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# Indexing

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ISI | International Scientific Indexing

**<u>RI-ROOTINDEXING</u>** 

ESJI | Eurasian Scientific Journal Index

ICI Index Copernicus

**General Impact Factor** 

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# **Behavior Financial Theory and Analysis of Investor Behavior in the Capital Markets in Lebanon**

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#### Abstract

This paper discussed the market emergence in the Middle and East generally and Lebanon specifically. We first consider the main components of market emergence in Lebanon, including the size, depth, activity, and transparency of the market, and proceed to a descriptive analysis. Aggregating these observations into four bootstrapped indexes, we analyze the factors leading to market emergence with a probity model. We find that market size and activity seem to affect market emergence, whereas pricing and transparency do not. Finally, decomposing country-level probabilities and implementing a cluster analysis suggest that the average process of market emergence is more pronounced in the Lebanon region than it is in other emerging areas, such as Latin America and Eastern Europe. Overall, the results suggest that the Lebanon capital markets may attract more capital flows in the future. However, the markets are still heterogeneous: Whereas Turkey, Jordan, and Egypt are moving closer to the standards of developed countries, Lebanon, Tunisia, and Morocco can still be viewed as frontier markets.

#### Keywords

Market Size, Lebanon, Market Emergence, Analysis, Capital Markets, Developed Countries, Pricing.

#### 1. INTRODUCTION

After President Michel Sleiman stepped down in May 2014, Lebanon went through an institutional vacuum which lasted until the 31st October 2016. It was the day on which the parliament elected Michel Aoun (a Christian former general), a member of the "March 8 Alliance", named after the pro-Syrian rally held on that date in 2005 and mostly composed of Shiite (including Hezbollah and Amal) and Christian parties. On the 3rd November 2016, Saad Hariri, leader of the Sunni members of the Future Movement party - a bloc within the "March 14 Alliance" (named after the date of the rally against the Syrian presence that followed Rafik Hariri's assassination.

The accident happened in February 2005 and formed mostly of Sunni and Christian parties united by their opposition to the March 8 Alliance - was appointed Prime Minister and formed a National Unity Government. During a visit to Riyadh on the 4th November 2017, Prime Minister Hariri decided to resign. This surprise declaration caused "devastation and chaos" in the country among all factions and, according to Mr Aoun, took place under pressure from the Saudi regime. On his return to Beirut on the 22nd November, Saad Hariri put his resignation on hold. This all has an impact on the economic market in Lebanon especially behavioral finance, which we will discuss.

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The branch of economics, which is concerned with this paradox, is called behavioral finance. This relatively new field seeks to combine behavioral and cognitive psychological theory with conventional economic theory in order to propose explanations as to why people might make irrational financial decisions.

Trading strategies are methods that traders use to determine when to buy and sell assets in the financial markets. Strategies are based on

- Technical analysis.
- Fundamental analysis.
- Quantitative methods.
- A combination of decision factors.

This field of study argues that people are not nearly as rational as traditional finance theory makes out. For investors who are curious about how emotions and biases drive share prices, behavioral finance offers some interesting descriptions and explanations. Lebanon has a recent breakthrough in this field, as lately the prime minister started to encourage foreign investors to invest in the country in various economic fields.

Being the second oldest market in the MENA after the Egyptian Bourse, the Beirut Stock Exchange (BSE) was founded in 1920, by a decree of the French Commissioner (Mallat, 2000). In its early years, Lebanon witnessed substantial economic activity, which translated into banking and services companies listing their stocks on the BSE. Moreover, trade was expanded to encompass shares of private companies set up under the French mandate to operate and manage some public services and sectors. This prompted the Lebanese bourse to flourish, with 50 stocks listed in the 1960s. Unfortunately, in 1975 the Lebanese Civil War erupted, hindering trade on the BSE, which was decisively halted in 1983. The Lebanese Bourse reopened in 1996. However, its trading activity was not substantial as it was before, due to the political and security uprisings that Lebanon faced, making the BSE the region's second smallest stock exchange (in terms of market capitalization) exceeding only that of Tunisia.

The Lebanese government approved the Capital Markets Law 161 in order to call for the establishment of the Lebanese Capital Markets Authority (CMA) that has two main aims delineating its mission: promoting and developing the Lebanese Capital Markets and protecting investors from fraudulent activities through issuing regulations that are in line with international best financial markets practices.

Capital Markets Law 161 in Lebanon provides a good framework and clear definition for the responsibilities of the CMA and protects it from any interference, political or otherwise. According to this law, the CMA should, among other things, organize and develop capital markets in Lebanon. It also promote their use by investors and issuers in Lebanon and abroad, reduce systemic risks in capital markets, protect investors from illegal, irregular or unfair practices, organize the availability of information to those distributing financial instruments to the public, organize and supervise the professional activities of the people who perform operations on financial instruments.

#### 2. LITERATURE REVIEW

In view of the various questionings of the classic financial theory or the theory of efficiency, the researchers in Lebanon were incited to develop a new current of research excluding certain hypotheses of this theory and to explain perfectly the functioning of financial markets in the country.

In this regard, the modern financial theory bent to privilege a new approach of the finance focused principally on the way of apprehending, of including or of modeling the real behavior of the people of the finance and its impact on the functioning of financial markets. Lebanon's economy follows a laissez-faire model. Most of the economy is dollarized, and the country has no restrictions on the movement of capital across its borders (Saleh, 2013).

In the modern days, many firms choose the investment plan that maximizes the entrepreneur's intertemporal utility, given static expectations. It is shown that the rate of investment is closely related to the rate of profit retention. It is also demonstrated that the optimal plan can be approximated by a flexible accelerator model of investment. If expectations prove wrong, the investment behavior of the firm could involve instantaneous debt and capital stock adjustment prior to the operation of the flexible accelerator (Steigum, 1983). We are interested in examination of herding behavior at the level of sectors by using data at the levels of companies in developed countries such as Lebanon. The primary role of the capital market in Lebanon is allocation of ownership of the economy's capital stock. In general terms, the ideal is a market in which prices provide accurate signals for resource allocation: that is, a market in which firms can make production-investment decisions, and investors can choose among the securities that represent ownership of firms' activities under the assumption that security prices at any time "fully reflect" all available information. A market in which prices always "fully reflect" available information is called "efficient" (Malkiel, 1970).

At present there is no theory describing the manner in which the price of risk results from the basic influences of investor preferences, the physical attributes of capital assets, etc. Moreover, lacking such a theory, it is difficult to give any real meaning to the relationship between the price of a single asset and its risk (Charbaji. 2003; Merton, R. C., 1987).



Figue 1. Relation between price and risk assist (Malkiel, 1970).

The model of investor behavior considers the investor as choosing from a set of investment opportunities that one which maximizes his utility. Every investment plan available to him may be represented by a point in the ER,  $\sigma$  R plane (Fama, 1998; Gates, C., 1998). If all such plans involve some risk, the area composed of such points will have an appearance similar to that shown in Figure 2. The investor will choose from among all possible plans the one placing him on the indifference curve representing the highest level of utility (point F). The decision can be made in two stages: first, find the set of efficient investment plans and, second choose one from among this set (Sharpe, 1964).



Figure 2. Investment Opportunity Curve (Sharpe, 1964).

Over the past few years, through its structural reform plan, the Lebanese government has deployed serious efforts to modernize the investment framework and offer the most suitable climate to foreigners and nationals desiring to invest in the country (Zarrouk, 2003; El Laithy, H., Abu-Ismail, K., & Hamdan, K., 2008). In 2001, the biggest thrust in investment promotion came in the form of fiscal incentives and facilitation services instituted through the Investment Development Law 360 and its subsequent applicable decrees (Atrissi, 2004).

## 3. METHODOLOGY

The methodology applied to understand behavioural finance is exploratory. The numerous works of ardent researchers and practitioners are conducted with an intention to present the concise importance of behavioural finance and the principles that influence the investors to behave irrationally in the stock markets. In this study, exploring the behavioural financial theory influencing Investor Behavior in the Capital Markets, which are already "out there", is the main aim, instead of inferring and building theory, the deduction approach is the most appropriate choice. The study starts with reviewing the behavioural finance theories in general and in the stock market, to get the theoretical and conceptual context as well as empirical findings of previous research, from which the

research model is proposed. Then, the questions used in the questionnaires are prepared. This process is quite consistent with the deductive approach which emphasizes that researchers may know how the world operates, thus using this approach to examine these ideas against "hard data" (Neuman & Kreuger, 2003; Ghauri & Gronhaug, 2010; Saunder et al., 2009; Bryman & Bell, 2007). The deductive approach is usually associated with quantitative searches, which involve collecting quantitative or quantifiable qualitative data and analyzing statistical methods, which is also compatible with quantitative research strategies (Bryman & Bell, 2007;Luu, 2011; Luu, 2012b; Luu, 2013a; Luu, 2013b; Luu, 2013c)

#### 4. RESULTS AND DISCUSSION

This is the exploratory type of research paper. In this paper attempt has been constituted to study and understand the concept of behavioral finance, and its benefits to investment decisions.

Objectives are as follow:

- To study the concept of behavioral finance.
- To understand difference between traditional finance and behavioral finance.
- To analyze the utility of models of behavioral finance for better investments decisions.
- Study of behavioral economics for understanding concept of bounded rationality

Together with a noticeable improvement in Lebanon's macroeconomic fundamentals, the improvement in its investment climate enabled Lebanon to attract much required investment as evidenced by an upward trend in FDI. Although some non-Arab capital – mainly European - was invested in infrastructure projects, the bulk of foreign capital channeled into the country originated from Arab countries. In fact, Arab FDI recorded a high of US\$500 million in 19991, before dropping to the US \$200 level in 2000 and 2001, amid an overall slowdown of the world economy as well as the aftershock of the events of September 11.

In 2002, Lebanon recorded a staggering increase in Arab FDI to US\$650 million, mainly stimulated by regained investors' confidence in Lebanon after the success of Paris II conference, where international donors pledged their support for the Lebanese government. Initial estimates for 2003 look promising despite the setbacks and the instability which dominated the region amid the war in Iraq, with Moody's Services predicting a sustained surge in FDI in Lebanon, with ratio of FDI to GDP rising from 1.7% in 2002 to an estimated 3.3% in 2003 and 4.2% in 2004.

Lebanon's public finance conditions are also an overriding concern to investors. In 2003, the government was able to reschedule 32% of the public debt through a \$10 billion financial package that included soft loans from donor countries after the Paris II meeting, a \$3.6 billion agreement with commercial banks and a \$4.1 billion scheme with the Central Bank. The outlook for 2004 looks good despite the fact that the privatization plan requires more government preparation and the public finance conditions stand to benefit from the full impact of Paris II. However, the BDL's FX reserves, which increased to a high of US\$12 billion, should play an important role in maintaining monetary stability, and reassuring investors of the strength of the Lebanese economy.

While Lebanon has made important strides in structural reform, the promotion of FDI is still lagging behind, and forecasted amounts of foreign investment do not meet the growth requirements of the Lebanese economy. Lebanon has relied, so far, on short term investments but failed to attract longerterm more stable and beneficial international capital. The challenges facing Lebanon revolve around four angles which are:

- Governance
- Public Finance
- Perception
- Geopolitical Conditions.

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In addition, Lebanon's current perception in investment circles has been somewhat obscured by misconceptions of what it can offer to investors. The Lebanese government has been and is currently exerting all efforts to showcase Lebanon and raise awareness about the virtues and the attributes of the business environment. However, many businesspeople in Europe and North America seldom realize the business opportunities for investment in Lebanon. To market Lebanon, IDAL is not sparing an opportunity to enhance its visibility within investment circles - regionally and internationally - , and most of all to put behind its image of a war-racked country. Meanwhile and in line with government's efforts to promote Lebanon, an advertising campaign – commissioned by the Ministry of Economy and Trade - publicizing the country as a tourist destination is being aired on CNN as of this month. On the other hand, investors also highlight regional stability as an important stumbling block before investing in Lebanon. This problem is not exclusive to Lebanon. The region has had a history of volatility – which has dampened investment. Caught in the middle of different conflicts, Lebanon has paid a high price for the region's instability in the form of lost investment opportunities.

Lebanon is disseminating the message, making sure that foreign investors are aware of investment opportunities in the country. Many other countries in the region are taking similar measures.

However, the entire region deserves better reputation than the one currently dominating the international business arena. This is where regional cooperation comes into play. Since we all share similar objectives and face common problems, there is a case for developing closer regional cooperation in the areas of investment policy and promotion. In addition, the initiative to create a network of IPAs in Arab countries launched last year can provide the momentum for such cooperation. All MENA countries stand to gain from improving the image of the region as an attractive investment destination.

Factor	Year						
ractor	1991 2000-2001		2002	2003	2004		
*FDI	500 M	200 M	650 M	950 M	1 B		
**GDP	-	-	1.7%	3.3%	4.2%		
BDL	-	-	-	-	12 B		
	After the end of	Because of the	Restore	Increasing	With the increase		
	the Lebanese	repercussions	investor	loans to	in foreign		
civil war and the of September		confidence	investors	currency reserves			
	return of life to	urn of life to 11, which led		while giving	by 12 billion US		
Reason	normal, which	to this	especially	facilities	dollars, this has		
	led to the	noticeable	after the	based on the	led to an increase		
	encouragement	decline.	success of	agreements	in the encouraging		
	of Arab		the Paris	concluded at	factors for		
	investors.		conference.	the time.	investment.		

**Table 1.** FDI and GDP in Lebanese investment

\*FDI: Foreign Direct Investment

\*\* GDP: Gross domestic product

**M: Million USD** 

#### **B: Billion USD**

5. CONCLUSION

Behavioral finance analyses the ways that people make financial decisions in Lebanon. Behavioral finance seeks to understand and predicts systematic financial market implications of psychological decision processes. In addition, it focused on the application of psychological and economic principles for the improvement of financial decision-making. Markets are assumed to be inefficient in behavioral finance in Lebanon. Stock market investments are prone to emotions and herd behavior, so the sudden fall or rises of stock market indices are common. In behavioral finance investors are normal and not rational, or intuitive so that they can take decisions about investments based upon company's performances, facts and profits.

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# Voluntary Insurance - A Proposed Product in Bank-led E-Banking Services: Statistical Analysis of Customers' Preferences

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#### Abstract

In digital-world, banking-services have been modernized. But it faces pitfalls being it riskiness. Many factors are unpredictable in e-banking. Moreover, since customers do not exactly remember the total amount s/he currently has in account, receiving email confirmation on transactions cause panic to accountholder. These perceived risk-factors have been undermining the prospects of cashless-society in world-economy country-wise such as Bangladesh. Banks can eliminate perceived-risk by adopting *Voluntary Insurance* - a proposed product in e-banking. Thus, the purpose here is to know how do customers feel about this probable product? Survey *questionnaire* is used for data-collection and for carrying-out convenience sampling reliability analysis. Then Hypotheses are developed and tested in choice problem on whether bank-led users prefer *Voluntary Insurance* (VI) as a product in e-banking-services. Statistical analysis of customers' opinions reveals that "age-group" and "occupation-group" of customers have different preferences on proposed-product where demographic factors impact customers' preferences.

#### Keywords

Bank-Led Digital-Banking, Perceived Risk, Voluntary Insurance As A New Product, Risk-Free Digital-Banking, Cashless Society

#### 1. INTRODUCTION

In today's *technology-driven* world-economy, banking-services have been modernized countrywise where Bangladesh-economy is no exception. Besides traditional banking, digital-banking, *particularly*, bank-led digital and mobile-led digital such as Agent-banking, bKash, Western-Union etc. here serve new-way financial-services (Rahman, 2020; The Daily Star, 2021). But, in the *21st-Century* business-mentality *era*, many factors are unpredictable (Rahman, 2018). Strict laws & its application can marginalize the magnitudes of *Perceived risk* where, in some cases, developed countries are ahead of developing countries.

