getirmesi gerekmektedir. Bu bağlamda turizm işletmelerinin nitelikli muhasebe personellerinin istihdamına yönelik adımlar atması gerekmektedir. Bu yapılacak olan girişimler şu şekildedir:

- Nitelikli muhasebe personellerini seçme ve yerleştirme faaliyetlerinin etkin bir şekilde uygulaması
- Muhasebe departmanında istihdam edilen personellere yönelik iş devamlılığının sağlanması açısından çalışmaların öncelikli olarak uygulanmaya konulması
- Muhasebe personellerinin iş tatminin sağlanması bu bağlamda personellere ücret ve yeme-içme giderlerinin yeterli seviyede olması
- İstihdam edilen muhasebe personellerine yönelik terfi işlemlerinin uygulanması, ödüllendirme ve başarılarının tanıtımının yapılması
- Etik ilkelere uyulması
- Muhasebe personellerinin eğitimi ve gelişimi sürekli olarak desteklenmesi
- Muhasebe personellerine iyi bir çalışma ortamının sunulmasının gerekli olduğu ifade edilmektedir.
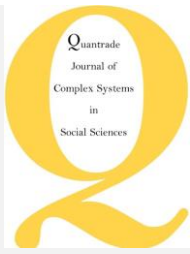
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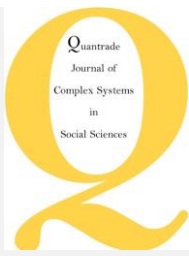
# The Impact of Personal Income on Airline Preferences

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**Abstract**

Speed, safety, and comfort are key determinants of airline preferences. Individuals opt for airlines when it comes to extended-distance and international journeys. The proliferation of airports, heightened competition, and promotional airfare offerings contribute to the rising demand for air travel. In the past, airline travel was primarily favored by individuals with higher income levels, but today, it is observed that individuals with lower and middle incomes also choose air travel. Therefore, this study investigated the effect of income on airline preferences. The sample consisted of 684 participants recruited using convenience sampling. Data were collected using a questionnaire. Frequency, validity, reliability, correlation, and dissimilarity analyses were conducted. The results showed a positive correlation between income and travel frequency. Individuals with higher income levels travel more throughout the year. However, there was no significant correlation between income and airline preferences.

Keywords: Airline finance, airline preferences, personal income

## 1. Introduction

The transportation sector directly impacts a country's well-being and level of development (Tekin, 2014, p. 38). As one of the most important engines of the national economy, the transportation sector interacts with many sectors. Land, sea, rail, and air transportation play a pivotal role in enhancing both national and international trade while facilitating social and cultural growth. Sharing social and cultural activities brings individuals closer together and fosters interaction among them. Airline transportation, particularly in international travel, plays a vital role in facilitating the exchange of cultural activities (Topal, Şahin & Topal, 2019, pp. 119-120). Sociocultural activities contribute to social development, while bilateral cooperation agreements further facilitate international trade. Airline transportation stimulates employment, tourism, and trade, thereby fostering economic growth (Işıklar, Canöz & Ertek, 2021, p. 242; Archana & Subha, 2012, p. 50) because the airline transportation sector is directly impacted by global financial shifts (Okumuş & Asil, 2007, p. 153). Furthermore, government regulations in the airline transportation sector have a direct impact on its development (Mehta, Rice, Deaton & Winter, 2019, p. 1).

Technological advancements and structural reforms contribute to the development of the airline transportation sector. More and more people prefer flying when traveling long distances because it is faster, safer, cheaper, and more comfortable, thanks to advances in technology (Dayı & Ulusoy, 2018, p. 92). Progress in the sector has resulted in the creation of more fuel-efficient engines, a decrease in carbon emissions, and reduced aircraft noise pollution. Population growth results in increased settlement density, leading to the socialization and urbanization of cities. Trade and increasing economic prosperity have brought about changes in the lifestyles of individuals. The demand for airline transportation is rising due to factors such as the establishment of new airports, faster travel options, enhanced flight safety, competitive ticket pricing, and improved service quality. In 2003, Türkiye introduced a subsidy covering half of the domestic ticket tax, increasing demand for domestic airfares. As a result, prior to 2003, airline transportation was not a preferred choice for many, but post-2003, the demand consistently grew, contributing to the ongoing expansion of the sector. Present
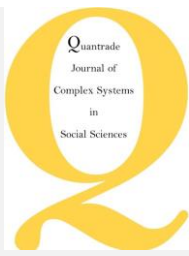
pricing strategies and early booking discounts in the airline industry have made air travel affordable, comparable to the cost of bus tickets (Yaylalı & Dilek, 2009, pp. 1-3).

The aviation sector is undergoing a renewal in alignment with advancements in technology. Innovative systems play a critical role in ensuring competitiveness within the sector. Nevertheless, it is essential to carefully plan innovations well in advance. For example, in the five-year span from 2017 to 2022, there are plans to expand the adoption of various technologies and services within the aviation industry. These include facial recognition technology, contactless passport usage, in-flight sports equipment, dedicated children's play areas, home baggage collection and plane delivery services, the utilization of wider-body aircraft, and the development of airports with gardens, hotels, restaurants, and natural green spaces. Over the next decade, from 2017 to 2027, there are ambitious goals to implement innovations within the aviation sector. These goals encompass the introduction of standing passenger arrangements, the development of supersonic passenger aircraft, and the adoption of aircraft powered by biofuels. In the coming two decades, from 2017 to 2037, some concerns have been raised within the aviation industry. These include potential challenges related to safety measures and controls, more frequent delays due to escalating air traffic, and increased turbulence attributed to climate change. In the next five decades, spanning from 2017 to 2067, there are expectations that aircraft may be operated without the need for human pilots (Duygun & Yücel, 2018, p. 447).

The changes within the airline transportation sector are causing shifts in people's transportation preferences. Previously, people leaned toward traveling by ships and trains, but nowadays, they tend to favor land and air transportation options. The progress in trade has contributed to an improvement in the well-being of nations, accompanied by an increase in per capita national income. As individuals' income levels rise, their transportation preferences undergo changes. Therefore, this study investigated the potential correlation between individuals' income levels and their inclination toward airline transportation.

## 2. Literature

This section encompasses research on the factors affecting individuals' preferences for specific airlines.
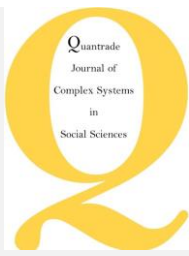
Sarılgan and Bakır (2023) surveyed 335 participants to explore the factors influencing students' preferences for airlines. They employed satisfaction analysis, interaction analysis, price analysis, and interpretive structural modeling. Their findings revealed that price alone did not exclusively dictate students' airline preferences. They suggest that airlines should pay attention to satisfaction and service quality to gain a competitive advantage.