In this journey, Bangladesh has made huge progress in digital-banking over the last decade where approximately over six percent of the population makes payments using mobile-led banking (The Daily Star, 2021). Being a country with population of 160 million, there are lot of opportunities and prospects when it come digital banking. However, for prompt & effective outcome in Bangladesh-economy, three factors are needed to come together and then work in cohesions (Rahman, 2018). These factors are a) payment instruments from end user's sides b) acceptance instruments from retailers & businesses and c) the trust factor. No doubt, the government has been playing important roles enabling environment with the help of FinTech - *Confirmation & Tech Communication*. But, FinTech services have been facing difficulties addressing the trust issues since the beginning of its journey in financial services (The Daily Star, 2021). It does not guarantee absolute risk-free digital transactions where developing countries are vulnerable. Furthermore,

since customers do not exactly remember the total amount s/he currently has in account, receiving email confirmation of any transactions including deducting account charges cause panic to corresponding accountholders. All these together might have led a slower growth of digital banking in countries like Bangladesh. Transferring cash takes a lot of trust in the system (Rahman, 2018). Many people in the country do not seem to truly trust digital money transfers. They feel it to be risky in multi-faucets *i.e.*, they face perceived risk. Thus, trust and feeling-risky are pivotal, which have been undermining the progression of digital-banking trends in Bangladesh-economy (The Daily Star, 2021).

Dealing with determinant "perceived-risks" (PR), the current author proposed in literature the Voluntary-Insurance (VI) in bank-led digital services (Rahman, 2018). In a comparison-study between bKash & bank-led e-banking, underpinning Factor Analysis and Hypothesis Testing on customers' opinions in Bangladesh-economy Rahman (2020) concluded in two-folds. They are a) attribute "Phone call confirmation" has influenced customers' preferences using bKash and b) attribute "No transaction fee" has influenced using bank-led digital. It clearly tells that having mobile-led banking such as bKash, Agent-banking, bKash, Western-Union etc. in place has eased overcoming technology type factor. However, there is at least one critical-factor category, which is overlooked or has received inadequate attention in policy-design, is the PR. Accordingly, Rahman (2020) re-emphasized the policy proposal of the VI or as a new product VI for effectively addressing the trust issues that have been undermining the expected progression of e-banking in Bangladesh. This proposed product deserves to be empirically scrutinized using customerspreferences in bank-led e-banking in Bangladesh. The recent studies in many countries such as the United States of America reveals that 70% of digital bank customers and 44% of traditional bank customers want embedded insurance offers based on transaction data (Global News wire, 2021).

Thus, in aim to address the PR-factors for heightening the trends of digital-transactions, this study takes on challenges scrutinizing customers' preferences for the VI as a new product in bank-led e-banking services in Bangladesh. In addition, this study evaluates the effects of two moderating variables *particularly* gender and experience using bank-led-digital in Bangladesh-economy.

#### 2. LITERATURE REVIEW

Perceived risk was *first* introduced in literature in 1960 (Bauer, 1960) and it was treated as an influence that had led the overall perceived value of purchasing behaviors. *Later*, Cunningham (1967) referred the perceived risk as the deterministic feeling if the result were adversely unfavorable. In year 1989, the Technology Acceptance Model (TAM) of Davis (1989) revealed three components. They are a) perceived-usefulness b) perceived ease of use and c) system usages. Hong *et al.* (2001) added two categories of external variables. They are "individual differences" and "system characteristics." Chau (1996) simplified it by using four perceived factors. They are a) perceived ease of use b) perceived long-term usefulness c) perceived short-term usefulness and d) behavioral intention to use.

While this progression in literature was going on, Venkatesh *et al.* (2003) compared and tested the variables in eight different models about users' TAMs and subsequently, they proposed a Unified Theory of Acceptance and Use of Technology (UTAUT). It is consisted of four core determinants of acceptance and four moderating factors. Il Im *et. al.* (2007) and Malika (1997) investigated four potential variables in users' technology-adoption. These variables were a) perceived-risk b) technology type c) user experience and d) gender. Their findings showed that perceived-risk, technology type and gender were found to be significant.

Since we live in a world of business-mentality where many factors are often unpredictable, it is *palatable* claiming that strict-laws & its fullest application can marginalize the magnitudes of this "perceived-risk." On this matter, in today's world, developed countries are doing better than that of developing countries. But it does not guarantee an absolute risk-free On-the-Go banking even in developed countries. On risk issue, developing countries are vulnerable, which might have led a slower growth of bank-led digital-banking in countries such as Bangladesh where mobile-led payment (bKash), has been dominating the trends of digital transactions (Rahman, 2018).

Dealing with determinants "perceived-risk", current author proposed in literature *Voluntary Insurance* (VI) in e-banking services (Rahman, 2018). Under the proposal, bank will introduce the VI as a new product in digital-banking-services where customers of digital-banking will decide buying it or not buying it. In literature, the proposal has not yet been challenged. Furthermore, the proposal deserves to be scrutinized on how the customers feel about it. The expected findings can be a guidance to policymakers addressing the issue by crafting digital-banking provision for having the VI product in bank-operation country-wise such as Bangladesh. This study advances with the goal where Bangladesh-economy is chosen as a case study, which can fill-up the gap in literature.

#### 2.1. Perceived Risk (Pr) In E-Banking Services: What Is It?

The concept "risk" is organized around the idea that a customer-behavior involves risk in the sense that any customers' actions may create consequences that they cannot anticipate anything approaching with certainty (Bauer, 1967). Perceived-risk is powerful in explaining customers' behaviors because customers are more often motivated to avoid mistakes than to maximize utility using digital-banking (Nygaard *et. al.*, 1999; Rahman, 2018). Risk is often present in choice-situation as customers cannot always be certain that a planned-use of digital-banking will achieve absolute-satisfaction. Online shoppers perceive greater risk when paying online-bills (Quintal *et al.*, 2006). Underpinning the reality of today's competitive-markets, perceived-risk is regarded as being a composite of several categories of risk. In literature, eight types of perceived-risk have been identified in digital-banking (Featherman, 2003; Pavlou, 2003; Lee, 2009). They are in brief

- 1) Security / privacy risk
- 2) Financial risk
- 3) Performance risk
- 4) Psychological risk
- 5) Customer dispute
- 6) Social risk
- 7) Time risk
- 8) PIN fraud risk

#### 2.1.1. Voluntary Insurance: What Is it? How should it work?

Addressing issues, *particularly* perceived risk-factors that undermine the growth of digitalbankingin world-economy country-wise, *Voluntary Insurance* as a product of digital-banking proposed by Rahman (2018) in literature. That raises questions: What is *Voluntary Insurance* ? How does it work?

#### 2.1.1.1. The Voluntary Insurance (VI)

It is well recognized that PR plays an influential role in setting the stage for the VI option in ebanking services (Rahman, 2018; Global News Wire, 2021). It is palatable assuming that customers of e-banking services are risk-averse. They prefer certainty to uncertainty. Fig - 1 illustrates risk preferences of a risk-averse banking-customer.



Fig. 1: Risk aversion scenario; Source: (Rahman, 2018)

In this uncertainty-world-activities, a customer receives actual utility from digital services, which will never fall on the TU (X) but on the chord (the bold line) as it is shown in Figure 1. The  $X_g$  as shown in Fig. 1, represents digital-banking service-outcome. Here customer may use a certain level of service X. Since the  $X_f$  represents negative outcome, thus, customer may use less of service X. Since the existence of the level of uncertainty is undeniable, a customer may not use  $X_g$  units of service X. Thus, the utility that this customer receives will lie somewhere on the chord (the bold line). Here the chord represents the expected utility (EU) of using service X that lies in the concavity of the curve. This is because, it is the average probability that the customer will use service X or will not use it. As a result, an individual will never receive TU (X<sub>a</sub>) but s/he will receive EU (X<sub>a</sub>). Thus, it can be preferable to customers of e-banking in Bangladesh-economy.

2.1.1.2. The way VI should work in bank-led digital-banking services

The financial sector can introduce it as a product in operation where bank or third-party can collect premium ensuring secured services. The way it would work is that customer's participation will be voluntary (Rahman, 2018). Insurance will be attached to customer's account, if and only if, customer wants it for digital services. Since the program will be designed in a way of transferring the risk away from its premium-payers, it will ensure premium-payers with a sense of certainty. Here premium-receivers will take *extra* measures for ensuring risk-free digital-banking services. For example, ATM Card or Credit Cards, Bank Cards etc. can be protected by setting two identifications such as password and a finger-scan. Suppose a customer wants to use ATM card where to access his account, the customer will have to use two identifications namely own setup password and previously chosen finger-scan say his thump or forefinger scan. Here finger scan in addition to password can be connected to the ATM system, which will make digital banking to be enhanced secure. Overcoming the risk of heist or hacker's access to bank accounts, under the proposal, similar own set up identifications can be used. In global banking cases such as remittances, the program can ensure risk-free on-the-go or digital banking services.

#### 2.2. Prospects f Vi As A New Product In E-Banking Services

Once a bank introduces Voluntary Insurance (VI) as a new product, it may be spread from bankers to customers. This process of life cycle of the VI product can be described using the "S-

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curve' or diffusion curve. This S-curve maps the growth of revenue or productivity against time. In the early stage of this progression, growth is slow as the new product establishes itself. At some point customers begin to demand and the product growth increases more rapidly. These new incremental changes to the product can allow the growth to continue. Toward the end of its life cycle, the growth slows and may even begin to decline. In later stages, no amount of new investment in that product will yield a normal rate of return. However, it will establish a secured bank-led digital banking through the bankers who introduce this new product.



Time

Fig 2: Impact of VI as a new product in digital banking Services

This successive S-curve will come along to replace the traditional banking and will continue to drive growth upwards where the VI new product is likely to have "product life" i.e., a start-up phase, a rapid increase in revenue and eventual decline. But it will never get off the bottom of the curve and will never produce normal returns. In this progression, it will play important roles presenting a secured bank-led digital-transaction system, which is mostly needed to attract today's probable customers. Overall, this progression will welcome cashless society sooner than delaying in the economy country-wise (Covergenius.com, 2022). In Fig. 2, the first curve shows a growth evolved from today's mixed of traditional & digital banking services. The second curve shows, with introducing VI as new product in digital-banking services, that currently it yields lower growth but will eventually overtake the current growth rate and lead to even greater levels of growth. This progression can someday present cashless society country-wise.

#### OBJECTIVES OF THE STUDY

- 1. To examine the relationship between customer preference and *Voluntary Insurance* as new product in aim to overcome perceived-risk factors in e-banking services.
- 2. To assess e-banking-customers' perceptions whether the proposed VI product in e-banking should be added for addressing perceived-risk factors.

#### 3. METHODOLOGY

The survey *questionnaire* in this study was designed to carry-out convenience sampling reliability analysis and then develop Hypotheses and test them in choice problem on whether bank-led users prefer *Voluntary Insurance* (VI) as a new product in digital-banking. For data collection

purposes, Google Survey Form was used, and questionnaire was randomly sent to one hundred (100) Bank-led digital users where users email addresses were collected using Facebook media. For hypothesis development & testing, respondents were informed that they would be presented alternatives and asked to indicate their preferences based on feature(s) of options. It was emphasized that there was no right or wrong answer. The researcher was interested only in "personal preference" of the participants.

*Sampling procedure:* For collecting data from respondents of digital-banking-users (only bankled) convenience sampling procedure was followed. Under this procedure, it was taken care that responses were collected from only those respondents who were able to understand the necessity of the research and could interpret that any of the fruitful outcomes would benefit them by having absolute risk-free digital-banking services. One of the key issues was under consideration while selecting the respondents for this study was that respondents should be aware about services offered by digital-banking channels of bank-led digital where VI as a product was available for addressing perceived risk-factors. Here respondents were asked whether the VI as a product in banking-services should be available for dealing with the perceived risk-factors. Questionnaire was designed in two parts. The first part was used to record the demographical characteristics of individuals whereas the second part records the attitude of individuals about preferences whether VI in e-banking services should be available addressing perceived-risk.

# 4. RESULT

For ensuring reliability, reliability coefficient has been tested by using Cronbach's alpha ( $\alpha$ ) analysis. To measure the reliability for a set of two or more constructs, Cronbach's alpha is a commonly used method where alpha coefficient values range between 0 and 1 with higher values indicating higher reliability among the indicators (Hair, *et al.*, 1992).

Table-1 interprets that total case has followed under examinations which are found to be valid are 100. This is because the total numbers of cases were 100. No missing or excluded cases are recognized. All the responses collected through respondents and governed by the questionnaire were systematically filled and specific attention was given to all the respondents if required so that proper and confirmed responses about the issues could be collected.

In Table-2, it is recognized that Cronbach value for the responses of the 100 respondents of the study is found to be 0.897 which is an excellent representation of the quality of data. It confirms approx. 89.7 % reliability of the collected data. Cronbach's  $\alpha$  (alpha) is an important psychometric instrument to measure the reliability of data. The reliability coefficient indicates that the scale for measuring trust & commitment is reliable. So, various statistical tools can be applied and tested.

		Number	%		
Cases = 100	Valid	100	100		
(Bank-led)	Excluded <sup>a</sup>	0	0		
	Total	100	100		
<sup>a</sup> List wise deletion based on all variable in the procedure					

Table 1	: Case	processing	summary
		F 0	

#### Source: Author, Survey Data 2021

Cronbach's α	No. of Items
0.897	100

#### Table 2: Reliability Statistics

Source: Author, Survey Data 2021

# 4.1. Analysis Of Relationship Between Respondents' Demographic Variables And Preferences For Vi Product In E-Banking

Analysis of relationships between respondents' demographic variables and preferences for VI in e-banking services in Bangladesh is captured in this section of the study. To investigate the relationship between demographic variables a) educational qualification b) age c) gender and d) occupation and respondent-preferences for the VI, the following hypotheses are formulated. Here demographic variables are independent and respondents' preferences for VI are dependent.

 $H_{01}$ : There is no relationship between Gender and preference for VI as a product in digital banking services.

 $H_{a1}$ : There is relationship between Gender and preference for VI as a product in digital banking services.

 $\mathbf{H}_{\texttt{o2}}$  There is no relationship between Age and preference for VI as a product in digital banking services.

 $H_{a2}$ : There is relationship between Age and preference for VI as a product banking in digital-banking services.

 $H_{03}$ : There is no relationship between Educational Qualification and preference for VI in digital-banking services.

 $H_{a3}$ : There is relationship between Educational Qualification and preference for VI in digital-banking services.

 $H_{\mbox{\tiny 04}}$  There is no relationship between Occupation and preference for VI in digital banking services.

 $H_{\mbox{\tiny a4}}$  There is relationship between Occupation and preference for VI in digital banking services.

 $H_{05}$ : There is no relationship between Concerns of perceived risk-factor and preference VI in digital-banking services.

**Ha5:** There is relationship between Concerns of perceived risk-factors and preferences for VI in digital-banking services.

Consequences of Examination of Relationship between Demographic Variables and Preferences for the VI by the Respondents are as follows:

Test of homogeneity of variances				
Usage pattern of digital-banking services: Mobile-led & Bank-led				
Levene Statistic	df1	df2	Sig.	
0.728	1	98	0.523	

**Table-3:** Homogeneity test of variance for Gender & Usage of digital-banking

#### Source: Author, Survey Data 2021

The Levene Statistical Test for Equality of Variance is performed to test condition that the variances of both samples are equal or not. A high value results normally is in a significant difference. But here the Table - 3 result Sig. = 0.523, which could interpret as no equal variance.