Yalçın, Yamamoto, and Aydın (2022) investigated the factors affecting passengers' airline preferences, involving a sample of 408 individuals. They collected data through a questionnaire and conducted subsequent conjoint analysis. Their results indicated that price, comfort, service, and flight facilities all played significant roles in shaping passengers' preferences, with their relative importance varying among individuals.

Işıklar, Canöz, and Ertek (2021) explored the determinants influencing passengers' airline preferences. Their study involved a questionnaire of 1,200 individuals in Konya, utilizing methods such as frequency analysis, factor analysis, and ANOVA tests. Their findings indicated that factors such as reliability, comfort, and service quality played a significant role in shaping passengers' preferences for airlines.

Employing a questionnaire approach, Meriç and Meriç (2021) examined the factors impacting the airline choices of 249 Turkish Airline Miles&Smiles members. Their research involved frequency analysis, t-test, and ANOVA analyses. The results revealed significant variations in airline service preferences based on passengers' age, income, and occupation, although no significant differences were observed based on their level of education.

Yakut (2021), the researcher examined the factors influencing passengers' airline company preferences (n=500). Data collection was performed through a questionnaire, followed by various statistical analyses, including frequency analysis, normality test, t-test, ANOVA, and Chi-square analyses. The study's findings indicated that passengers' airline preferences

were influenced by factors such as gender, education level, and occupation, while age and income were not found to have a significant impact.

Savaş and Duran (2020) explored the factors that impact passengers' airline company choices among a sample of 386 individuals. Data were gathered through a questionnaire, followed by validity and reliability analyses to assess the collected information. The results indicated that passengers' airline preferences were influenced by factors such as flight schedules, safety, service quality, and ticket prices. Furthermore, they found that passengers were willing to pay higher prices for tickets from companies with convenient flight schedules and a reliable quality image.

Sönmezoğlu (2019) investigated the factors influencing passengers' preferences for airlines within a sample of 555 individuals. He collected data through a questionnaire and conducted frequency, factor, and difference analyses. The findings revealed that various factors played a significant role in shaping passengers' preferences for airlines, including operational competence, flight comfort, flight safety, access to services, in-cabin product quality, effectiveness in problem-solving, image, reputation, and convenience.

Canöz (2018) examined the preferences of foreign passengers for airlines by surveying 274 foreign college students from 60 countries residing in Konya. He then performed frequency analysis, t-test, and chi-square analyses. The results indicated that various factors, including safety, price, lost baggage, staff courtesy, flight delays or cancellations, and comfort, influenced passengers' airline preferences. Notably, safety emerged as the primary concern for the participants.

Yıldız (2018) surveyed 932 passengers to investigate the factors affecting their airline preferences. Data analysis involved the use of multiple logistic regression and ordered logit methods. The study revealed that market segmentation based on travel purpose, seat class, and price sensitivity had statistical significance. Furthermore, the research highlighted that the market segmentation model varied depending on socio-demographic variables and the criteria influencing airline preferences.

Duygun and Yücel (2018) surveyed 388 passengers to investigate the factors impacting their preferences for airlines. Data analysis encompassed frequency, factor, and difference analyses. The research revealed that three out of every five respondents preferred Turkish Airlines. Additionally, the study identified several influential factors in passenger preferences, including quality, expertise, safety, qualified staff, catering, image, ticket price, and flight time.

In a study by Law (2017), 600 passengers of a Thai airline were surveyed to examine the factors shaping their airline preferences. The data was subjected to statistical analysis. The findings revealed that price and promotional activities held significant sway over customer preferences and positively impacted their intention to repurchase. Furthermore, flight schedules and promotional strategies are crucial in passengers' ultimate decisions when selecting an airline.

Sanyal and Hisam (2016) conducted a questionnaire involving 200 Indian passengers to investigate the relationship between service quality, passenger satisfaction, and passenger expectations. The data were subjected to statistical analysis. The findings indicated that service quality played a significant role in influencing both passenger satisfaction and preferences.

Çalışır, Başak, and Çalışır (2016) surveyed 237 passengers to investigate the impact of airline image, satisfaction, price, and service quality on passenger loyalty. They employed a structural equation model for data analysis. The outcomes revealed that a substantial portion (71%) of passenger loyalty could be attributed to airline image, which, in turn, was influenced by satisfaction. Additionally, the researchers reported that service quality and price had positive impacts on passenger satisfaction.

Yayar and Tekin (2015) surveyed 506 passengers to determine the factors affecting their airline preferences. They analyzed the data using a multiple logit model. The results showed that affordable ticket prices, discounts for early ticket purchase, comfort, direct flights, ownership status of the company, catering, income, and individuals' attitudes towards risk influence their choice of airlines.

Milioti, Karlaftis, and Akkogiounoglou (2015) conducted a questionnaire involving 853 passengers to explore the factors affecting their choice of airlines. Data analysis was performed using the multiple probit method. The findings indicated
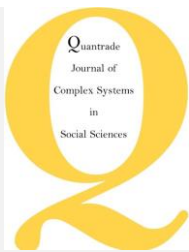
that fare, reliability, safety, security, and the helpfulness of the staff were influential factors in shaping passenger preferences.

Yaylalı, Dilek, and Çelik (2015) investigated the factors influencing passengers' selection of airlines. Their study involved a questionnaire of 2,473 respondents who were traveling from airports in ten different cities in Türkiye. Data analysis included frequency analysis, chi-square analysis, and logistic regression analysis. The findings indicated that respondents tended to prefer well-known and reliable airlines that offered company-specific loyalty programs and the option to purchase tickets in installments using credit cards while earning mileage rewards.

Çelikkol et al. (2012) surveyed 280 passengers to investigate the factors influencing their airline company preferences. They performed factor analysis on the data. They reported that reliability, service quality, flexibility, availability, convenience, safety, and comfort influenced their airline preferences.

Yaylalı and Dilek (2009) surveyed 569 passengers traveling from Erzurum to investigate the factors affecting their airline preferences. Data analysis methods included frequency analysis, chi-square analysis, and logistic regression analysis. The research revealed that passengers with higher incomes displayed a greater preference for airline transportation. Additionally, the study noted that older passengers tended to have a lower preference for air travel.

Gürses (2006) conducted a questionnaire among 504 passengers to investigate the factors influencing their airline preferences. The data was analyzed using frequency analysis. The findings indicated that education level played a significant role in shaping the participants' preferences for airline transportation. Furthermore, the researcher reported that passengers favored airline transportation primarily due to considerations related to safety, speed, and comfort.

## 3. Research Objective, Hypotheses, and Method

Numerous factors affect individuals' airline preferences. We think that income impacts people's choice of airline transportation and airlines. Therefore, this study argued that income affected individuals' airline preferences.

The research hypotheses are as follows:

H0: Income does not affect passengers' airline preferences.