ANOVA						
Usage pattern of digital-banking services						
	Sum of square	df	Mean square	F-value	Sig.	
Between Groups	5.236	1	5.236	2.091	0.058	
Within Groups	245.320	98	2.503			
Total	250.556	99				

**Source:** Author, Survey Data 2021

In the Table – 4, the variation (Sum of Squares), the degree of freedom (df) and the variance (Mean Square) are given for the within and the between groups, as well as the F value (*F*) and the significance of the F (*Sig.*). Significance (*Sig.*) indicates whether the null hypothesis – the population means are all equal, which must be rejected or accepted. As we can see, there is a good difference between the two Mean Squares (5.236 and 2.503), resulting in a non-significant difference (F = 2.091; Sig. = 0.058). The Sig. value is higher than the Sig. level of 0.05. This means that H<sub>01</sub> must be accepted which states that there is no relationship between gender and preferences for the VI in digital-banking services. Both male and female equally prefer the VI in digital-banking services and shows positive response for it.

Table 5: Test of Homogeneity of Variance for Age and Preferences for VI

Test of Homogeneity of Variances				
Preference Patterns for the VI product in digital banking services				
Levene Statistics df1 df2 Sig.				
1.235	3	96	0.002	

#### Source: Author, Survey Data 2021

Underpinning the Table-5, it can be interpreted that because of Sig. = 0.003, the equal variance can be assumed. Underpinning the Table – 7, it can be interpreted that there is a difference between the two Mean Squares (2.177 and 2.642), resulting in a significant difference (F = 0.823; Sig. = 0.032). The Sig. value is lower than the Sig. level of 0.05.

This means that  $H_{02}$  must be rejected which states that there is relationship between the age and preferences for the VI in digital-banking services, which can be offered to respondents by their banks. Thus, the usage of digital-banking services is not equal for the different age group (Under 20 Years, 21-30 Years, 31-40 Years and Above 41 Years) people / respondents

ANOVA						
Preferences pattern for the VI						
	Sum of Sq.	df	Mean Sq.	F	Sig.	
Between Groups	6.532	3	2.177	0.823	0.032	
Within Groups	253.69	96	2.642			
Total	260.222	99				

#### Table 6: One Way ANOVA for age and

#### **Source:** Author, Survey Data 2021

Underpinning Table – 7, it can be interpreted that since the value of the Sig. = 0.016, therefore, the equal variance can be assumed. Relying on Table – 8, it can be interpreted that there are differences between the two Mean Square values (1.307 and 2.474), which result a significant difference (F = 0.5283; Sig. = 0.042). Here the Sig. value is lower than the Sig. level of 0.05.

**Table 7:** Test of Homogeneity of Variance for Educational Qualification and Preferences for the VI in Digital-banking Services

Test of Homogeneity of Variances				
Preferences pattern for the VI				
Levene Statistics	df1	df2	Sig.	
1.624	3	95	0.103	

#### Source: Author, Survey Data 2021

**Table 8:** One Way ANOVA for Education. Qualification and Preferences for the VI in digital banking operation

ANOVA					
Preferences of VI in digital-banking services					
Sum of Sq. df Mean Sq. F-value Sig.					
Between Groups	5.231	4	1.307	0.5283	0.042
Within Groups	235.12	95	2.474		
Total	240.351	99			

Source: Author, Survey Data 2021

This means that the Hypothesis (H<sub>03</sub>) must be rejected, which states that there is relationship between the educational qualification and preferences for the VI among the respondents. Thus, preferences for the VI among the respondents are not equal for the respondents of different qualification background like below secondary, higher secondary, graduate, post-graduate, and professional degree-holder. Means educational qualification significantly affects the preferences for the VI as a product in digital-banking services.

**Table 9:** Test of Homogeneity of Variances for Occupation and Preferences for the VI in digitalbanking services

Test of Homogeneity of Variances							
Preference pattern for the VI							
Levene Statistic df1 df2 Sig.							
1.235 5 194 0.32							

Source: Author, Survey Data 2021

Table–9 interprets that because of Sig. = 0.023, the equal variance can be assumed. Accordingly, Table–10 interprets that there is difference between the two Mean Squares (0.4246 and 5.774), resulting in a significant difference (F = 0.0735; Sig. = 0.032). The Sig. value is lower than the Sig. level of 0.05.

This means that the H<sub>04</sub> must be rejected, which states that there is relationship between occupation and preferences for the VI. Thus, the preference for the VI is not equal for the respondents of different occupation background like student, Govt. Service, Private Service, Business and Professional. It interprets that a working person will frequently use bank-led digital-banking channels like ATM, Internet Banking rather than students. At the same time, person working in private jobs, businessman and professional use bank-led digital services frequently rather than that of government service bank-led users.

ANOVA									
Preference pattern for the VI product in today's digital-banking services									
Sum of Sq. df Mean Sq. F-value Sig.									
Between Groups	2.123	5	0.4246	0.0735	0.032				
Within Groups	542.78	94	5.774						
Total	Total 544.903								

Table 10: One Way ANOVA for Occupation & Preferences for the VI product

**Source:** Author, Survey Data 2021

Serial No.	Hypotheses	Differences	Status
1	Ho1	Non-Significant	Accepted
2	H02	Significant	Rejected
3	H03	Significant	Rejected
4	H <sub>04</sub>	Significant	Rejected
5	H05	Significant	Rejected

Table 11: Status of Hypotheses established for analysis of relationship between demograph	nic
variables and preference for the VI product today's digital banking	

#### Source: Author, Survey Data 2021

So, by acceptance and rejection of the hypotheses, in Table–11, it interprets that age, qualification and occupation are the significant variables. And preferences for the VI product here vary according to age, education, occupation. Only gender variable is not found to be significant means there is no variation for gender (male and female) for the preferences here.

#### 4.2. How The Findings Of This Analysis Be Instrumental?

This effort is to bring the findings of the Survey-Opinions to bank authority(s) or policymakers' attentions so that the VI can be introduced as a product in digital-banking services in Bangladesheconomy. This raises questions: how can the proposed product be instrumental to bank-sector and to the human society we live in?

Answering the questions posed, it is palatable that having the VI in place can transfer the risk away from customers, which will directly benefit both banking sector as well as the bankcustomers. It can further attract new customers who were on the brink using digital banking but just felt it was risky. It can facilitate the customers with incentives for increasing usages of number of transactions of digital banking while maintaining optimal utility of it. Furthermore, it will be a new product, *obviously* legal one, which can serve as lifeblood to business-companies and to societies. It can ease in multi-faucets. They are a) ensured new value for customers, b) improved society and c) continued existence of the company in competitive market.

Thus, bank authority(s) or policymakers of Bangladesh can play effective roles for better-ness of its modern-society when it come digital-banking services. Bank Laws in Bangladesh contains multi-faucets provisions. The adoption by the Bangladesh Bank of a deposit insurance system (DIS) was a significant development, which now covers bank-deposits, bank-account, however, digital transactions are not insured. But the ongoing usages of FinTech are assumed to ensuring risk-free but, it has been facing difficulties addressing the trust issues since the beginning of its journey in financial services (The Daily Star, 2021; The Financial Express, 2016). It does not guarantee absolute risk-free digital transaction, which might have led a slower growth of digital banking in countries like Bangladesh.

*Voluntary Insurance* as a new product in place can ensure risk-free On-the-Go-banking, which can guarantee elevated self-service-banking activities in world-economy country-wise such as in Bangladesh. This can be beneficial to customers because it can ensure savings in the form of cost and time. Also, it can facilitate a sense of relief of a user from psychological stress of perceived risk-factors in digital-banking services. Thus, customers will flock to it when they use banking

services. By *extra* advancement of ICT usages, banking sector can be further competent cuttingoff its operating costs, meeting customers' needs and keeping up with global changes.

With this *win-win* setting for service-provider & customer (user) of the product (the voluntary insurance) in digital-banking, financial sector globally is no exception. To sail through tough competition and to sustain revenues, financial sector in many countries such as Bangladesh are engaging more than that of other kinds of bank on adoption of ICT in its operation (Quintal et al., 2006; Ludmila *et. al.*, 2019). However, it warrants for bank authority(s) or policy-practitioners' prompt effective-efforts on attracting more customers meeting challenges in case Bangladesh is moving for being "cashless society" in the future.

## 5. CONCLUSION

It can be concluded that having Voluntary Insurance as a product in digital-banking services can be helpful to the progression of digital banking by ensuring risk-free services, which can reduce bank-operational-costs. It can attract more users by significantly improving customers' satisfactions, customer-bases, bank-benefits and many more. It is also observed that customers are deriving several benefits from the digital banking over their traditional way of banking. However, several negative factors are significantly affecting the prospects of digital banking to its fullest. But banks should work to eliminate the negative issue particularly perceived riskfactors by introducing the VI as a product in digital-banking, which can ensure cashless society sooner than delaying in Bangladesh-economy. The result of this study clearly shows that different age group of customer and different occupation group of customers have different preferences for the VI product. The results also propose that demographic factors significantly impact customers' preferences in supports of the product for ensuring risk-free digital-banking services. Accordingly, bank authority(s) and policymakers of Bangladesh can play effective-roles for better-ness of its modern-society when it come digital-banking services. Thus, this effort is to bring the findings of the Survey-Opinions to the attentions of bank-leadership and policymakers so that proposed product can be introduced in digital-banking in Bangladesh-economy, which can be example for other countries.

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# Do Religion-based Banks Perform Better than Conventional Banks: A Case from Indonesia

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#### Abstract

This study aimed to measure the growth and performance of Islamic Banking (IB) in Indonesia and to compare it with the conventional (commercial and rural) bank. To answer this objective, data sourced from OJK was deployed. IB in this context is the commercial bank (both sharia commercial-SCB bank and sharia unit business) and sharia rural bank (BPRS). Data were analyzed using descriptive statistic method. Generally, SCB showed higher mean growth compared to the conventional commercial bank (CCB). But among them, only TPF and assets better in the SCB than the CCB. The CCB is better than the SCB based on NPL, CAR, and ROA. We found that the growth of the TPF was higher in the non-sharia rural bank (BPR) than the BPRS. Organization number and credit total of BPRS were higher and different significantly from BPR. BPRS has higher NPL and LDR, and lower ROA and ROE than BPR.

#### Keywords

Sharia, Commercial Bank, Rural Bank, Bank Growth, Bank Performance.

#### 1. INTRODUCTION

Indonesia is the biggest Moslem country based on the religion of the population. According to census 2010 conducted by Statistic Indonesia, the percentage of the Moslem population is 87.18% of 238,518,800 population. It is equal to 207,940,690 population. If the same percentage used in 2020 data, the Moslem population in Indonesia is 235,560,360. It places Indonesia as the biggest Moslem country in the world.

Over the past decades, banking businessman has been inspired by the sharia concept. The implementation of sharia in banking produces Islamic Banking (IB). IB in this context was included commercial banks and the rural bank that implemented the sharia concept in their business. In Indonesia, IB has been introduced in 1992 (Noversyah and Siringoringo, 2015:1), marked by the dual banking system introduced by the Indonesian government (Ascarya and Yumanita, 2005:56). Since the majority of the potential customer is Moslem, the IB is supposed to playing a pivotal role as an interest-free institution under the shadow of Islamic laws.

IB carries out banking business activities based on the sharia principle. Implementation of sharia principles in IB is in term of agreement based on Islamic law between banks and other parties (depositing funds and/or financing business activities), or other activities declared in accordance with Sharia. IB is different from the conventional bank in terms of operational foundation practiced. The Conventional bank is operated based on interest whilst IB is operated based on profit sharing. According to Ascarya and Yumanita (2005:5), IB should practice no interest (riba), free from gambling business (maysir), free from unclear or doubtful things (gharar), free from things that are damaged or invalid (bathil), and only finance halal business activities.

In addition, the majority of Indonesian Moslem obey the Islam theologian (ulama) guidance that is called a fatwa. On 26<sup>th</sup> July 1975 on the first ulama conference was established Majelis Ulama Indonesia (MUI – Indonesian ulama council). MUI is a non-governmental organization of ulama, zu'ama, and Islamic scholars in Indonesia to guide, foster, and nurture Moslem throughout Indonesia (Anonim, 2020a). This obedience is showed by Kurniawati and Savitri (2020:522) that halal awareness of Indonesian consumers is very good (very high) with an index of 94.91. Related to IB, MUI issued a Fatwa in 2004 concerning that bank interest is haram (illegitimate).

The Indonesian government also intervened to accelerate the growth of IB. Accordingly, the IB is expected to grow faster (Imam and Kpodar, 2013:112). However, according to statistics published by OJK monthly, market share of IB in Indonesia is only 5.6 per cent and 5.68 per cent in the year 2019. Until the year 2019, IB customer is 31.89 million, equal to 13.37 per cent of the Moslem population in Indonesia. It is obviously IB in Indonesia has not succeeded to win Moslem customer.

Indeed the IB in Indonesia was established far too late after the conventional bank. Adopting the concept of the product life cycle as proposed by Levitt (1965) IB in Indonesia has crossed the introduction stage and entering the growth stage. But does it grow significantly? How does it grow compare to conventional banking? So thus this study tried to answer those questions. Nevertheless, the extensive research done by scholars related to IB (Sarim et al., 2019; Noversyah and Siringoringo, 2015, 2016; Abduh and Omar, 2012; Hutapea and Kasri, 2010), the topic of IB growth is scarce, especially for Indonesia case.

A few studies related to IB in Indonesia have been conducted by a few researchers (Hutapea and Kasri, 2010; Abduh and Omar, 2012; Puteh et al., 2017). Despite the very few studies discussed IB in Indonesia, there is no one discussion on the growth of IB. Generally, they studied the relationship between Islamic financial development and economic growth (Abduh and Omar, 2010), bank efficiency (Puteh et al., 2017), and comparison between Islamic and conventional banks based on bank margin (Hutapea and Kasri, 2010). Our research apart from using the latest data, the study of IB growth is scarce.

A good growth certainly will relate to good performance. When the IB shows a good performance, lenders will trust the bank and save more money, or attracts new customers. Vice versa, as depicted by formula used to calculated bank performance, when the growth is good the performance will also be good.

Considering all facts and flow of thought abovementioned, the objectives of this study were three folds:

1. Measuring and comparing the growth of IB and conventional bank in Indonesia.

2. Measuring and comparing the performance of IB and conventional bank in Indonesia.

3. Analyzing the relationship between bank growth and performance.

## 2. RESEARCH METHOD

## 2.1. The Object and Subject of the Research

Based on the nature of the business, bank is classified into commercial bank and rural bank. The objects of this research were commercial bank and rural bank. Based on the principle of the operation, again a bank can be classified as Islamic Banking (IB) and conventional banking.

For the sake of equality, we compared sharia bank with conventional bank and BPRS with BPR. Since our objective was to study the prospect of sharia in the banking business, so thus the commercial banking in our study is consists of conventional and sharia banks, and rural banking is consists of the conventional rural bank (BPR) and sharia rural bank (BPRS). Sharia bank and BPRS in this respect refer to IB.

## 2.2. Data and Variable

Banking growth may be measured based on various indicators. Lu and Swisher (2020) use the number of bank organisations, assets total, deposits total, and loans total as the indicators of bank and credit union growth. In this study, the concept of growth was viewed based on the new bank organisation, operational office, assets total, third-party fund (TPF), credit total, and the operating profit. In this case, we added one indicator to Lu and Swisher (2020), i.e. the operating profit. However the operating profit was only used in commercial bank, not in rural bank. Rural bank does not report monthly operating profit so thus there is no such data in OJK statistics. Data deployed was percentage added yearly of new bank organisation, operational office, assets total, TPF, credit total, and the operating profit.

There are many indicators that used to measured bank performance. Central Bank of Indonesia issued the regulation related to bank performance measurement and reporting (regulation number 13/1/PBI/2011 for commercial conventional bank, number 9/1/PBI/2007 for sharia bank, number 30/12/KEP/DIR 1997 for BPR, and number 9/17/PBI/2007 for BPRS). In order to be able to make comparison between commercial conventional bank and sharia bank, the indicators adopted from the regulation were Non-Performing Loan (NPL), Return on Asset (ROA), the Capital Adequacy Ratio (CAR), Operating Expenses to Operating Income (BOPO) and Loan to Deposit Ratio (LDR). Similarly, for rural banks, we used the NPL, ROA, Return on Equity (ROE), and LDR indicators.

No	Indicator	Description	Commercial	Rural
		-	bank	bank
1.	Percentage growth of	Total bank brands of year t divided by	$\checkmark$	
	bank brands	total bank brands of year t-1		$\checkmark$
2.	Percentage	Total offices of year t divided by total	$\checkmark$	$\checkmark$
	growth of offices	offices of year t-1		
3.	Percentage	Total assets of year t divided by total	$\checkmark$	$\checkmark$
	growth of assets	assets of year t-1		
4.	Percentage	Total TPF of year t divided by total TPF	$\checkmark$	$\checkmark$
	growth of TPF	of year t-1		
5.	Percentage	Total credit of year t divided by total	$\checkmark$	$\checkmark$
	growth of credit	credit of year t-1		
6.	Percentage	Total operating profit of year t divided	$\checkmark$	
	growth of	by total operating profit of year t-1		
	operating profit			
7.	Percentage	Total NPL of year t divided by total	$\checkmark$	$\checkmark$
	growth of NPL	NPL of year t-1		
8.	Percentage	Total ROA of year t divided by total	$\checkmark$	$\checkmark$
	growth of ROA	ROA of year t-1		
9.	Percentage	Total LDR of year t divided by total	$\checkmark$	$\checkmark$
	growth of LDR	LDR of year t-1		
10.	Percentage	Total BOPO of year t divided by total	$\checkmark$	
	growth of BOPO	BOPO of year t-1		
11.	Percentage	Total CAR of year t divided by total	$\checkmark$	
	growth of CAR	CAR of year t-1		
12.	Percentage growth of	Total ROE of year t divided by total		$\checkmark$
	ROE	ROE of year t-1		

Table 1. Bank Growth and Performance Indicators

## 2.3. Data Collection and Analysis

Data related to bank growth and performance indicators are categorized as secondary data. Data was downloaded from Otoritas Jasa Keuangan (OJK-The Financial Service Authority) website. Data was published in "Statistik Perbankan Indonesia (SPI-Indonesia Banking Statistics)" and Statistik Perbankan Syariah (SPS-Sharia Banking Statistics)". The data by OJK was generated based on a monthly report of the conventional commercial bank, sharia commercial bank, BPR, and BPRS. Table 1 shows the description of the secondary data deployed.

Data collected further was analyzed using the statistical method. In order to analyze the bank's growth and performance, descriptive statistics, t-test, and correlation were deployed. The average growth of sharia bank, conventional bank, BPRS, and BPR were calculated individually using descriptive statistics. The comparison of mean growth between sharia bank and conventional bank, and also between BPRS and BPR was performed using the t-test. Further, the relationship between growth and performance was analyzed individually on sharia bank, conventional bank, BPRS, and BPR using the correlation.

#### 3. RESULT

## 3.1. IB Growth and Performance, and Its Comparison to Conventional Bank

The discussion of growth and performance is divided into two sections in accordance with the separation between the commercial bank and rural bank. The first section is focused on the commercial bank, i.e. between sharia bank and conventional bank. The second section is focussed on the rural bank, i.e. between BPR and BPRS.

#### 3.1.1. Sharia and Conventional Commericial Banks Growth and Performance

Drawing on 18 years of data (2002-2019), we analyse the growth and performance of IB (sharia bank and BPRS) and compare it to conventional banking (conventional bank and BPR). We started the discussion with sharia and conventional banks.

	independent Samples Test									
		Levene's Test Varia	for Equality of nces				t-test for Equality	/ of Means		
							Mean Std Error		95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Difference	Difference	Lower	Upper
percentage of bank organisation growth	Equal variances assumed	3,599	,067	-1,965	32	,058	-10,953	5,575	-22,309	,403
	Equal variances not assumed			-1,965	24,090	,061	-10,953	5,575	-22,457	,551
percentage of office growth	Equal variances assumed	1,912	,176	-1,231	32	,227	-9,06586	7,36732	-24,07259	5,94087
	Equal variances not assumed			-1,231	31,942	,227	-9,06586	7,36732	-24,07366	5,94194
percetange of credit growth	Equal variances assumed	8,472	,007	-1,872	32	,070	-13,42999	7,17513	-28,04525	1,18527
	Equal variances not assumed			-1,872	18,436	,077	-13,42999	7,17513	-28,47889	1,61891
percentage of third party fund growth	Equal variances assumed	11,762	,002	-2,926	32	,006	-21,64361	7,39720	-36,71121	-6,57602
	Equal variances not assumed			-2,926	16,714	,010	-21,64361	7,39720	-37,27070	-6,01653
percentage of asset growth	Equal variances assumed	10,879	,002	-6,044	32	,000	-37,19908	6,15445	-49,73529	-24,66288
	Equal variances not assumed			-6,044	16,827	,000	-37,19908	6,15445	-50,19400	-24,20417
percentage of operating profit growth	Equal variances assumed	,006	,940	-,703	29	,487	-10,51812	14,95408	-41,10265	20,06640
	Equal variances not assumed			-,708	28,428	,485	-10,51812	14,86560	-40,94830	19,91206

#### Table 2. The Comparison Mean Growth Between Sharia and Conventional Commercial Banks

Table 2 shows the average growth of the conventional bank and sharia bank yearly from 2003 until 2019. Despite the low market share, the growth of the sharia bank is increasing. Based on bank organisation number, sharia bank enjoying positive growth (10.28 per cent on average) whilst conventional bank experiencing negative growth (-0.67 per cent on average). It shows that the sharia bank is more resilient to economic recession than the conventional bank.

Worldwide comparison, the growth of sharia bank organization in Indonesia is better. Comparison of total sharia bank worldwide attracts attention. The total number of sharia banks in Indonesia in the year 2014 and 2017 is stable at 20. Whilst sharia bank over the world decreased in 2017 to become 298 (Anonim, 2020b) compared to the year 2014 that was 400 (Global Finance). Surprisingly, the growth of sharia bank was not statistically different from the conventional bank based on bank organisation number, as can be seen in Table 3.

or oup statistics									
	banktype	Ν	Mean	Std. Deviation	Std. Error Mean				
NPL	conventional bank	18	3,6906	1,95739	,46136				
	shariah bank	15	5,3762	3,24871	,83881				
CAR	conventional bank	18	19,8644	2,43672	,57434				
	shariah bank	15	15,2307	3,01080	,77739				
ROA	conventional bank	18	2,6983	,43204	,10183				
	shariah bank	15	1,4020	,54185	,13991				
BOPO	conventional bank	18	83,1800	6,23033	1,46850				
	shariah bank	15	83,4360	7,46176	1,92662				
LDR	conventional bank	18	74,7367	18,00200	4,24311				
	shariah bank	15	94,0780	9,44456	2,43858				

		1.0	
Fable 3. The	Average Perforn	nance of Comr	nercial Bank

Crown Statistics

In line with the growth of the total number of sharia bank organisation, the growth of total offices also increases during the period 2003-2019. Although both bank types experience positive growth, yet sharia bank (19.73 per cent) enjoys higher growth than the conventional bank (10.67 per cent) as depicted in Table 2. However, the growth of total offices of sharia bank was not differed statistically from the conventional bank, as shown in Table 3.

Using credit as an indicator, the growth of sharia bank (31.09 per cent) was higher than the conventional bank (17.67 per cent) during the time period of research as shown in Table 2. The growth of both types of bank was positive. However, similar to the number of bank organizations and offices, the growth of total credit in sharia bank was not differ significantly from in conventional bank, as depicted in Table 3. Based on the TPF indicator, the sharia bank enjoyed higher growth than the conventional bank, as can be seen in Table 2. Accordingly, as shown in Table 3, the TPF growth in sharia bank was different significantly with the conventional bank at 5 per cent. It means the TPF growth in sharia bank is better than in the conventional bank.

Another indicator that place the growth of sharia bank better than conventional is the total of the assets. Not only it is higher in sharia bank but also significant different at 1 per cent from the conventional bank. So thus sharia bank enjoyed better growth than conventional bank based on the total of the assets. When the average growth of the total of assets year 2002-2019 in the conventional bank is negative (-2.21 per cent) as shown in Table 2, sharia bank enjoyed positive growth at 34.99 per cent. The evidence also provides an increasing growth of operating profit in sharia and conventional banks during the period of 2003-2019. Similar to previously discussed indicators, operating profit growth in sharia bank (36.57 per cent) is higher than in conventional bank (26.05 per cent). However, there is no enough evidence to show the difference between the two types of banks based on operating profit.

Good performance is the goal of every organization. As discussed and used in practical extensively, we deployed NPL, CAR, ROA, BOPO, and LDR as key indicator performance (KIP) of commercial banks. We measured the growth of KIP in both banks type and analysed the comparison.

		Levene's Test Varia	for Equality of nces	t-test for Equality of Means						
							Mean	Std. Error	95% Confidenc Differ	e interval of the ence
		F	Sig.	t	df	Sig. (2-tailed)	Difference	Difference	Lower	Upper
NPL	Equal variances assumed	4,846	,035	-1,840	31	,075	-1,68564	,91616	-3,55417	,18288
	Equal variances not assumed			-1,761	22,087	,092	-1,68564	,95732	-3,67055	,29926
CAR	Equal variances assumed	,407	,528	4,889	31	,000	4,63378	,94780	2,70072	6,56683
	Equal variances not assumed			4,794	26,863	,000	4,63378	,96654	2,65013	6,61742
ROA	Equal variances assumed	1,050	,314	7,650	31	,000	1,29633	,16946	,95072	1,64195
	Equal variances not assumed			7,491	26,612	,000	1,29633	,17304	,94104	1,65163
BOPO	Equal variances assumed	,378	,543	-,107	31	,915	-,25600	2,38222	-5,11457	4,60257
	Equal variances not assumed			-,106	27,382	,917	-,25600	2,42247	-5,22326	4,71126
LDR	Equal variances assumed	5,335	,028	-3,747	31	,001	-19,34133	5,16183	-29,86896	-8,81370
	Equal variances not assumed			-3,952	26,565	,001	-19,34133	4,89394	-29,39056	-9,29211

 Table 4. The Comparison of Performance Between Sharia and Conventional Commercial Banks

 Independent Samples Test

Table 4 shows this KIP both on sharia and conventional banks. As depicted in Table 4, the average of CAR and ROA of the conventional bank are higher than the sharia bank. The average of CAR of the conventional bank is 19.86 per cent compared to 15.23 per cent of sharia bank. The average of ROA of the conventional bank is 2.70 per cent compared to 1.4 per cent of sharia bank. The ROA of both bank type can't be categorized as strong. According to Choudry (2018) a bank can be categorized as strong when ROA indicator above 10 per cent. It implies both bank type do not have the ability to manage their assets in producing the benefits (Athanasoglou et al., 2008). But for Indonesian case, The Central Bank of Indonesia (bank Indonesia) set up ROA greater than 1.5 per cent as the first rank. It means using Bank Indonesia regulation, both sharia and conventional banks indicate good profitability. However, it can't be concluded that both bank types were experiencing a loss (Athanasoglou et al., 2008) or good profit (Ginting et al., 2012), since ROA is not the only indicator of profitability. Bank Indonesia set up ROA as supported indicator of profitability (Ginting et al., 2012).

The NPL of sharia bank is higher than of conventional bank. The NPL of sharia bank exceeds the safe limit of a bank according to Mustika et al. (2015). Based on Bank Indonesia rank, the sharia bank is categorized in third rank ( $5 \le$  NPL<8) whilst conventional bank at the second rank ( $3 \le$  NPL<5 (Ginting et al., 2012). Using Bank Indonesia regulation of BOPO, both bank type do not show the best performance but fall into a good range. Bank Indonesia set up BOPO 99.2 per cent as the best although less than it still good (Ginting et al., 2012). The LDR of sharia bank are higher than in the conventional bank but both bank type show a good performance. The LDR of both bank type ranges between 70 per cent and 100 per cent so thus there is no excess liquidity and inadequate refunds indication nor excess asset growth indication (Choudry, 2018).

Different magnitude means nothing until we test whether there is a significant difference between them. Table 4 shows the outputs of statistical differences in the performance of conventional and sharia banks. There is enough evidence at 5 per cent level that sharia and conventional banks significantly different based on the indicators of CAR, ROA, and LDR. Moreover based on the CAR and ROA indicators sharia and conventional banks are significantly different at the 1 per cent level.

However, although CAR of both banks' types different significantly, both banks' types are included in the safe category. According to Mustika et al. (2015), a bank is categorized as safe if it has a minimum CAR of 8 per cent. Although the average CAR of sharia bank is smaller than

the conventional bank and they differ significantly, because it is still above 8% (15.23 per cent), then sharia bank is yet categorized as safe.

As shown in Table 4, the NPL of sharia and the conventional bank are differed significantly. Based on NPL, the conventional commercial bank is better than the sharia commercial bank. The sharia commercial bank is categorized as unsafe because its NPL is above 5 per cent, while the conventional bank is still within safe limits with an NPL below 5 per cent (Mustika et al., 2015).

Using BOPO as a bank efficiency indicator, we found that there's no difference in efficiency between sharia commercial bank and conventional commercial bank. Both are inefficient, with the percentage of the efficiency of sharia commercial bank is 83.44 per cent slightly higher than the conventional commercial bank that is 83.18 per cent. The t-test showed that BOPO is not significantly differed between sharia commercial bank and conventional commercial bank.

		NPL	CAR	ROA	BOPO	LDR	banktotal	officetotal	credit	TPF	assets	operationalpr ofit
NPL	Pearson Correlation	1	,687	-,502	,709	-,686**	-,318	-,614	-,556	-,486	-,651**	-,229
	Sig. (2-tailed)		,005	,057	,003	,005	,248	,015	,031	,066	,009	,431
	N	15	15	15	15	15	15	15	15	15	15	14
CAR	Pearson Correlation	,687**	1	-,278	,429	-,607*	-,491	-,437	-,379	-,371	-,509	-,077
	Sig. (2-tailed)	,005		,316	,111	,016	,063	,103	,164	,174	,053	,793
	Ν	15	15	15	15	15	15	15	15	15	15	14
ROA	Pearson Correlation	-,502	-,278	1	-,819**	,089	,282	,579	,746**	,538 <sup>*</sup>	,577 <sup>*</sup>	,332
	Sig. (2-tailed)	,057	,316		,000,	,752	,309	,024	,001	,038	,024	,246
	Ν	15	15	15	15	15	15	15	15	15	15	14
BOPO	Pearson Correlation	,709**	,429	-,819	1	-,442	-,388	-,589	-,775**	-,632	-,590	-,503
	Sig. (2-tailed)	,003	,111	,000		,099	,153	,021	,001	,011	,021	,067
	Ν	15	15	15	15	15	15	15	15	15	15	14
LDR	Pearson Correlation	-,686**	-,607*	,089	-,442	1	,247	,170	,059	-,016	,068	-,012
	Sig. (2-tailed)	,005	,016	,752	,099		,375	,545	,834	,955	,810	,967
	N	15	15	15	15	15	15	15	15	15	15	14
banktotal	Pearson Correlation	-,318	-,491	,282	-,388	,247	1	,395	,435	,270	,484	-,069
	Sig. (2-tailed)	,248	,063	,309	,153	,375		,145	,105	,331	,067	,816
	N	15	15	15	15	15	15	15	15	15	15	14
officetotal	Pearson Correlation	-,614	-,437	,579 <sup>*</sup>	-,589 <sup>*</sup>	,170	,395	1	,778**	,785**	,797**	,035
	Sig. (2-tailed)	,015	,103	,024	,021	,545	,145		,001	,001	,000	,904
	N	15	15	15	15	15	15	15	15	15	15	14
credit	Pearson Correlation	-,556	-,379	,746	-,775	,059	,435	,778	1	,897	,904	,189
	Sig. (2-tailed)	,031	,164	,001	,001	,834	,105	,001		,000	,000	,518
	N	15	15	15	15	15	15	15	15	15	15	14
TPF	Pearson Correlation	-,486	-,371	,538 <sup>*</sup>	-,632*	-,016	,270	,785**	,897**	1	,865**	,205
	Sig. (2-tailed)	,066	,174	,038	,011	,955	,331	,001	,000		,000	,481
	N	15	15	15	15	15	15	15	15	15	15	14
assets	Pearson Correlation	-,651	-,509	,577	-,590	,068	,484	,797	,904	,865	1	,089
	Sig. (2-tailed)	,009	,053	,024	,021	,810	,067	,000	,000	,000		,762
	N	15	15	15	15	15	15	15	15	15	15	14
operationalprofit	Pearson Correlation	-,229	-,077	,332	-,503	-,012	-,069	,035	,189	,205	,089	1
	Sig. (2-tailed)	,431	,793	,246	,067	,967	,816	,904	,518	,481	,762	
	Ν	14	14	14	14	14	14	14	14	14	14	14

 Table 5. The Correlation Between Sharia Bank Growth and Performance

 Correlations

\*\*. Correlation is significant at the 0.01 level (2-tailed). \*. Correlation is significant at the 0.05 level (2-tailed).