H1: Income affects passengers' airline preferences.

Data were collected using a questionnaire. The questionnaire was developed based on Sönmezoğlu (2019). It consisted of two sections and 20 items. The first section consisted of items about sociodemographic characteristics and air transportation. The second section consisted of items eliciting information regarding the factors affecting passengers' airline preferences. The items were rated on a five-point Likert-type scale. The sample consisted of 684 Turkish passengers who had traveled by air at least once. All participants were social media users. They were recruited using convenience sampling. The data were collected online and analyzed using the Statistical Package for Social Sciences (SPSS, v. 23.0) at a significance level of 0.05.

## 4. Results

Demographic findings, validity and reliability tests, correlation analysis results, and discriminant analysis results are given in this section.

### 4.1. Demographic Findings

This part presented the demographic findings. Table 1 shows the participants' gender distribution.

**Table 1.** Gender Distribution

| Gender | N | % |
|--------|---|---|
| Men | 274 | 40,1 |
| Women | 410 | 59,9 |
| **Total** | **684** | **100** |

More than half of the participants were women (60%). Table 2 shows the age distribution.

**Table 2.** Age Distribution

| Age | N | % |
|-----|---|---|
| 18-25 | 121 | 17,7 |
| 26-35 | 215 | 31,4 |
| 36-45 | 264 | 38,6 |
| 46-55 | 53 | 7,8 |
| 56-65 | 20 | 2,9 |
| 66 and above | 11 | 1,6 |
| **Total** | **684** | **100** |

Participants were 36-45 (39%), 26-35 (31%), or 18-25 (18%) years of age. Table 3 shows the education levels.

**Table 3.** Education Levels

| Education | N | % |
|-----------|---|---|
| Primary | 33 | 4,8 |
| High School | 102 | 14,9 |
| Associate Degree | 71 | 10,4 |
| Undergraduate | 359 | 52,5 |
| Master | 93 | 13,6 |
| PhD | 26 | 3,8 |
| **Total** | **684** | **100** |

More than half of the participants had bachelor's degrees (53%). Less than a quarter of the participants had master's degrees (17.4%). Participants had high levels of education. Table 4 shows the income levels.

**Table 4.** Income Levels
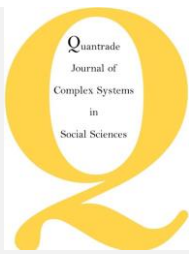
| Income | N | % |
|:---:|:---:|:---:|
| 8.500₺ and below | 123 | 18,0 |
| 8.501₺-17.000₺ | 267 | 39,0 |
| 17.001₺- 25.500₺ | 195 | 28,5 |
| 25.501₺-34.000₺ | 59 | 8,7 |
| 34.001₺ and above | 40 | 5,8 |
| **Total** | **684** | **100** |

Less than half of the participants had an income of 8.501₺ to 17.000₺ (39%). More than half of the participants had an income of less than 16.999₺ (57%). Only forty participants had an income of more than 34.000₺ (5.8%). Table 5 shows the participants' marital status.

**Table 5.** Marital Status

| Marital Status | N | % |
|:---:|:---:|:---:|
| Single | 256 | 37,4 |
| Married | 428 | 62,6 |
| **Total** | **684** | **100** |

More than half of the participants were married (63%). Table 6 shows the participants' employment status.

**Table 6.** Employment Status

| Employment Status | N | % |
|:---:|:---:|:---:|
| Public | 356 | 52,0 |
| Private | 152 | 22,2 |
| Self-Employment | 26 | 3,8 |
| Craft/Tradesman | 25 | 3,7 |
| Retired | 17 | 2,5 |
| Housewife | 26 | 3,8 |
| Others | 82 | 12,0 |
| **Total** | **684** | **100** |

More than half of the participants worked in the public sector (52%), while more than a quarter of the participants worked in the private sector (22%). Seventeen participants were retired (2.5%). Therefore, we think that retirees prefer to travel by air the least. Table 7 shows the participants' reasons for traveling.
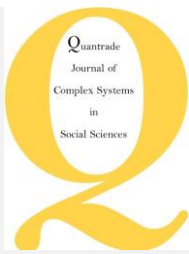
**Table 7.** Reasons for Traveling

| Reasons for Traveling | N | % |
|---|---|---|
| Work | 124 | 18,1 |
| Vacation | 320 | 46,8 |
| Education | 77 | 11,3 |
| Health | 19 | 2,7 |
| Others | 144 | 21,1 |
| **Total** | **684** | **100** |

Less than half of the participants flew on vacation (46.8%), while less than a quarter of the participants flew for work (18%). Seventy-five participants flew for education (11%). Table 8 shows the participants' airline preferences.
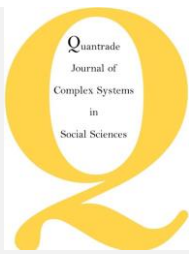
**Table 8.** Airlines

| Airlines | N | % |
|---|---|---|
| Turkish Airlines | 395 | 57,7 |
| Anadolu Jet | 126 | 18,5 |
| Fly Pegasus | 105 | 15,3 |
| Sun Express | 13 | 1,9 |
| Onur Air | 11 | 1,6 |
| Others | 34 | 5,0 |
| **Total** | **684** | **100** |

Participants preferred Turkish Airlines (58%), Anadolu Jet (18.52%), Pegasus (15.3%), Sun Express (1.9%), or Onur Air (1.6%). Most participants preferred Turkish Airlines. Table 9 shows the participants' frequency of traveling within a year

**Table 9.** Travel Frequency

| Travel Frequency | N | % |
|---|---|---|
| 1 | 405 | 59,2 |
| 2 | 136 | 19,9 |
| 3 | 51 | 7,4 |
| 4 | 41 | 6,0 |
| 5 | 10 | 1,5 |
| 6 and above | 41 | 6,0 |
| **Total** | **684** | **100** |

More than half of the participants flew once a year (59%), while more than a quarter of the participants flew twice a year (20%). Only fifty participants flew three times a year (7.4%). Most participants flew once a year. Ticket prices were

prohibitively high, leading to a decrease in passenger numbers. Table 10 shows the classes of travel preferred by the participants.

**Table 10.** Travel Class

| Travel Class | N | % |
|---|---|---|
| First Class | 30 | 4,4 |
| Business | 32 | 4,7 |
| Comfort | 56 | 8,2 |
| Economy | 566 | 82,7 |
| **Total** | **684** | **100** |

Most participants chose to fly in Economy Class (83%). Fifty-six participants chose to fly in Comfort Class (8.2%). Thirty-two participants chose to fly in Business Class (4.7%). Thirty participants chose to fly in the First Class (4.4%). Table 11 shows the types of travel preferred by the participants.