Further investigation of the relationship between growth and performance of sharia bank is shown in Table 5. Before performing the correlation calculation, the normality of the data was checked. It was found that data is distributed normally. So thus, Product Moment Pearson was used to calculate the correlation. As depicted in Table 5, NPL was correlated negatively with all growth indicators, and only show strong correlation with office total, credit total and asset. Same evidence with CAR in terms of the sign of the correlation but there is no strong correlation with any of growth indicators.

Conversely, ROA has positive correlation with each of growth indicators. Office total, credit total, TPF, and asset total show strong correlation with ROA. BOPO again is similar with NPL and CAR in terms of the sign of the correlation with all growth indicators, but it similar to ROA in terms of the strength of the correlation. BOPO show strong correlation with Office total, credit total, TPF,

and asset total. LDR just like ROA has positive correlation with all growth indicators, but all the correlation were weak.

#### 3.1.2. BPRS and BPR Growth and Performance

The rural bank is a financial institution that is close to the community because of the ease in their business processes. The total number of rural banks is far above commercial banks. Drawing on 15 years of data (2005-2019) of BPRS and 18 years of data (2002-2019) of BPR, we analysed the growth of BPRS and BPR based on mean total bank organization, mean total offices, mean credit, mean TPF, and mean assets, as shown in Table 6.

		-			
	type	Ν	Mean	Std. Deviation	Std. Error Mean
percentage of the growth	BPRS	17	4,34778	5,026058	1,218998
oforganisasition	BPR	17	-1,87806	2,160068	,523893
percentage growth of the	BPRS	17	13,8619	18,58809	4,50827
office	BPR	17	4,8990	7,66936	1,86009
percentage growth of the	BPRS	14	25,9688	12,26910	3,27906
credit	BPR	17	18,0932	8,18142	1,98429
percentage growth of the	BPRS	14	29,0441	31,04257	8,29648
third party fund	BPR	17	71,3778	249,73438	60,56948
percentage growth of the	BPRS	12	22,8119	9,00035	2,59818
assest	BPR	17	18,1646	8,04035	1,95007

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l able 6.	The	Average	Growth	of BPRS	b and I	BPR

Group Statistics

As can be seen in Table 6, BPRS shows the average value of growth higher than BPR on all indicators, except for the TPF. The BPR experienced an average growth in TPF during the research period of 71.38 per cent, while BPRS was only around 29.04 percent. But contrarily, the growth of BPR based on the number of bank organizations has decreased on average around -1.88 per cent. Although the average number of BPR decreased, the TPF collected by BPR is higher than of BPRS.

Higher average magnitude does not mean anything unless it is supported by significant evidence. Table 6 provide evidence of a significant difference between BPR and BPRS at 5 per cent based on the total number of organizations and credit. This means that at the 5 per cent level of significance, the average growth of BPRS is higher significantly than that of BPR based on the total number of the organization. There is also enough evidence showing that at the 5 per cent level, the average growth of credit of BPRS is higher significantly than that of BPR. This fact shows that more BPRS organizations are being established. On the other three indicators, i.e. the number of offices, TPF, and assets, the growth of BPRS and BPR did not differ significantly.

Table 7. The Comparison of the Growth of BPRS and BPR
		Levene's Test Varia	for Equality of nces	t-test for Equality of Means						
							Mean	Std. Error	95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Difference	Difference	Lower	Upper
percentage of the growth of organisasition	Equal variances assumed	11,878	,002	4,692	32	,000	6,225843	1,326809	3,523222	8,928463
	Equal variances not assumed			4,692	21,716	,000	6,225843	1,326809	3,472119	8,979566
percentage growth of the office	Equal variances assumed	3,580	,068	1,838	32	,075	8,96288	4,87693	-,97111	18,89687
	Equal variances not assumed			1,838	21,294	,080	8,96288	4,87693	-1,17073	19,09650
percentage growth of the credit	Equal variances assumed	3,189	,085	2,136	29	,041	7,87565	3,68776	,33335	15,41796
	Equal variances not assumed			2,055	21,880	,052	7,87565	3,83270	-,07540	15,82671
percentage growth of the third party fund	Equal variances assumed	2,514	,124	-,628	29	,535	-42,33368	67,36600	-180,11263	95,44527
	Equal variances not assumed			-,692	16,599	,498	-42,33368	61,13505	-171,55523	86,88788
percentage growth of the assest	Equal variances assumed	,551	,464	1,460	27	,156	4,64736	3,18394	-1,88555	11,18027
	Equal variances not assumed			1,431	22,069	,167	4,64736	3,24858	-2,08857	11,38329

Independent Samples Test

As discussed in the commercial bank section, good performance is also the goal of rural bank management. The performance of BPRS and BPR is measured using NPL, ROA, LDR, and ROE. In the BPRS concept, LDR is measured as FDR. Drawing of 16 years of data for BPRS (2004-2019) and 18 years of data for BPR (2002-2019) we conducted performance analysis as shown in Tables 7 and 8. Table 7 shows the average growth performance of BPRS and BPR. Similar to the case of conventional and sharia banks, the average NPL value in BPRS (7.88 per cent) is higher than that of BPR (6.59 per cent). Both BPR and BPRS are categorized as risky (Mustika et al., 2015) or fall in third rank based on Bank Indonesia regulation (Ginting et al., 2012). This certainly makes sense because the rural bank business system is different from the commercial bank. There are no guarantees at the rural bank, and crediting procedures are not followed obediently as in commercial banks due to various conditions.

The average ROA was slightly higher for BPR (3.10 per cent) than of BPRS (2.61 per cent). ROA of both bank type fall into the first rank based on Bank Indonesia regulation (Ginting et al., 2012). In terms of ROE, BPR (25.11 per cent) also experienced higher growth than in BPRS (16.67 per cent). Using the regulation set up by Bank Indonesia, BPR ranks in first place whilst BPRS in third rank (Ginting et al., 2012). But based on LDR, BPRS experienced higher growth (around 105.34 percent) than BPR (79.01 per cent). Based on Choudry (2018) grouping, BPR is included in a good performance. Whilst BPRS shows excess asset growth indication (Choudry, 2018). We continued to analyse whether there was a significant difference between the two types of rural banks based on all performance indicators. The result is shown in Table 8.

	type	И	Mean	Std. Deviation	Std. Error Mean
NPL	BPRS	16	7,8800	1,28584	,32146
	BPR	18	6,5922	1,93522	,45614
ROA	BPRS	16	2,6138	,42366	,10592
	BPR	18	3,1017	,81431	,19193
LDR	BPRS	16	105,3394	19,34900	4,83725
	BPR	18	79,0078	3,87370	,91304
ROE	BPRS	15	16,6727	4,78129	1,23452
	BPR	18	25,1133	3,66590	,86406

Table 8. The Average Performance of BPRS and BPR

Group Statistics

Based on Table 8, we concluded the significant differences between BPRS and BPR at the level of 5 per cent for all indicators. Even, LDR and ROE were significantly different at the 1 per cent level. It can be stated that although BPR and BPRS are both insecure in terms of NPL, BPRS is significantly less secure than its counterpart BPR.

Further investigation of the relationship between growth and performance of BPRS was conducted. Prior to the calculation of correlation between the two indicators, normality test was performed. Result shows all data suit to normal distribution so thus Product Moment Pearson correlation was deployed to check the relationship.

		Levene's Test Varia	for Equality of nces		t-test for Equality of Means							
							Mean	Std. Error	95% Confidence Interval of th Difference			
		F	Sig.	t	df	Sig. (2-tailed)	Difference	Difference	Lower	Upper		
NPL	Equal variances assumed	2,924	,097	2,254	32	,031	1,28778	,57129	,12409	2,45146		
	Equal variances not assumed			2,308	29,760	,028	1,28778	,55803	,14775	2,42781		
ROA	Equal variances assumed	1,582	,218	-2,150	32	,039	-,48792	,22698	-,95026	-,02557		
	Equal variances not assumed			-2,226	26,179	,035	-,48792	,21922	-,93838	-,03746		
LDR	Equal variances assumed	68,997	,000	5,658	32	,000	26,33160	4,65392	16,85188	35,81132		
	Equal variances not assumed			5,349	16,070	,000	26,33160	4,92266	15,89970	36,76349		
ROE	Equal variances assumed	1,825	,187	-5,740	31	,000	-8,44067	1,47057	-11,43992	-5,44141		
	Equal variances not assumed			-5,601	25,948	,000	-8,44067	1,50687	-11,53838	-5,34295		

Independent Samples Test

				Correlations						
		percentage of the growth of organisasitio n	percentage growth of the office	percentage growth of the credit	percentage growth of the third party fund	percentage growth of the assest	NPL	ROA	LDR	ROE
percentage of the growth	Pearson Correlation	1	,577 <sup>*</sup>	,128	-,623**	,194	-,563	,404	-,591	,396
oforganisasition	Sig. (2-tailed)		,015	,626	,008	,457	,019	,108	,013	,115
	N	17	17	17	17	17	17	17	17	17
percentage growth of the	Pearson Correlation	,577 <sup>*</sup>	1	,206	-,494	,362	-,122	,089	-,332	,236
office	Sig. (2-tailed)	,015		,427	,044	,154	,640	,735	,193	,362
	N	17	17	17	17	17	17	17	17	17
percentage growth of the	Pearson Correlation	,128	,206	1	,044	,924	,409	,011	,111	,242
credit	Sig. (2-tailed)	,626	,427		,868	,000	,103	,967	,671	,350
	N	17	17	17	17	17	17	17	17	17
percentage growth of the third party fund	Pearson Correlation	-,623**	-,494	,044	1	,103	,192	-,035	,177	,007
	Sig. (2-tailed)	,008	,044	,868		,694	,460	,893	,496	,979
	N	17	17	17	17	17	17	17	17	17
percentage growth of the	Pearson Correlation	,194	,362	,924**	,103	1	,288	,120	-,122	,260
assest	Sig. (2-tailed)	,457	,154	,000	,694		,262	,647	,641	,313
	N	17	17	17	17	17	17	17	17	17
NPL	Pearson Correlation	-,563*	-,122	,409	,192	,288	1	-,653**	,449	-,560*
	Sig. (2-tailed)	,019	,640	,103	,460	,262		,004	,071	,019
	N	17	17	17	17	17	17	17	17	17
ROA	Pearson Correlation	,404	,089	,011	-,035	,120	-,653**	1	-,310	,350
	Sig. (2-tailed)	,108	,735	,967	,893	,647	,004		,226	,168
	N	17	17	17	17	17	17	17	17	17
LDR	Pearson Correlation	-,591*	-,332	,111	,177	-,122	,449	-,310	1	-,028
	Sig. (2-tailed)	,013	,193	,671	,496	,641	,071	,226		,914
	N	17	17	17	17	17	17	17	17	17
ROE	Pearson Correlation	,396	,236	,242	,007	,260	-,560	,350	-,028	1
	Sig. (2-tailed)	,115	,362	,350	,979	,313	,019	,168	,914	
	N	17	17	17	17	17	17	17	17	17

\*. Correlation is significant at the 0.05 level (2-tailed). \*\*. Correlation is significant at the 0.01 level (2-tailed).

As shown in Table 10 the growth of number of BPRS organisation has strong negative relationship with NPL and LDR. On the other hand, the growth of number of BPRS organisation has weak positive relationship with ROA and ROE. Similar evidence were found for the direction of the relationship between the number of offices and performance indicators, but no strong relationship was found.

The growth of credit shows positive relationship with NPL, ROA, ROE, and LDR. All the relationship are weak. The weak relationship was also found between the growth of TPF and all performance indicators (NPL, ROA, ROE, and ROA), where as negative relationship with ROA and positive with others. The same result was also shown on the relationship between the growth of asset total and performance indicators (NPL, ROA, ROE, ROA, ROE, and ROA), but in this relationship negative direction was found only with ROE.

Based on the information above, it can be stated that the growth of IB in Indonesia in the last two decades has been better than that of conventional banking. Good growth is supported by the toplevel government and political policies. The highest level of political support was evidenced by the formation of "Komite Nasional Keuangan Syariah (KNKS)" with the chair President Joko Widodo. KNKS is a national committee of sharia financial. As an example, in 2019 The Islamic Finance-Country Index place Indonesia in ranks number one among 48 countries in terms of its leadership and potential in global Islamic banking and finance. Indonesia jumped from 6th position in 2018.

## 4. DISCUSSION AND CONCLUSION

IB in Indonesia is growing although its market share is still much lower than its counterpart, conventional banking. During 2003-2019 the sharia commercial bank growth based on credit total, third-party fund, and the total of the asset are better than the conventional commercial bank. Whilst based on bank organisation, offices, and operating profit indicators, there is no significant difference between the sharia commercial bank and conventional commercial bank growth. The sharia commercial bank growth based on bank organisation and asset was never been negative as evidence with the conventional commercial bank growth.

However, based on performance, the sharia commercial bank is worse on NPL and LDR than the conventional commercial bank. The sharia commercial bank is categorized as a risky bank based on NPL. The management of sharia commercial bank is required to re-evaluate the crediting procedures. Indeed management must manage the third-party funds to businesses, but they must carry out a strict selection or mentoring properly so that credit recipients become productive businesses. Further research may be conducted to re-evaluate the crediting procedures as well as to identify factors that cause high NPL. Although the LDR of sharia bank bigger than CCB but it is still below the excess asset growth indication. However LDR is not the only indicator of liquidity hence further research is suggested to evaluate the liquidity using other indicators.

Although the IB is showing good growth and performance, it has not been efficient. As shown by the BOPO indicator, the average efficiency during 2002-2019 is only 83.44 per cent lower than efficiency of shorter period (based on 2012-2016 data) that measured by Puteh et al. (2017). Puteh et al. (2017) measured the efficiency of IB in Indonesia ranges between 89.73 per cent and 94.16 percent and categorized as inefficient. However, according to Puteh (2017) individual bank efficiency during 2012-2016 is higher. Bank Mega Syariah shows the lowest average and Bank Muamalat shows the highest average (Puteh et al, 2017). Efficiency is important to IB management since inefficiency can be a determinant of a bank failure. Further research is suggested to evaluate the factors that affect the inefficiency of the bank.

In the rural bank sector, BPRS shows higher growth than BPR. But statistically, BPRS growth higher significantly than BPR only on the number of organization and credit parameters. But BPRS management should be aware of NPL. Credit is related to NPL. Although both rural banks show high NPL and risky, BPRS NPL is higher than BPR. Both BPRS and BPR management should evaluate the crediting policy. Further research is suggested to perform this along with identifying factors that affect the NPL.

Despite the good growth and performance of IB is generally better than in conventional, the market share of IB in Indonesia is very small. According to OJK IB's market share in Indonesia up to 2019 is always below 6 per cent. But in June 2020, IB market share reaches 6.18 per cent. The biggest contribution of this market share percentage is sharia commercial bank (65.33 per cent), following by BPRS (32.17 per cent), and sharia unit business (2.5 per cent). It shows the customer decision in choosing IB products is not based on performance solely.

As the IB is founded on the basis of the sharia principle, whereas prohibiting riba (interest), the more religious people are supposed to choose the IB. As stated by O'Cass (2013), religious consumers tend to be less materialistic. It is then important to conduct further research in order to identify factors that affect IB adoption in Indonesia. It might relate to the sharia concept implementation. Sarim et al. (2019) found that "there are various conflicting issues that exist among business operations of Islamic financial industry, for example lacking uniformity of Halal/Haram transactions.

Further interesting research is evaluating factors affected IB performance. Bank performance can be influenced by internal mechanisms and capital regulations (Ayadi et al., 2019), professional qualification of CEOs in finance (Gupta and Mahakud, 2020), and corporate governance (Aslam and Haron, 2021). Those variables can be adopted to identify the factors affect IB performance in Indonesia.

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# Individuals' Financial Health During The Covid-19 Pandemic\*

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### Abstract

This study aims to explore individuals' financial health during the COVID-19 outbreak. The data were collected through an online survey between May 26 and June 15, 2020. The sample of the study consisted of 1333 participants (58.7% women; 41.3% men). The results showed that participants' average financial health scores were (M = 60.4) under the category of financially coping. The average score in save indicator is 49 which indicates that participants did not have satisfactory savings for affording to cover unexpected expense during this tough time. The average score in the plan or budget indicator is 46, which is the prime reason with saving indicator for getting financial health score in "financially coping" category. This study concluded that financial ignorance, financial anxiety, financial security, financial crisis, age, income, perceived income and education were significantly related to financial health.

### Keywords

Financial Anxiety, Financial Crisis, Financial Health, Financial Ignorance, Financial Security

### **1. INTRODUCTION**

The COVID-19 outbreak was declared an international public health emergency on January 30, 2020, by the World Health Organization (WHO), causing a great effect on people's lives, families, communities, businesses and economies (Dubey et al. 2020; Mahajan, 2020). This pandemic is the defining global health crisis of our time and the greatest challenge we have faced since World War Two (UNDP-Turkey, 2020). As the coronavirus outbreak rapidly spread around the world, it is causing widespread concern, anxiety, anger, depression, panic, insecurity, fear and stress, feelings of loss, and social withdrawal all of which are natural and normal reactions to the changing and uncertain situation that everyone finds themselves in (Brooks et al. 2020; Euart et al. 2020; Kulkarni and Bharati, 2020; Poudel and Subedi, 2020; WHO, 2020; Xiang et al. 2020).

To prevent the spread of this pandemic, governments have taken various measures such as social distancing, lockdowns, closing schools, universities, places of religious worship, and public utilities indefinitely, travel restrictions and home quarantines, imply a slowdown or even a complete stop in production and consumption activities for indefinite time, crumbling markets and potentially leading to the shutdown of businesses, sending millions of employee home (Agrawal et al. 2020; Goodell, 2020; Mahajan, 2020; Nelson et al. 2020). In Turkey, around 10% of both women and men reported quitting their jobs due to health risks (UNDP-Turkey, 2020). According to ECLAC, more than 30 million people could fall into poverty without active policies to protect or substitute income flows to low-income people. This spotlight addresses financial strain as a specific challenge for countries and individuals (Hevia and Neumeyer, 2020; Mogaji, 2020). Moreover, financial difficulty, fear, anxiety and panic has changed usual consumption patterns and created market anomalies; leading to the postponement of consumers' spending

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decisions (Boost and Meier, 2017; Kaytaz and Gul, 2014; Kulkarni and Bharati, 2020; McKibbin and Fernando, 2020). Panic drives people not to spend unless it is urgent or significantly reduce any unplanned purchase since people tend to save money for their health emergencies (Alonso et al. 2015; Baldwin and Tomiura, 2020; Barua, 2020; Hsu et al. 2017). In some countries like US, Canada, UK more consumers reported reducing spending than increasing spending. In other countries like South America, Indonesia, Brazil, more consumers reported increasing spending than decreased (Euart, 2020). On the other hand, higher uncertainty leads to higher savings and changes in financial planning (Dietrich et al. 2020). Growing concern related to COVID-19 as individuals worry about immediate health and secondary economic effects (Nelson et al. 2020). For example, Mahajan (2020) concluded that individuals were financially coping during COVID-19 outbreak, and they have liquid savings to manage things for the next 4-5 months. However, the majority of respondents were worried about their financial health. If lockdown continues, it might affect their daily needs as well.

The priority is, of course, to save lives. Nevertheless, the required containment measures to restrict the spread of the coronavirus are causing a dramatic decline in economic activity (Mahajan, 2020). Thus, a global health crisis becomes a global economic crisis (Evans and Over, 2020) and thrust the world into an "economic war."

Besides the cost of life and the deep health crisis of the COVID-19 outbreak, the world is sparking fears an impending economic recession and financial uncertainty that will severely impact the financial health of large parts of households (Barua, 2020; Evans and Over, 2020; Fujiwara et al. 2020; Nicola et al. 2020; McKibbin and Fernando, 2020; Poudel and Subedi, 2020). The penalty of job or income loss may be devastating for individuals and their families, yet they still have fixed costs to pay and families to feed. Individuals could feel helpless when they are unemployed, financially coping, unable to make ends meet or experience financial emergencies and feel financial insecurity (Mogaji, 2020; Van Aardt et al. 2009). Household financial decision-makers around the world reported their financial situations and countries' current economies were weak, decreases in income and saving, and fear of unemployment and job security concerns held savings to cover less than four months' worth of expenses due to COVID-19 outbreak (Agrawal et al. 2020; Dietrich et al. 2020; Dubey et al. 2020; Euart et al. 2020; Nelson et al. 2020; Ho et al. 2020; WHO, 2020). The pandemic has brought lessons to the households in managing their personal finance as immediately after the breakout of Covid-19, many people lost their livelihood and become vulnerable to face challenges in life (Sukumaran, 2021). All these situations will significantly decrease financial health.

# 1.1. Financial Health

As the importance of financial health of individuals and families continues to grow, people often use the term "financial wellness" to mean the level of a person's financial health. Financial wellness is a comprehensive, multidimensional concept incorporating financial satisfaction, objective status of financial situation, financial attitudes, and behavior that cannot be assessed through one measure. When respondents were asked to provide a definition of financial "wellness," they indicated that the word "health" was most appropriate (e.g. financial health of a family). Thus, in the current study we used the term as "financial health." An individual's financial health can be said to be "high" (or a person is "well") when individuals are satisfied with their financial situations, their objective status is desirable, they have positive financial attitudes, and exhibit healthy financial behavior (Joo, 2008).

A number of factors have been found to influence financial health. Among the most common factors are socioeconomic characteristics, such as gender, marital status, education, age, income, and home ownership (Joo, 1998; O'Neill, 1995; Porter and Garman, 1993). Among the socioeconomic characteristics, income is one of the significant aspects of financial health. To

become financially healthy, individuals need to display desirable financial behaviors with cash management, credit and debt management, saving, planning for various lifecycle events (e.g., marriage, college planning, retirement, estate planning), and consumerism. Subjective perception is the driving force for savvy financial behaviors and becomes part of the personal financial health. Financial stressors also were correlated negatively with personal financial health (Joo, 2008). Britt et al. (2015) concluded that money status and money worship scripts were associated with lower levels of financial health, while money vigilance scripts were associated with higher levels of financial health. Moreover, Delafrooz and Paim (2011) reported that income, gender, marital status, home ownership, and education had either a direct or indirect effect on financial health. Researchers' findings also suggest that when households, including children and young adults, were engaged in savings, perhaps improving financial health in the long run for everyone involved. Thus, one way to improve young adults' financial health may be to help their households stabilize and saving (Friedline et al. 2014).

With COVID-19 rapidly changing the economy and the way we live, work and consumer behavior, it is no wonder there is an increased level of financial anxiety (Fujiwara et al. 2020). People are happier when they are financially secure (O'Neill et al. 2005). During a COVID-19 outbreak, the economic conditions become very uncertain and depressing, as there is neither enough information nor a definitive treatment to the COVID-19 at hand. It is important to know individuals' financial health and its predictors during an ongoing pandemic. In this study, as well as demographic characteristics, financial crisis, financial ignorance, financial anxiety and financial security were considered as stressful life occurrences, and they have important predictors of financial health during periods of economic crisis due to COVID-19 outbreak. Therefore, this study aims to identify how factors related to financial ignorance, financial crisis, financial anxiety, and financial security affect adult population's financial health in Turkey during an ongoing pandemic.

Based on previous researches, this study sought answers to three research questions.

1. Do the averages of financial health scores and subtest scores differ significantly according to socioeconomic characteristics?

2. What are the relationships between financial health, financial ignorance, financial anxiety, financial security, financial crisis and socioeconomic variables?

3. What are the predictive levels of financial ignorance, financial anxiety, financial security, financial crisis and socioeconomic variables on financial health?



Figure 1. Model of the Study

### 2. METHODOLOGY

### 2.1. Data collection and sample

The research is a relational research model. Data were collected from the participants through an online survey between May 26 and June 15, 2020 using convenience sampling method. The survey was developed using the free software Google Forms. Participants were contacted via email and telephone, a link to a self-report questionnaire was sent by e-mail or made public on other online platforms (Facebook and WhatsApp). Participants could contact the researchers via email or phone at any time. Consent to participate in this study was obtained from each respondent and the study consists of individuals of 18 years and older living in Turkey. According to Turkey's 2019 address-based population registration system, the population that is 18 years old and above is 56.645.598 (TUIK, 2020). The sample for this study totaled 1333 participants in different regions of the country. Turkey recorded the first case of the disease on March 11, 2020. Since then, the cases have increased steadily and significantly. As of July 3, 2021, according to the Ministry of Health (2021), a total of 5.440.368 COVID-19 cases, 5.310.769 recovered, and 49.874 deaths have been reported. Table 1 presents the sample profile. More than half (58.7%) of the participants were women and about 41.3 % of them were men. The average age of the participants was 39.7 (SD=10.49) years. 65.7% of the respondents in the sample indicated being married. Further, 58.4% of the participants had a college degree and 36.8% of the participants were currently working at home during the Covid-19 pandemic. The average monthly income for respondents in the sample was £10479.51 (Turkish Lira, TL) (SD=75842.50) (1 USD = 6.95 TL in June 2020) (Table 1).

Variables and categories		N (1333)	%
Carlan	Women	782	58.7
Gender	Men	551	41.3
Marital Status	Married	876	65.7
	Single	457	34.3
	Always at home	490	36.8
Working status during	Always at workplace	164	12.3
the COVID-19 outbreak	Flexible	361	27.1
	Not working	309	23.2
	Other	9	.7
	Literate/primary school	8	.6
	Middle school	9	.7
	High school	67	5.0
Education	Associate degree	74	5.6
	Undergraduate	778	58.4
	Master degree	250	18.8
	WomenMenMarriedSingleAlways at homeAlways at workplaceFlexibleNot workingOtherLiterate/primary schoolMiddle schoolHigh schoolAssociate degreeUndergraduateMaster degreeDoctorateLess than 3131-4041-50Greater than 50well below averageAverageabove averagewell above averagewell above average	147	11.0
	Less than 31	317	23.8
Δσο	31-40	427	32.0
Age	41-50	376	28.2
	WomenMenMarriedSingleAlways at homeAlways at workplaceFlexibleNot workingOtherLiterate/primary schoolMiddle schoolHigh schoolAssociate degreeUndergraduateMaster degreeDoctorateLess than 3131-4041-50Greater than 50well below averageabove averageabove averagewell above average	213	16.0
	well below average	69	5.2
	below average	180	13.5
Perceived income	Average	622	46.7
	above average	434	32.6
	well above average	28	2.1

Table 1. Distribution of the Participants by Socioeconomic Variables

	less than 2501 TL	177	13.3
	2501-5000 TL	377	28.3
Monthly income	5001-7500 TL	286	21.5
-	7501-10000 TL	218	16.4
	2501-5000 TL       377       28.3         5001-7500 TL       286       21.5         7501-10000 TL       218       16.4         more than 10000 TL       275       20.6         Min/Max       M       SD         18-89       39.67       10.50         1.5       212       258	20.6	
	Min/Max	M	SD
Age	18-89	39.67	10.50
Perceived income	1-5	3.13	.858
Monthly income	0-250000 TL	10479,510 TL	75842.50

### 2.2. Measurement of Variables

This study was designed to determine the contribution of specific financial variables such as financial ignorance, anxiety, security, crisis and socio-economic characteristics to financial health during an ongoing pandemic.

## 2.2.1. Dependent variable

**Financial health:** Financial health was examined by using eight indicators of financial health prescribed by Financial Health Network, 2020 and Mahajan, 2020. FHNC has defined four components of financial health: Spend, Save, Borrow, and Plan. These components reflect individuals daily financial activities. The FHNC Financial Health Score provides a holistic, moment-in-time snapshot of an individual's financial health. The score is based on eight multiple-choice survey questions that correspond to FHNC's eight financial health indicators. Every individual who responds to the eight questions outlined in the survey guide will receive one FHNC Financial Health Score and four sub-scores that align with the four components of financial health (Spend, Save, Borrow, Plan). Financial health scores and sub-scores below 40 are considered "Vulnerable," scores from 40 to 79 are considered "Coping," and scores 80 and above are considered "Healthy." According to the results of CFA, based on maximum likelihood estimation, there are strong validity evidence for the 4-component structure (Chi-Square =77.156: p < .01; GFI=.99; AGFI=.98; CFI=.89; TLI=.79; RMSEA=.058; RMR=.098). Cronbach alpha internal consistency reliability was .71 for this scale.

### 2.2.2. Independent variables

Financial ignorance: Financial Homo Ignorans (FHI) scale summarizes individual differences in financial behavioral ignorance. Behavioral ignorance was defined as a tendency to neglect relevant aspects of the decisions (Barrafrem et al. 2020a). To measure financial ignorance, we used the Turkish version of the Financial Homo Ignorans scale developed by Barrafrem et al. (2020a). The instruments measures four different types of ignorance tendencies: i) decision avoidance (e.g. saving money), ii) information avoidance (e.g. the total debt left to pay), iii) aggregation bias (e.g. how multiple small loans become large debts), and iv) motivated reasoning (e.g. focus only on the positive aspects of a specific loan neglecting the fine print. Individuals were asked to state to what degree they agreed with twelve statements on a five-point Likert scale ranging from "1= strongly disagree" to "5 = strongly agree." Sample items include: "I avoid making decisions about my current financial situation," "I would rather not know how much I spent last month." According to the results of CFA, based on maximum likelihood estimation, there is strong validity evidence for the four-component structure (Chi-Square=316.487: p<.01; GFI=.96; AGFI=.94; CFI=.96; TLI=.95; RMSEA=.063; RMR=.078). The Cronbach's alpha of the complete scale is .83. pointing to the high reliability of the scale. In the current study internal consistency with the Cronbach's  $\alpha$ values were .86 for decision avoidance, .90 for information avoidance, .82 for aggregation bias, .59 for motivated reasoning.

**Financial anxiety:** Financial anxiety has been defined as a subjective feeling that individuals have an uneasy and unhealthy attitude toward engaging with, and managing their finances effectively (Burchell, 2003; Shapiro and Burchell, 2012). To measure anxiety related to financial decisions, we adopted four items from Fünfgeld and Wang (2009). We asked respondents to indicate, on a five-point Likert scale where 1 indicates "strongly disagree" and 5 indicates "strongly agree," their agreement or disagreement with four statements. A sample item is "*After making a decision, I am anxious whether I was right or wrong.*" A higher FAS score indicated that the individual felt more anxiety related to financial matters. According to the results of CFA, based on maximum likelihood estimation, there is strong validity evidence for the unidimensional structure (Chi-Square=33.042: *p*<.01; GFI = .99; AGFI = .94; CFI = .97; TLI = .91; RMSEA = .011; RMR = .036). The Cronbach's alpha of the scale is .69, pointing to the acceptable reliability of the scale.