**Table 11.** Travel Type

| Travel Type | N | % |
|---|---|---|
| Domestic | 585 | 85,5 |
| Internationally | 99 | 14,5 |
| **Total** | **684** | **100** |

Most participants flew domestically (85.5%), while less than a quarter of the participants flew internationally (14.5%). This is probably because international flight tickets are more expensive than domestic flight tickets.

### 4.2. Validity and Reliability

This section addressed the validity and reliability results. An explanatory factor analysis (EFA) was performed to test the construct validity of the scale. Table 12 shows the results.

**Table 12.** Explanatory Factor Analysis Results

| Items | Factor Load | Mean | Standard Deviation |
|---|---|---|---|
| 1. The most important thing for me is to reach my destination as soon as possible. | 0,571 | 3,87 | 1,109 |
| 2. I prefer to fly with world-renowned, well-known airlines. | 0,581 | 3,63 | 1,093 |
| 3. I prefer airlines with staff who are effective in solving passenger problems. | 0,813 | 4,21 | 0,808 |
| 4. A safe flight is my priority. | 0,764 | 4,46 | 0,817 |
| 5. The benefits of frequent flyer programs influence my choice of airline. | 0,735 | 3,92 | 0,972 |

| | | | |
|---|---|---|---|
| 6. Flight comfort affects my choice of airline. | 0,815 | 4,14 | 0,823 |
| 7. Sales promotions and special offers influence my choice of airline. | 0,718 | 4,08 | 0,926 |
| 8. Environmental friendliness affects my choice of airline. | 0,704 | 3,94 | 0,941 |
| 9. I always prefer to fly with my own country's airline. | 0,565 | 4,03 | 1,044 |

The items were loaded on one factor. The scale had a Cronbach's alpha of 0.852. The Kaiser Meyer Olkin (KMO) was 0.896, for which Bartlett's test of sphericity was significant ($\chi2=2341.875$, p=0.000). The items explained 50.555% of the total variance. The results showed that the scale was valid.

### 4.3. Correlation Analysis Results

We think that there is a positive correlation between income and flight frequency, suggesting that, apart from business travelers, people fly more as their income increases. Therefore, we conducted a correlation analysis to determine whether there is a positive correlation between income and flight frequency. Table 13 shows the results.

**Table 13.** Correlation Analysis Results

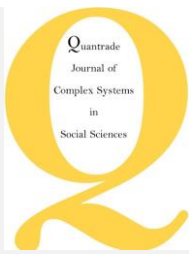| | | Travel Frequency |
|---|---|---|
| | Pearson | 0,228** |
| Income | Sig. (2 tailed) | 0 |
| | N | 684 |

**. Correlation is significant at the 0.01 level (2-tailed).

The results showed a positive correlation between income and travel frequency, indicating that people fly more as their income increases. Yaylalı and Dilek (2009) also reported that people flew more as their income increased. To further examine the relationship between respondents' income and flight frequency, we created a cross-tabulation of data. Table 14 shows the results.

**Table 14.** Cross-Tabulation

| | | Travel Frequency | | | | | | Total |
|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 and above | |
| Income | 8.500₺ and below | 69 | 28 | 11 | 2 | 4 | 9 | 123 |
| | 8.501₺-17.000₺ | 187 | 47 | 17 | 9 | 1 | 6 | 267 |
| | 17.001₺- 25.500₺ | 115 | 45 | 10 | 14 | 3 | 8 | 195 |
| | 25.501₺-34.000₺ | 23 | 8 | 9 | 11 | 1 | 7 | 59 |
| | 34.001₺ and above | 11 | 8 | 4 | 5 | 1 | 11 | 40 |
| **Total** | | **405** | **136** | **51** | **41** | **10** | **41** | **684** |

One hundred and twenty-three participants had an income of less than 8.499₺. Two hundred and sixty-seven participants had an income of 8.501₺ to 17.000₺. One hundred and ninety-five participants had an income of 17.001₺ to 25.500₺. Fifty-nine participants had an income of 25.501₺ to 33.999₺. Forty participants had an income of more than 34.000₺. Participants with an income of 8.501₺ to 17.000₺ flew the most. One hundred and eighty-seven participants with an

income of 8.501₺ to 17.000₺ flew once a year, while 47 participants with an income of 8.501₺ to 17.000₺ flew twice a year. Participants with an income of over 34.000₺ flew more than five times a year.

### 4.4. Discriminant Analysis Results

Discriminant analysis was performed to test the hypotheses. Discriminant analyses are determined according to whether the data shows a normal distribution or not. Kurtosis and skewness coefficients are checked to determine whether data show a normal distribution or not. Table 15 shows the statistical findings, including kurtosis and skewness coefficients.

**Table 15.** Descriptive Statistics

|  | N | Average | Std. Dev. | Skewness | Kurtosis |
|---|---|---|---|---|---|
| Scale | 684 | 4,0297 | 0,64618 | -1,121 | 2,859 |

The items were rated on a five-point Likert-type scale: 1 (strongly disagree) and 5 (strongly agree). The scale had a mean score of 4.0297±0.646. Skewness (-1,121) and kurtosis (2,859) coefficients between -3 and +3 indicate that the data is normally distributed (Sarıaslan, 1994, p. 251). Since the data is normally distributed, it is necessary to perform an ANOVA test. ANOVA analysis was conducted to test the hypotheses. Table 16 shows the results.
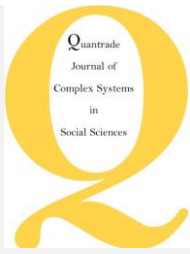
**Table 16.** ANOVA Test Results

|  | Sum of Squares | Degree of Freedom | Mean Squares | F | Sig. |
|---|---|---|---|---|---|
| Intergroup | 3,138 | 4 | 0,784 | 1,889 | 0,111 |
| In-Group | 282,048 | 679 | 0,415 |  |  |
| Total | 285,186 | 683 |  |  |  |

*Analyzed at a significance level of 0.05.

An ANOVA test was conducted to test the effect of income on airline preferences. The Hypothesis $H_0$ was accepted because the P value was 0.111>0.05, indicating that income had no effect on participants' airline preferences. Meriç and Meriç (2021) found a similar result and stated that the service provided by airline companies varies significantly according to the income of passengers. In a similar finding, Yaylalı and Dilek (2009) stated that passengers prefer transportation by air as their income increases. In a different study, it was found that there was no significant relationship. Yakut (2021) stated that there is no significant relationship between airline preferences and passenger revenues.