**Financial security:** Financial security indicates a perceived security in one's current and future financial situation. It was measured by financial security scale developed by Strömbäck et al. (2017). The three items included measuring financial security. Individuals were asked to state to what degree they agreed with three statements on a five-point Likert scale where 1 indicates "strongly disagree" and 5 indicates "strongly agree." A sample item is "*I feel secure in my current financial situation.*" A higher FSS score indicated that the individual experienced a higher level of security concerning his/her financial situation. Since there are 3 items in the financial security scale, CFA was not performed (Çokluk et al. 2010). As a result of the EFA, it was determined that it is unidimensional structure. The factor loading of each item ranged between .700 and .962. All 3 items had positive loading on the factor. EFA results showed that the first eigenvalue was 2,323 and explained 77% of the total variance. In our study, Cronbach's alpha was calculated and showed a reliability coefficient of .85 (FSS).

**Financial crisis:** To measure the financial crisis at an individual level, the current study used three items, two of the items were borrowed from Voon and Voon (2012). Financial crisis including, Employment decline, Retrenchment/Layoff, and Unpaid leave. Participants were asked to indicate that on a five-point Likert scale "1= No influence" to "5 = Large influence" to what degree they were affected by the above items when evaluating the COVID-19 outbreak. The higher the score, the more affected one is. Since there are 3 items in the financial crisis variable, CFA was not performed (Çokluk et al. 2010). As a result of the EFA, it was determined that it is a one-dimensional structure. The factor loading of each item ranged between .930 and .963. All 3 items had positive loading on the factor. EFA results showed that the first eigenvalue was 2,659 and explained 89% of the total variance. In our study, Cronbach's alpha was .94.

**Socio-economic variables:** This study involved information about the participants' characteristics such as age, gender, education level, marital status, working status during COVID-19 outbreak, household's monthly income and perceived income. These characteristics were selected according to research literature and their potential effects on the results. Descriptive statistics on dependent variables were clustered according to personal characteristics.

# 2.3. Data analysis

Data analysis began with calculating descriptive statistics (frequency, percentage, average, standard deviation, maximum, minimum) of the sample on socioeconomic variables. Then, our analyses compared the financial health scores and sub-scores. To find an answer to the first research question, we used independent groups *t*- tests and one way analysis of variance (ANOVAs) to compare the means of the outcome variables: gender, age, monthly income, perceived income, marital status and education. OLS regression method was used to answer the second and third research questions. Hierarchical regression technique was used to decompose the amount of explanation of dependent variable by financial and socioeconomic variables.

Before performing the regression analysis, it was checked whether the data met the assumptions of the regression analysis (multivariate normality, extreme value, multicollinearity, autocorrelation). According to the results, it was deemed appropriate for regression analysis of the data.

# 3. RESULTS

The participants' average financial health scores were M = 60.43 (SD = 18.61) (with spend score 71, save score 49, borrow score 76 and plan score 46). This result shows that participants were financially coping during the COVID-19 outbreak. Depending on the first research question, averages for financial health scores and sub-scores were calculated according to socioeconomic variables. Table 2 summarize the comparisons of financial health scores and sub-scores by socioeconomic variables. Averages and standard deviations are given separately for socioeconomic variables. As seen in Table 2, there was a significant difference when comparing mean financial health, spending and saving scores between women (FH = 59.31, Spend = 69.83, Save = 46.22) and men (FH = 62.02, Spend = 73.82, Save = 51.97) (p<.01). This result indicates that the average of women's financial health, spending and saving scores was relatively lower than that of men's scores during on ongoing pandemic. However, there was no significant differences between participants' scores on the borrowing, plan and their gender. Table 2 shows the results of one-way ANOVA for age groups. As seen in Table 2, the means of financial health was significantly increased as age increased on the overall index (for 30 or younger: M = 55.47; for 31-40: *M* = 59.75; for 41-50: *M* = 62.64; for 51 or older: *M* = 65.25), spending, borrowing and plan. For those variables showing significant differences, Scheffe' multiple comparison test was used to determine which pairs of categories of each variable were significantly different. For financial health scores, significant differences were found between the 30 or older age and 31-40, 41-50, 51 or older age, Also, significant differences were found between 31-40 age and 51 or older age category. In terms of participants' monthly income, the means of financial health was significantly increased as income increased on the overall index (for 2500 or less TL: M = 45.42; for 2501-5000TL: *M* = 56.33; for 50001-7500TL: *M* = 61.09; 7501-10000TL: *M* = 65.95; 10001 or more TL: M = 70.63, spending, saving, borrowing and plan. According to Scheffe test, for financial health scores, there were significant differences between the group with 2500 or less TL income and following three groups: 2501-5000TL, 5001-75000TL, 7501-10000TL and 10001 or more. As seen in Table 2, the averages of participants' financial health scores were significantly increased as perceived income increased on the overall index (for well below average: M = 42.09; for below average: M = 46.42; for average: M = 60.03; for above average: M = 68.62; for well above average: M = 77.45), spending, saving, borrowing and plan (excluding below average category). According to Scheffe test, for financial health scores, there were significant differences between the well below average category and average, above average and well above average categories. Results on marital status also showed significant differences with mean scores of the married category (FH = 63.08, Spend = 74.15, Save = 50.59, Borrow = 78.32, Plan = 49.25) being higher than those of the unmarried category and of the widowed or divorced (FH = 55.34, Spend = 66.35, Save = 44.77, Borrow = 70.44, Plan = 41.08), when comparing mean financial health, spending, saving, borrowing and plan scores. This result indicates that the average of married participant's financial health, spend, saving, borrowing and plan scores was relatively higher than that of single, widow or divorce participant's scores. In terms of education levels, it can say that the average of the financial health scores was significantly increased as the education levels increased except for the middle school education levels on the overall index (for primary school: M = 44.76; for middle school M = 40.83; for high school: M = 49.24; for associate degree: M = 54.73; for undergraduate: M = 59.58; for master degree: M = 65.83; for PhD: M = 65.72). According to Scheffe test, for financial health scores, there were significant differences between master and middle,

high school, associate, graduate degree; between PhD and middle, high school, associate and graduate degree (Table 2).

			Financial				
Socioeconon	nic variables	N	Health	Spend	Save	Borrow	Plan
000000000000000000000000000000000000000		1 N	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)
	Women	782	59.31	69.83	46.22	75 50	45.68
	,, onich	102	(18.34)	(26.04)	(20.86)	(25.11)	(31.34)
Gender	Men	551	62.02	73.82	51.97	75.80	46.48
			Financial         Spend         Save         Borrow           M (SD)         M (SD)         M (SD)         M (SD)           2         59.31         69.83         46.22         75.50           (18.34)         (26.04)         (20.86)         (25.11)           1         62.02         73.82         51.97         75.80           (18.88)         (27.43)         (21.68)         (23.90)           3 $t =  t =  t = -$ 2.625**         2.693**         4.880**** $t = -$ .219           2.625**         2.693**         4.823         73.33           (19.68)         (28.91)         (22.56)         (26.40)           7         59.75         74.37         48.23         73.33           (18.90)         (26.27)         (22.18)         (25.01)           6         62.64         73.21         48.68         79.91           (17.14)         (24.98)         (19.31)         (22.26)           3 $F =$ $F =$ 23         20.960***           7         45.42         50.06         38.40         61.11           (19.30)         (29.63)         (21.45)	(30.75)			
		133	t = -	t = -	t = -	()	(
Test Sta	tistic (t)	3	2.625**	2.693**	4.880***	<i>t</i> =219	<i>t</i> =461
	30 or	317	55.47	63.03	48.29	68.63	41.94
	younger		(19.68)	(28.91)	(22.56)	(26.40)	(30.69)
	31-40	427	59.75	74.37	48.23	73.33	43.06
A ===			(18.90)	(26.27)	(22.18)	(25.01)	(30.65)
Age	41-50	376	62.64	73.21	48.68	79.91	48.78
			(17.14)	(24.98)	(19.31)	(22.26)	(31.58)
	51 or older	213	65.25	75.18	48.60	83.06	53.11
			(17.04)	(24.39)	(21.38)	(21.47)	(30.16)
Tash Cla	tictic (T)	133	F =	F =	F_ 000	F =	F =
1 est Sta	iesi Stutistic (F)		14.667***	14.596***	F = .233	20.960***	7.913***
	2500 or less	177	45.42	50.06	38.40	61.11	32.10
	TL		(19.30)	(29.63)	(21.45)	(28.63)	(29.06)
	2501-5000	377	56.33	65.40	44.09	72.02	43.81
	TL		(17.54)	(26.56)	(20.87)	(25.64)	(30.97)
Monthly	5001-7500	286	61.09	74.15	47.34	77.14	45.72
Income	TL		(16.73)	(23.44)	(19.56)	(23.39)	(29.90)
	7501-10000	218	65.95	78.51	54.08	82.51	48.69
	TL		(15.88)	(22.29)	(19.32)	(20.11)	(32.85)
	10001 or	275	70.63	85.24	58.29	82.85	56.15
	more TL		(15.25)	(19.50)	(20.53)	(19.48)	(28.55)
Test Sta	tistic (E)	133	F =	F =	F =	F =	<i>F</i> =
1 <i>est 5tu</i>	(ISTIC (F)	3	71.386***	67.384***	35.325***	30.325***	17.923***
	Well below	69	42.09	44.60	34.75	55.00	34.02
	average		(20.55)	(31.30)	(21.33)	(31.04)	(30.56)
	Below	180	46.42	54.53	37.01	61.60	32.53
	average		(18.45)	(28.28)	(18.81)	(26.99)	(30.25)
Perceived	Average	622	60.03	70.67	46.85	76.46	46.15
income			(16.48)	(24.23)	(20.05)	(23.30)	(30.48)
	Above	434	68.62	82.76	56.74	82.59	52.37
	average		(15.15)	(21.47)	(19.66)	(19.99)	(29.87)
	Well above	28	77.45	89.55	69.73	90.09	60.45
	average		(16.70)	(17.20)	(25.25)	(17.88)	(33.79)
Test Sta	tistic (F)	133	F =	F =	F =	F =	F =
1651 510	(1) (1)	3	87.120***	70.633***	50.633***	47.782***	17.957***
Marital	Married	876	63.08	74.15	50.59	78.32	49.25

**Table 2.** Comparison of Mean Values (and Standard Deviations) of Financial Health Scores and
 Sub-Scores by Socioeconomic Variables

status			(17.64)	(25.32)	(21.08)	(22.43)	(31.23)
	Single	457	55.34	66.35	44.77	70.44	39.80
	-		(19.36)	(28.45)	(21.47)	(27.62)	(29.88)
		133	<i>t</i> =				
Test St	utistic(t)	3	7.348***	5.112***	4.757***	5.613***	5.319***
	Primary	8	44.76	48.12	38.44	71.87	20.62
	school		(14.81)	(28.21)	(19.50)	(22.59)	(26.61)
	Middle	9	40.83	38.61	48.05	55.55	21.11
	school		(14.86)	(22.64)	(19.19)	(11.77)	(18.87)
	High	67	49.24	53.43	38.99	63.54	41.00
Education	school		(19.50)	(28.99)	(19.07)	(25.88)	(34.60)
	Associate	74	54.73	58.85	43.00	67.90	49.15
Education	degree		(22.97)	(28.76)	(23.31)	(28.62)	(34.07)
	Undergrad	778	59.58	70.16	47.86	75.00	45.31
	uate		(18.41)	(26.62)	(21.49)	(25.10)	(30.72)
	Master	250	65.83	80.43	53.88	80.45	48.55
	degree		(16.09)	(22.49)	(20.08)	(21.47)	(31.76)
	Doctorate	147	65.72	81.05	51.31	81.53	48.98
	degree		(16.16)	(20.93)	(20.71)	(21.00)	(28.03)
Test Ct	atiotic (T)	133	F =	F =	F =	<i>F</i> =	F =
1est Sti	itistic (F)	3	14.372***	21.069***	6.655***	8.292***	2.857**
	M(SD)	133	60.43	71.48	48.60	75.62	46.01
Total	Min-max	3	(18.61)	(26.68)	(21.38)	(24.61)	(31.09)
			10.6-100	17.5-100	12.5-100	12.5-100	0-100

*Note:* \**p*<.05, \*\**p*<.01, \*\*\**p*<.001

### 3.1. Multivariate Results

Within the research scope, the OLS regression model was used to determine the relationship between financial and socio-economic variables for the significant effects on financial health during the COVID-19 outbreak. In the first stage of the regression analysis carried out to examine the effect of socioeconomic and financial variables on the financial health, the relationships between the variables were examined. Table 3 summarizes the Pearson correlation analysis results for socioeconomic and financial variables.

As seen in Table 3, twelve of the 55 relationships between the variables were statistically insignificant; it is seen that two relations were statistically significant at the level of 0.05 and the other 41 relations at the level of 0.01. Correlations between variables ranged from a minimum of -.003 (between gender and financial security) to a maximum of .450 (between perceived income and financial health). While the variables of financial ignorance, financial crisis and financial anxiety were found to be positively related to each other, the relationship between financial security and financial health was also found to be positive. On the other hand, the variables of financial ignorance, financial crisis and financial anxiety were found to be negatively correlated with financial security and financial health. The relations of gender, age, monthly income, perceived income, marital status and education variables with financial variables did not show a certain systematic. Considering the absolute values of the correlations between the variables, there are generally weak correlations; it can be said that the relationship between several variables is at a moderate level (Table 3).

Table 3. Pearson Correlation Coefficients and Descriptive Statistics for Variables

Variables	1	2	3	4	5	6	7	8	9	10	11
1) Financial	-										
health											
2) Financial	-	-									
ignorance	.328**										
3) Financial	-	.173**	-								
crisis	.266**										
4) Financial	-	.446**	.215**	-							
anxiety	.352**										
5) Financial	.417**	054	-	-	-						
security			.161**	.203**							
6) Age	.171**	.081**	.041	026	.117**	-					
7) Gender	.072**	.008	.039	-	003	.123**	-				
(dummy***)				.105**							
8)Monthly	.315**	056	-	-	.184**	.227**	.118**	-			
income			.106**	.128**							
9)Perceived	.450**	-	-	-	.261**	.176**	.089**	.382**	-		
income		.112**	.206**	.145**							
10) Marital	-197**	.020	.066*	.052	-	-	-	317**	-	-	
status					.095**	.351**	.179**		.249*		
(dummy***)									*		
11)	.236**	-	-	069*	.092**	.006	.008	.217**	.371*	-	-
Education		.081**	.123**						*	.01	
										7	
Mean	60.43	2.62	3.19	3.14	2.52	39.67	.41	7816.7	3.13	.34	5.2
								3			1
Std.	18.61	.68	1.31	.76	.99	10.50	.49	7118.7	.86	.47	1.0
Deviation								9			0

*Note:* \*\* *p* < 0,01, \* *p* < 0,05; \*\*\* women = 0, men = 1; married = 0, all other = 1

Table 4 summarizes the OLS regression analysis results for the financial health. As a result of the analysis using the ordinary least square regression, the model was found to be statistically significant (F10,1183;0,05=85,778; p < .001). It is seen that the independent variables explain about %42 of the variance in the dependent variable (R = .648;  $R^2 = .420$ ). The high square of the multiplecorrelation can also be considered as evidence that the model can be considered important. When the regression coefficients for the independent variables were examined, it was found that all the regression coefficients were statistically significant; it is seen that the dependent variable can be included in the prediction equation. The fact that the regression coefficients of the financial ignorance, financial crisis, and financial anxiety variables have negative signs on financial health, indicates that an increase in the values of these variables will decrease the financial health scores. On the other hand, the fact that the regression coefficients of the variables of financial security, age, monthly income, perceived income and education were positive on financial health, indicates that the increase in the values of these variables will increase the financial health scores. When the standardized coefficients are examined, the ranking of the effectiveness of the independent variables on the dependent variable can be made as financial security, financial ignorance, financial crisis, financial anxiety, age, monthly income, perceived income and education. Hierarchical regression technique was performed to determine the shares of financial and socioeconomic variables in the explained variance. While performing the hierarchical regression technique, first financial variables and then socioeconomic variables were included in the equation. As a result of hierarchical regression analysis, it was seen that approximately 26% of the variance explained by independent variables was explained by demographic variables and the remaining 74% by financial variables.