## 5. Conclusion

We surveyed 683 passengers to investigate the effect of income on airline preferences. More than half of the participants were women (60%) and married (63%). Most participants were 36-45 years of age. More than half of the participants had bachelor's or master's degrees (70%). Most participants had high levels of education. more than half of the participants had an income of less than 16.999₺ (57%). More than half of the participants worked in the public sector (52%). Less than half of the participants flew for vacation (46.8%). Less than a quarter of the participants flew for work purposes (18%). Seventy-five participants flew for education (11%). Participants preferred to fly with THY (58%), Anadolu Jet (18.52%), Pegasus (15.3%), Sun Express (1.9%), or Onur Air (1.6%). More than half of the participants flew once a year (59%). More than a quarter of the participants flew twice a year (20%). Only fifty participants flew three times a year (7.4%). In recent years, there has been a decline in the preference for air travel, attributed to the rising cost of flight tickets and a decrease in people's purchasing power. Most participants flew economy class (83%). Most participants flew

domestically (85.5%), while less than a quarter of the participants flew internationally (14.5%). International airfares keep climbing due to the increase in exchange rates.

The results indicated a positive correlation between income and air travel frequency, suggesting that people fly more frequently as they make more money. One hundred and twenty-three participants had an income of less than 8.499₺. Two hundred and sixty-seven participants had an income of 8.501₺ to 17.000₺. One hundred and ninety-five participants had an income of 17.001₺ to 25.500₺. Fifty-nine participants had an income of 25.501₺ to 33.999₺. Forty participants had an income of more than 34.000₺. Participants with an income of 8.501₺ to 17.000 ₺ flew the most. One hundred and eighty-seven participants with an income of 8.501 ₺ to 17.000₺ flew once a year, while 47 participants with an income of 8.501₺ to 17.000 ₺ flew twice a year. Participants with an income of over 34,000 ₺ flew more than five times a year.

We assumed that income affected people's airline preferences. In other words, we believed that people would prefer to fly with more prestigious airlines as they made more money. People prefer to fly because air transportation is comfortable and fast. We conducted an ANOVA test to investigate the factors affecting our participants' airline preferences. The results showed that income had no impact on their airline preferences. Researchers should use nominal data to measure people's income and should recruit samples with a more balanced distribution of income and travel frequency.
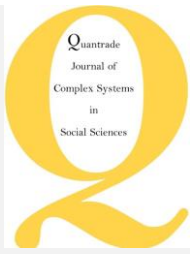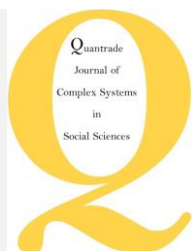
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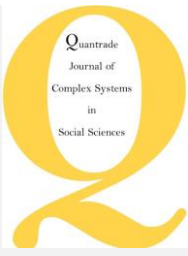
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# Investigation of the Causal Relationship Between Crypto Currency Prices and The Gross Domestic Products of BRICS Countries: Bitcoin Example[1]

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**Abstract**

The aim of the study is to investigate the causal relationship between the most popular cryptocurrency, BITCOIN, and the annual Gross National Product (GNP) values of the BRICS countries (Brazil, Russia, India, China, and South Africa). In this context, the Granger Causality Model developed by C. W. J. Granger (1969) was used. Annual BITCOIN prices and annual GNP data of BRICS countries between 2010 and 2020 were included in the analysis and calculations were made. The striking result in the analysis was that when the relationship between China's GNP data and BITCOIN prices was calculated, they formed a bidirectional causality relationship. There was no significant relationship between GNP data of other BRICS countries and BITCOIN prices.

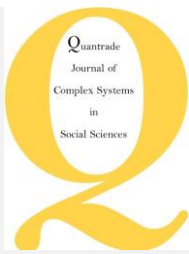Keywords: Cripto Currencies, BRICS Countries, Gross Domestic Product, BİTCOIN.

## 1. Introduction

Thanks to developing technology, many transactions have now become faster and almost everything can be performed electronically. One of the innovations this has brought is cryptocurrencies. This market, which has become a phenomenon recently, is subject to buying and selling on many platforms with high transaction volumes. Cryptocurrencies are currencies that are secured on the basis of cryptology, whose encryption system is based on mathematical equations, and are available in digital form and available for use. Cryptocurrencies used via the internet, without a monitoring mechanism, emerged as an attempt to establish a digital cash system (Nair and Motwani, 2018, p.35).

Bitcoin, the most popular cryptocurrency, was published by a user or group under the pseudonym "Satoshi Nakamoto" in a study titled "Bitcoin: Peer-to-Peer Electronic Cash Payment System" to intermediary institutions, banks and central banks, and even governments. It was introduced to the world in 2008, when trust was decreasing and a global crisis was experienced (Nakamoto, 2009). The main idea of launching this cryptocurrency is to decentralize the financial system by freeing it from the hands of a certain number of decision makers. In other words, by creating a free market without external intervention in the system, the prices of the asset in question are determined only by the users. The total supply limit is 21 million units (Arıcan and Yücemüş, 2018, p. 8-11).

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[1] This study is the full text of the article that presented at "9. This is the full text of the paper presented at the 9th International Congress on Accounting and Finance Research Tokat Gaziosmanpaşa University – 15 July Congress and Culture Center 29 September – 1 October 2022.

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The technology used to create cryptocurrencies is called Blockchain technology. The working principle of this system is that encrypted data are connected to each other like a chain link, combining them in an internal access in the form of unchangeable blocks. The basis of this technology lies in cryptography. The concept of cryptography means encryption and decryption in a mathematical context. In this context, it refers to putting the information in a state where it cannot be known by anyone other than the recipients. In this structure, data that has not yet been encrypted is encrypted and hidden using a mathematical algorithm. Thus, ordinary unencrypted data takes on a complex structure when cryptography is involved. The purpose of blockchain technology in using cryptography is to secure the identity of those sending the data and to ensure that historical records are kept and cannot be changed (Atabaş, 2018, p. 11-25).

On May 22, 2010, a user with the pseudonym "Laszlo" purchased 2 pizzas by paying with Bitcoin. Another Bitcoin user purchased the pizza from Dominos on behalf of Laszlo, paying 10,000 Bitcoins and had it shipped to his address. May 22, 2010 went down in history as the day Bitcoin was used as a medium of exchange for the first time in history. This date is celebrated as Laszlo Pizza Day in many parts of the world (Çarkacıoğlu, 2016, p. 17).

Cryptocurrencies are examined in two separate forms, coins and tokens, considering the principle of their production. While crypto assets that have their own blockchain are referred to as coins, crypto assets that are traded on the blockchain that is currently in use belonging to a coin are called tokens. For example, crypto assets named Tether and Tron are tokens because they use the blockchain of the coin called Ethereum (Güven and Şahinöz, 2018, p. 85-86).

In recent years, various cryptocurrencies such as Litecoin, Etherium, Auroracoin and Dogecoin, which are described as altcoins after Bitcoin, have emerged, but Bitcoin has had the largest number of users since its establishment. With each passing day, the increase in the number of companies accepting Bitcoin has ensured that the assumed value of this cryptocurrency becomes real. The high volatility of Bitcoin prices has led financial experts and many others to assume that it is a speculative instrument (Bouoiyour et al., 2015).

As of January 2022, the amount of Bitcoin in circulation in the market is approximately 18.93 million. While Bitcoin was traded at $0.1 in the market in August 2010, it is traded at $41,815.2 as of January 20, 2022 (Investing.com).

Nowadays, cryptocurrencies have become a frequently followed market, especially in our country, and the number of users has gradually increased. Cryptocurrencies have now become investment instruments, and buying and selling activities have begun to occur very frequently. In the study, the causality relationship between Bitcoin and the Gross National Product values of BRICS countries was examined. This causality relationship was tested with Granger Causality Analysis. The results of this test were also interpreted and concluded in the study.

## 2. Literature

In their study, Koy et al. (2023) investigated the presence of US stock market index returns in the volatility structure of Bitcoin. In the study, daily data for the period 10.03.2016 – 11.06.2019 was used. In the study, GARCH, EGARCH and TARCH models, which are Generalized Autoregressive Conditional Heteroscedasticity models, were used. SP500, Nasdaq100 and Dow Jones Industrial were used as variance variables. Findings show that all three indices are significant in explaining the volatility of Bitcoin, the models developed with stock market indices, GARCH, EGARCH and TARCH models are all stronger than the similar basic model, and the EGARCH model developed with indices is the strongest model.

In his study, Sezal (2023) conducted an econometric investigation of the relationship between Bitcoin prices and the Dollar index. In the research, the data range covers the business day of 21.12.2021 and consists of daily data. Time series analysis was used as a method in the study. According to the Toda-Yamamoto test results, it has been determined that there is no causal relationship between Bitcoin prices and the Dollar index.

In his study, Andrean (2020) examined the determinant affecting Bitcoin prices and how bitcoin prices react to GDP (Gross Domestic Product), inflation, exchange rate, JCI (Jakarta Composite Index) shock. According to the results obtained from the study, (1) inflation has a negative significant effect on futures Bitcoin prices in the short term and long term, and the exchange rate has a positive significant effect on the Bitcoin price in the long term. In the short term and long term, GDP and JCI have no significant impact on Bitcoin prices. (2) According to the IRF results, while Bitcoin prices reacted negatively to GDP and exchange rate, Bitcoin prices reacted positively to the shock from inflation and JCI.

Dulupçu et al., (2017) discussed the functioning and importance of Bitcoin and examined the causality relationship between the popularity of Bitcoin and Bitcoin prices. As a measure of popularity, it was based on internet searches for Bitcoin. According to the analysis results, they detected a causal relationship from internet searches regarding Bitcoin to Bitcoin prices. Thus, they found that as Bitcoin's popularity increases, its prices will also increase.

Baek and Elbeck (2015) used Bitcoin and S&P 500 daily data and studied the question of whether Bitcoin can be considered an investment tool or a speculative instrument. The findings show that Bitcoin has greater volatility than the S&P500 index and that Bitcoin is not affected by fundamental macroeconomic variables. They also stated that Bitcoin is
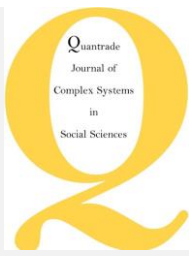
a speculative tool driven by sellers and buyers. However, if the use of Bitcoin increases, its volatility will be expected to decrease. Thus, there will be a more balanced economic impact representing the investment instrument.

Dyhrberg (2016) examined the hedging abilities of Bitcoin against gold and the dollar with volatility modeling using GARCH models. He addressed the ability to hedge financial risk through various macroeconomic variables measuring sensitivities to the price of gold and the dollar. The variables in question are the exchange rate of gold and the dollar, the dollar value of gold bullion, the FTSE Index, the gold cash rate and the gold futures rate. The asymmetric GARCH model has concluded that a negative news that may come to the market is an ideal way to manage risk for investors. In addition, Bitcoin and gold; They emphasized that they have similar characteristics in terms of their similar reactions to the variables in the GARCH model, their ability to hedge risks, and their asymmetrical reactions to good and bad news.

Koçoğlu et al., (2016), Bitfinex, Btce, Bitstamp, Mt., which can be traded in Bitcoin markets according to transaction volume and in currencies such as US Dollar, Euro, Sterling, Yen and Yuan. They analyzed the exchanges Gox, Kraken, Okcoin, Coinfloor, Anx and tested the existence of their relationship with Bitcoin. Although there is a cointegration relationship, no causality relationship was found. Bitcoin has been considered as an investment instrument and it has been stated that it is unreliable and can be used speculatively due to its extreme volatility.

Dirican and Canöz (2017) investigated the relationship between Bitcoin prices and the largest major stock market indices in the world. A cointegration relationship has been observed between Bitcoin prices and leading US and Chinese Stock Exchange indices. In this context, they concluded that Bitcoin prices can affect the long-term investment decisions of investors in these exchanges and that there is no relationship between Bitcoin and London FTSE100, Tokyo NIKKEI 225 and Istanbul BIST100.

In their study where they analyzed the causality relationship between the 10 cryptocurrencies with the highest market value, Karaağaç and Altınırmak (2018) conducted Johansen Cointegration and Granger Causality analysis to determine the relationship between the prices of cryptocurrencies, using the prices between 15.12.2017 and 17.01.2018. According to the findings obtained from this analysis, they concluded that the prices of cryptocurrencies, which have a causal relationship between them, affect each other in the short term.

In his study, Kasper (2017) compared the volatility of Bitcoin with the currencies of underdeveloped countries and other cryptocurrencies with the GARCH model. As a result of the study, it was concluded that Bitcoin volatility is significantly higher than the volatility in currencies according to the exchange rate and yield data of underdeveloped countries.

In their study, İçellioğlu and Öztürk (2017) determined the relationship between Bitcoin and some exchange rates using unit root tests, Engel-Granger Cointegration Test, Johansen Test and Granger Causality Test. In the study, the working days between 29.04.2013 and 22.09.2017 were taken into account and it was concluded that there was no long or short term relationship between Bitcoin and Dollar, Euro, Pound, Yen and Yuan.

Vockathaler (2015) investigated the long-term factors affecting the market price by examining the volatility of Bitcoin prices. According to the results, he stated that unexpected shocks increased the volatility of Bitcoin and the effects of these shocks could be modeled with the GARCH model. With the empirical findings obtained, it was concluded that unexpected shocks contributed the most to Bitcoin volatility.

In their study, Pichl and Kaizoji (2017) examined the effect of standard currencies and their volatility in the last five years on the price of Bitcoin. The volatility of Bitcoin exchange rates is modeled using daily logarithmic return distribution and realized volatility. As a result of the study, time series of Bitcoin prices are similar to the prices of EUR/USD exchange rates.

In his study examining the effect of Tether issuance on Bitcoin prices, Wei (2018) analyzed the Granger Causality relationship between Tether and Bitcoin prices by creating a VAR model. According to the analysis findings, it was concluded that the transaction volume of Bitcoin increased in the periods after the issuance of Tether, but there was no significant change in its price.

Göttfert (2019) in his study analyzing the cointegration relationship between Bitcoin and Etherium, Ripple, Bitcoin Cash, EOS and Litecoin, according to the Granger Causality test and Vector Error Correction Model results, Bitcoin is cointegrated with Bitcoin Cash, Ethereum, Litecoin and Ripple, With EOS, it was concluded that it was not, and it was also determined that the Bitcoin price had a statistically significant effect on the prices of Bitcoin Cash, Ethereum, Litecoin and Ripple in the long term.

In his study, Hacıoğlu (2019) examined the practical consequences of Blockchain and cryptocurrencies in terms of businesses and investments. He discussed decentralized consensus ledgers applied to cryptography and legal boundaries.

In their study, Ulusoy and Çelik (2019), following the second law of thermodynamics, started from the question of whether the amount of work given to the system in the cryptocurrency reserve can explain the possible transaction (stock market) prices. In the study, possible cash flows with the Carnot cycle were examined from a new perspective.

In his study, Uygun (2019) explained the blockchain system in a way that it can be applied to economic systems.

In their study, Kendirli and Şenol (2021) examined the impact analysis between major stock market volume and Bitcoin volume in the 11-month period between 2019-2020 within the framework of Chaos theory, and then the relationship between them and the world uncertainty index was examined.

In his study, Abed (2023) evaluated the positive impact of cryptocurrencies on the monetary policy represented by the financial and banking sector of the State of El Salvador. In addition, it sought to measure the level of trust and acceptance in adopting cryptocurrencies in the banking and finance field. Survey method was used in the study. According to the results of the study, a statistically significant impact relationship was found between the adoption of cryptocurrencies and the monetary policy of the banking sector by reducing the costs of banking services and increasing operational efficiency, developing and improving banking services.

## 3. Method

Granger causality test is a statistical hypothesis test of whether one time series is suitable for predicting another time series. Normally correlations "merely" reflect correlations, but Clive Granger (1969) has argued that a certain set of tests reveals something about causation. A time series . Let y and x be stationary time series. A step-by-step test of the basic hypothesis "x is not a Granger cause of y":

(1)  Appropriate lag values (number of lags) of y in a univariate autorelation of y are found:

$$y_t = a_0 + a_1 y_{t-1} + a_2 y_{t-2} + \cdots . + a_m y_{t-m} + kalıntı_t$$

(2)  The autorelation of y is expanded by adding the lagged values of x:

$$y_t = a_0 + a_1 y_{t-1} + a_2 y_{t-2} + \cdots . + a_m y_{t-m} + b_p x_{t-p} + \cdots + b_q x_{t-q} + kalıntı_t$$

According to the test, it is preserved if it adds strength to the explanatory power of the correlation (basic hypothesis in the F test: "x's together do not contribute to the explanatory power"). In the extended correlation representation above, the shortest lag length that makes the lagged value of x meaningful is p, and the longest lag length is q'. "x is not a Granger cause of y" is preserved. In the above context, no delay of x is preserved.

In the study, since Bitcoin will be tested bi-directionally for Granger causality with each variable, separate hypotheses have been determined for all of them. While the hypotheses are stated below, the x GDP value is symbolized as the GDP value of the country to be tested.

Bitcoin is the independent variable and x GDP is the dependent variable;

H0: Bitcoin does not Granger cause x GDP.
H1: Bitcoin is the Granger cause of x GDP.
Bitcoin is the dependent variable; x GDP is the independent variable;
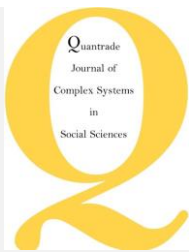
H0: x GDP does not Granger Cause Bitcoin.
H1: x GDP is the Granger cause of Bitcoin.

## 4. Data Set, Analysis and Findings

Bitcoin annual prices and Gross National Product (GNP) data of BRICS countries (Brazil, Russia, India, China, South Africa) were obtained and included in the analysis. Bitcoin data was obtained from Investing, and GDP data of BRICS countries was obtained from the World Bank database. Table 1 is including the data sets.

**Table-1: Dataset Table**

| Abbreviation | Explanation | Period | Time Range | Source |
|---|---|---|---|---|
| BTC | Bitcoin Prices | Per year | 2010-2020 | Investing.com |
| BRA | Brazil GDP | Per year | 2010-2020 | World Bank Database |
| RUS | Russia GDP | Per year | 2010-2020 | World Bank Database |
| IND | India GDP | Per year | 2010-2020 | World Bank Database |
| CHI | China GDP | Per year | 2010-2020 | World Bank Database |
| GAF | South Africa GDP | Per year | 2010-2020 | World Bank Database |

| Country | Brazil | Russia | India | China | South Africa |
|---|---|---|---|---|---|
| 2010 | 2,140,639,114,483.86 | 1,477,812,768,442.99 | 1,657,660,320,258.90 | 6,061,091,977,327.45 | 367,345,427,102.11 |
| 2011 | 2,548,973,132,352.94 | 1,985,526,208,275.05 | 1,807,018,710,051.40 | 7,481,123,496,788.67 | 405,768,835,686.05 |
| 2012 | 2,403,681,256,873.69 | 2,140,634,973,644.45 | 1,806,177,662,220.65 | 8,512,412,397,984.89 | 385,572,905,881.92 |
| 2013 | 2,438,446,843,189.09 | 2,212,868,846,622.34 | 1,833,601,556,952.89 | 9,492,579,024,339.07 | 357,214,254,626.85 |
| 2014 | 2,410,227,796,260.09 | 1,991,279,765,491.87 | 2,015,015,376,660.14 | 10,488,982,516,424.10 | 341,540,887,462.65 |
| 2015 | 1,768,302,238,329.98 | 1,325,732,263,446.11 | 2,079,182,325,743.56 | 11,019,763,021,469.30 | 309,749,111,813.47 |
| 2016 | 1,757,603,662,733.08 | 1,241,290,379,222.41 | 2,247,940,124,045.80 | 11,188,324,988,592.10 | 288,167,015,664.09 |
| 2017 | 2,024,930,461,457.34 | 1,532,146,087,071.58 | 2,622,799,774,506.27 | 12,300,721,956,915.40 | 339,070,750,925.79 |
| 2018 | 1,863,643,739,320.33 | 1,616,936,975,710.13 | 2,672,176,417,221.77 | 13,819,938,054,383.30 | 356,648,758,113.63 |
| 2019 | 1,827,512,816,466.85 | 1,633,927,975,465.61 | 2,843,265,469,943.79 | 14,246,120,664,698.00 | 341,523,075,219.40 |
| 2020 | 1,417,068,693,062.22 | 1,448,704,617,346.39 | 2,598,299,250,058.05 | 14,623,681,312,311.60 | 296,205,721,888.91 |

Table 2 includes Bitcoin annual data.

**Table – 2: Bitcoin Annual Prices**

As seen in the table, it started with $ 0.30 and reached $ 28,949.40 by the end of 2020. It has also been observed that this price has decreased from time to time in the interim periods. These data will be included in the Granger causality analysis and calculations will be made. Apart from these, there is also a table of GNP data of BRICS countries. These data can be seen in Table 3 below.

**Table – 3: Gross National Product Values of BRICS Countries**

| Date | Price |
|---|---|
| 2010 | $ 0.30 |
| 2011 | $ 4.70 |
| 2012 | $ 13.50 |
| 2013 | $ 805.90 |
| 2014 | $ 318.20 |
| 2015 | $ 430.00 |
| 2016 | $ 963.40 |
| 2017 | $ 13,850.40 |
| 2018 | $ 3,709.40 |
| 2019 | $ 7,196.40 |
| 2020 | $ 28,949.40 |

As seen in the table, the volumes of these countries remained at billion Dollar analyzed one by one with relationship between each Table 4 below. data of BRICS countries are included. While the GNP reach trillions of dollars; Only South African GNP values levels. Bitcoin annual price information was compared and the annual GNP of these countries, and the causality pair was tested. The results of these tests are shown in the

**Table – 4: Causality Relationship Between Bitcoin and Brazilian GNP**

The dependent variable: BRA

| | Ki-Square | GU | Possibility |
|---|---|---|---|
| BTC | 0.048563 | 1 | 0.8256 |

The dependent variable: BTC

|  | Ki-Square | GU | Possibility |
|---|---|---|---|
| BRA | 0.045576 | 1 | 0.8309 |

In Table - 4, Granger causality between Brazilian GNP and Bitcoin was examined, in this context, both Brazilian GNP and Bitcoin price were considered as separate dependent variables and causality was sought in both scenarios. In the table, BRA is coded as Brazil's GNP and BTC is coded as Bitcoin price. In the table, while Brazilian GNP is the dependent variable, the probability value for BTC is 0.8256, which corresponds to the null hypothesis "Bitcoin is not the Granger cause of Brazilian GNP." will require the hypothesis to be accepted. At the same time, since the probability value was 0.8309 when the dependent variable was BTC, the null hypothesis was accepted and a causal relationship between these two variables could not be determined.

**Table – 5: Causal Relationship Between Bitcoin and Russian GNP**

The dependent variable: BTC

|  | Ki- Square | GU | Possibility |
|---|---|---|---|
| RUS | 0.108342 | 1 | 0.7420 |

The dependent variable: RUS

|  | Ki- Square | GU | Possibility |
|---|---|---|---|
| BTC | 0.000172 | 1 | 0.9895 |

In the results in Table 5, Bitcoin is coded with BTC and Russian GNP data is coded with RUS. Again, since the probability values in both scenarios are well above 5%, the null hypothesis is accepted and it can be said that there is no causal relationship between them.

**Table – 6: Causal Relationship Between Bitcoin and India GNP**

The dependent variable: BTC

|  | Ki- Square | GU | Possibility |
|---|---|---|---|
| IND | 1.035831 | 1 | 0.3088 |

The dependent variable: IND

|  | Ki- Square | GU | Possibility |
|---|---|---|---|
| BTC | 0.754362 | 1 | 0.3851 |

In Table – 6, Indian GNP is coded with IND. In cases where both values are considered dependent variables, the probability values are above 5%, so it cannot be said that there is a causal relationship between these two variables.

**Table – 7: Causal Relationship Between Bitcoin and China GNP**

The dependent variable: BTC

|  | Ki- Square | GU | Possibility |
|---|---|---|---|
| CHN | 9.154977 | 1 | 0.0025 |

The dependent variable: CHN

|  | Ki- Square | GU | Possibility |
|---|---|---|---|
| BTC | 4.530905 | 1 | 0.0333 |

In Table 7, Chinese GNP data is coded as CHN. Unlike the others in this table, the probability values are below 5% in both cases. In this case, H1: "China GDP is the Granger cause of Bitcoin." and "Bitcoin is the Granger cause of China GDP." The hypothesis has been realized. In other words, it can be said that there is a mutual causality relationship between China and Bitcoin. The point that draws attention here is; In 2021, the Chinese Government banned Bitcoin activities throughout the country. However, according to analysis until this year, there is a mutual causality relationship between GNP and Bitcoin prices.

**Table – 8: Causal Relationship Between Bitcoin and South African GNP**

The dependent variable: BTC

|  | Ki- Square | GU | Possibility |
|---|---|---|---|
| GAF | 1.191375 | 1 | 0.2751 |

The dependent variable: GAF

|  | Ki- Square | GU | Possibility |
|---|---|---|---|
| BTC | 0.261283 | 1 | 0.6092 |

In Table 8, South Africa's GNP data is coded as GAF. Since no mutual causality relationship is found in this table, the null hypothesis will be accepted. Thus, neither Bitcoin Granger-causes the South African GNP data nor South African GNP Granger-causes Bitcoin.
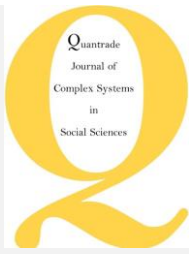
## 5. Conclusion

With the developing technology and rapid globalization, every transaction has started to be transferred to the electronic environment, and many transactions continue to be carried out in electronic environments. These developments are also open to generating new developments. Cryptocurrency was created at a time when trust in states, markets and governments was decreasing, and it gained a lot of value in a 10-year period and became extremely volatile.

In this study, a research was conducted on whether there is a causal relationship between crypto currencies and the GNP amounts of countries, based on Bitcoin, and BRICS countries were selected and included as samples in this research. With the Granger Causality Analysis, Bitcoin prices and GNP data of 5 countries were compared one by one, and the results were interpreted.

As a result of the analysis, no causal relationship was found between the GNP data of Brazil, Russia, India and South Africa and Bitcoin prices. However, a mutual causality relationship was observed between China's GNP and Bitcoin, and it was concluded that they were the cause of each other. On September 24, 2021, the Central Bank of China announced that the activities of Bitcoin and its derivatives are illegal and that sanctions will be imposed if they are detected (BBC). Since Bitcoin was free in China until September 2021, it showed a causal relationship between GNP and cryptocurrency in practice. This may lead to the following conclusion: If China's GNP affected Bitcoin prices as found in the study and was affected by it, it may have realized this and felt the need to intervene.

The results obtained from the study and the results obtained from Adrean's (2020) study are compatible with each other. The study confirmed Adrean's study and there is no interaction between countries' GNP and bitcoin prices.

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