As seen in Table 4, financial ignorance, financial crisis, financial anxiety, financial security, age, monthly income, perceived income and education variables were significant and strong predictors of financial health. Financial ignorance, financial crisis and financial anxiety were negatively related to financial health. On the other hand, financial security, age, monthly income, perceived income and education were positively associated with financial health. According to this result, participants with higher levels of financial ignorance, financial crisis and financial anxiety had significantly lower levels of financial health. However, respondents who stated higher levels of financial security, age, monthly income, perceived income, and education had significantly higher levels of financial health (Table 4).

Independent	Unstd. Coef.		Std. Coef.	t	Collinear	ity
Variables	В	Std. Error	Beta		Tolerance	VIF
Financial	-5.789	.680	215	-8.51***	.77	1.31
ignorance						
Financial crisis	-1.262	.330	089	-3.82***	.90	1.12
Financial anxiety	-3.427	.635	140	-5.40***	.73	1.37
Financial security	4.986	.440	.266	11.32***	.89	1.13
Gender (0=	.408	.863	.011	.47	.94	1.07
women)						
Age	.142	.044	.078	3.20***	.83	1.21
Monthly income	.000	.000	.096	3.80***	.77	1.30
Perceived income	5.054	.573	.231	8.81***	.71	1.40
Marital status (0=	-1.424	.988	036	-1.44	.77	1.30
married)						
Education	1.075	.465	.055	2.31*	.86	1.16
(Constant)	49.026	3.969		12.35***		

Table 4. OLS Regression Models Explaining Financial Health

*Note:* \**p*<.05, \*\**p*<.01, \*\*\**p*<.001; *R* = .648; *R*<sup>2</sup> = .420;

# 4. DISCUSSION

This study's objective was to identify how factors related to financial ignorance, financial crisis, financial anxiety and financial security affect people's financial health during an ongoing pandemic using a sample of 1333 adults in Turkey. Regarding participants' financial health, we found that individuals' overall financial health based on FHNC' score falls under the category of "financially coping." Individuals with scores in this range report healthy outcomes across some, but not all of the eight financial health indicators. It seems that individuals having financial troubles within this tough time. On the other hand, the average score in spend indicator is 71, which indicates that an individual's ability to pay nearly all of their bills on time and spend little less than income. The average score in save indicator (liquid savings and long-term savings) is 49 which indicates that inconsistent with conclusions drawn in prior research (see Baldwin and Tomiura, 2020; Barua, 2020; Kulkarni and Bharati, 2020; Mahajan, 2020; Mogaji, 2020), participants did not have satisfactory savings for affording to cover unexpected expense during this tough time, like income or job loss. The average score in borrow indicator is 76, which indicates that having a manageable debt load and ability to credit card payments with little late fees. The average score in the plan or budget indicator is 46, which is the prime reason with saving indicator for getting financial health score in "financially coping" category. Having appropriate insurance allows individuals to be resilient in the face of unexpected expenses, such as medical emergency. Respondents have scored lower in this category, and another component of this

indicator i.e plan ahead financially. It indicates that individuals were less future-oriented and interested in improving their current financial situation.

In bivariate analyses, women and single participants have significantly displayed less healthy financial behaviors than men. This result is somewhat consistent with Mahajan' (2020) results. In general, older and educated participants with higher income and perceived their income higher have significantly displayed more healthy financial behaviors than others.

This study highlights financial factors related to financial health during the COVID-19 outbreak. The current study investigated whether financial ignorance, financial crisis, financial anxiety and financial security were related to personal financial health. The determinants of financial health have been a largely neglected area of research during an ongoing pandemic except a study (Mahajan, 2020); thus, our results make an important contribution. This research shows that personal financial health was predicted by financial ignorance, financial crisis, financial anxiety and financial security. Financial security was positively related to financial health. A possible explanation of this result is that participants with knowing how to build financial security now and in the future were financially healthy. Previous studies suggested that individuals who score high on behavioral ignorance were worse at managing their finance, and had lower financial well-being (due to the ignorance of relevant decision aspects). Since, ignorant individuals might perceive their situation to be better than it is (Barrafrem et al. 2020a). Our results support these claims by showing that participants who were scoring higher financial behavioral ignorance have lower financial health score than those who were scoring lower financial behavioral ignorance. Earlier studies indicated that financial stressors were correlated negatively with financial health (Joo, 2008). In the current study, financial anxiety was also negatively related to financial health. This result indicates that participants with worry more about their financial situation were displayed less healthy financial behaviors than those who were less anxious about their financial situation. As expected, financial crisis was negatively associated with financial health. The financial crisis influenced the financial health of the respondents. Those who experienced more financial crisis showed lower levels of financial health than those who experienced fewer financial crisis. During an ongoing pandemic, individuals may be affected by employment decline, unpaid leave, or job loss threats. As a result, they displayed less healthy financial behaviors. Consistent with previous studies, this study did not find any significant influences of gender and marital status on financial health. On the other hand, inconsistent with earlier studies, we found that age and education showed significant impacts on financial health (Joo, 2008; O'Neill, 1995).

# 4.1. Limitations

Although its contributions to the field explain personal financial health during the pandemic process, it will be useful to state that this study has some limitations. First, the analyses presented in this paper show the relationship between variables. It is not appropriate to perceive and interpret the relationships between variables as causality. So, we cannot make inferences about causality. For example, although it might seem reasonable to believe that better financial security leads to higher financial health, it may also be that higher financial health leads to better financial security. Studies in which researchers manipulate personal financial health or personal financial wellness experimentally are also needed to determine causality between these constructs. The second of the limitations is that the data collection process is carried out online. It may not be possible to say exactly the sample representation that answered our online survey. Those who do not have internet access or have a negative attitude towards answering online surveys, etc., some subgroups are likely not to be included in the sample. Third, the respondents were not a random sample of the country. The sample relied on self-report data that included online connected people with university degrees. Thus, the results of this study cannot be generalized to the

population in general. Further research is warranted using broader and more representative samples, especially including a wider range of socioeconomic backgrounds and aspirations.

# 5. CONCLUSIONS

The current study recruited 1333 participants in Turkey to identifying the predictors of financial health during the COVID-19 outbreak, including factors such as financial anxiety, financial security, financial crisis, and financial ignorance. Based on our findings, financial behavioral ignorance, financial crisis, financial anxiety, financial security, age, monthly income, perceived income and education were significantly related to financial health. Financial security, age, monthly income, perceived income and education were positively related to financial health, while the financial crisis, financial ignorance and financial anxiety were negatively related to financial health.

Our results support previous research findings (Evans and Over, 2020) and show that containing the COVID-19 outbreak is the first step to mitigating the health impacts and the economic impacts. This study explores the role of pandemics in personal financial health and makes several contributions to the literature. Firstly, we investigate the financial health scores and sub-scores differed by socioeconomic characteristics during on ongoing pandemic. Second, we test for a rigorous set of financial variables that affect financial health. Finally, we examine how financial situation relates to financial health when controlling with socioeconomic characteristics.

While many countries have reopened their economies, allowing a cautious back to work and economic life, the pandemic seems likely to remain a reality of life for the foreseeable future (Barrafrem et al. 2020b; Hevia and Neumeyer, 2020). Thus, during this COVID-19 crisis, our results will help government and policymakers to maintain their economic policies and measures to provide relief to individuals during this current and post COVID-19 recovery knowing the financial behaviors of the general public. The findings would be useful for policy makers to maintain the parallel expansion of financial and welfare measures to improve people's financial health and to strengthen the financial wellness of individuals to fight against COVID-19. This research also provides the information about how we manage to financial situation during on the COVID-19 outbreak. Individuals react to the COVID-19 varies depending on their socioeconomic characteristics, and there might be different practices in line with the course of the pandemic and the measures taken by the countries (Özmen et al. 2021). Individuals with the negative financial behaviors will need assistance. Professionals could provide need-oriented support services and activities to increase financial knowledge to those most likely to suffer from the negative effects of the COVID-19 outbreak. These support services may be given any formal or informal arrangements through mass media, social media, telephone or internet. Earlier studies indicated that opening a savings account in childhood might be improve adults' financial health. Thus, there are implications for financial institutions like banks, programs, and practitioners that could serve and work directly with children and young adults to encouraging them for savings accounts.

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# Implementation of SHRM in Organizations through Strategic HR Directors

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#### Abstract

Aim of this study is to discuss implementation method of SHRM in organizations. Study suggests strategic HR Director position in organizations to implement SHRM. Because PM and HRM are already implemented by firms, while SHRM is not in practice yet. Strategic HR Director might be the methodology for implementation of SHRM. Methodology of this study is systematic review. Hence, study carefully scanned well-known field researches written by well-known HR scholars. In systematic review methodology, authour pose out a research question and it answers this question by field studies and HR scholars. Main research question of this study is whether strategic HR Directors put SHRM into practice in organizations. Major defense is, managers carry firms to organizational goals. Job responsibilities of the director are talent management and HRM systems. Both responsibilities cover managers and career plannee. Furthermore, talent manager, PM division, and SHRM division are operate inside HRM department. That may create matrix organizational structure at organizations. Because there may be two authouroties about SHRM field in organizations.

#### Keywords

Strategic HR Directors, Top Management, Advisory Role, Talent Management, HRM Systems

#### 1. INTRODUCTION

Role of strategic HR Director is to implement talent management and HRM systems in organizations. Strategic HR Director are responsible for talent management and HRM systems because, to affect firm performance, organizations need effective managers. Talent management pick up effective managers in organizations, and HRM systems develop potential of talents and stars. Assumption of this study is that, managers achieve organizational results; therefore core of strategic HRM is managers. Fourth definition of strategic human resource management (SHRM) might be appointment of successful managers to managerial positions. That might be 4th definition of SHRM, i.e., strategic HRM is related to managers and management positions.

This paper argues roles of strategic HR Directors in implementation of SHRM in firms. Because SHRM is not implemented in organizations, while HRM and personnel management continue to implement. Firstly, strategic HR Director has management positions at top level of organizations, and it plays advisory role. Advisory role covers who may become managers in the future. Secondly, strategic HR Director possesses two main roles: talent management and HRM systems. Those roles target talents and star employees. Because talents and stars affect firm performance as managers. Therefore, strategic HR Director elects talent inside or outside of organizations, it develops talents for management positions, and it appoints talents into management positions. Fourth definition of SHRM is to affect firm performance through managers. This is definition and assumption of this study.

In addition, strategic HR Director enhances individual performance of talents and stars through HRM systems. In the field of strategic HRM, it is proved that HRM systems impact individual

performance more than individual and separate HRM practices. HRM systems is to apply interrelated HRM practices in organizations to affect individual performance. Therefore, it may be part of career planning and career development.

There are already three accepted definitions of SHRM field: Strategic management, Firm Performance, and HRM systems. Those are the variables that set definitions of SHRM. Fourth definition is related to human capital variable; however, it is not accepted yet. This study define appointment of managers as a fourth definition.

## 2. LITERATURE REVIEW

### 2.1. HRM System: Performance Improvements

1st definition is made by Devanna et al. (1981). Authours relate strategic management with human resource management (HRM). According to 1 st definition, HRM is strategic partner of organization, and it plays advisory role for line management. HRM is strategic partner, and it joins developing firm-level strategies. Further, HRM involves with strategic plans of the firm. 2nd definition of SHRM is made by Wright and McMahan (1992). P.M.Wright is well known authour in SHRM field. Authours relate HRM with firm performance (i.e. profit, revenue, sales). That definition is most accepted definition of SHRM in this academic field, i.e. HR, managers, contribute firm performance. However, moderators are not obvious yet. Maybe, in American literature, innovation and intellectual capitals may become moderators in this relation.

3rd definition is made by Lepak (2007) and Jiang (2012). It is related to HRM systems. Lepak and Jiang (2012) define SHRM with HRM systems. In addition, Lepak, Jiang and other HR scholars also argue human capital theory in SHRM research. Final and most accepted definition of SHRM are based on HRM systems and human capital theory. This study aims to discuss impact of managers on SHRM. Because managers manage the company, and it helps organizations to achieve organizational goals. HRM or talent management appoints strategic person to managerial level.

Because HRM systems rather than individual HRM practices have more impact on employee performance. This study proposes 4.1th definition, which is identified by managers. Managers have impact on firm's outcomes (revenue, sales, market share, profit). Further, Li et al. (2015) describe financial performance with sales and market share. That is, top management, managers and supervisors have impact on firm performance. For example, an international firm operating in Turkey has regional manager in Blacksea region of country. Suppose that manager increased sales from 50.000 \$ to 500.000 \$, increased market share by 5th times in this regional field. That means more revenue and more profits for firms. If all regional managers show same individual performance, overall performance of this firm increases in Turkey. Thus, this study identifies SHRM with managers. Wright (1994) also mentions for managers in HR- firm performance relationship. According to Wright et al. (1994), achieving sustainable competitive advantage depends on human capital and intellectual capital. Because rivals do not imitate human and intellectual capital. In addition, those capitals differentiate firm products from rivals. i.e., a firm may achieve competitive advantage in 21st century or in Industry 5.0 via their human capital stock and intellectual capital stock. Therefore, talent management gains priority to obtain those capitals. In talent management, a firm hire talents and apply career development to talents which is a major job duty of strategic HR director.

This study also aims to add key staff (strategic person) as 4.2th dimension in SHRM definition. 4.1th definition is related to managers. 4.2th definition is related to key staff. In this study managers are considered as intellectual capitals and strategic person. While in HRM literature Lepak and Jiang relate human capital with production departments and workers (labors). Li et al. (2015) also relate human capital with labor market and products of firms. Although researchers say that human capital leads to better employee productivity, this study suggests that KSAs of employees develop employee efficiency to achieve organizational outcomes.

In American literature, HRM is defined by organizational goals. HR of firm are to contribute to firm-level strategies and goals. If not, performance of employees is not evaluated good. HRM is defined by contribution of human resources to organizational goals. While, SHRM is a kind of division of HRM. Therefore, in practice, SHRM are to operate inside HRM department. SHRM in HRM department has responsible for applying HRM systems for career plannee. Personnel management (PM) is also operate in HRM department as a subdivision currently. In SHRM, employees have impact on firm performance via their individual performance. HRM is strategic because HR has two characteristics. Manager and organizational goals. HR are to contribute to the goals, and managers improve performance of firm. Goals and employee performance describe value in HRM.

Further, HRM has two important parts: talent management and performance. This study proposes that HRM is 50% related to talent management and it is 50% related to performance. Firms apply those practices in HRM department to reach organizational goals. In Turkey HRM is defined with talent management and HRM practices, while in Western literature HRM is identified with organizational goals.

## **2.2.** Strategic HR Director Position at Top Level

In addition, this study proposes Strategic HR Director position in firms to apply SHRM in practice. Strategic HR Director operates at the top of the organization, it has advisory role. Strategic HR Director would have two job definitions: talents and HR systems. About talents strategic HR Director has three job definitions: establishing talent pool, succession planning and career planning. The Director picks up talents from talent pool, and it has responsibility of their career development. i.e. Strategic HR Director implements talent management in HRM department for talents to achieve organizational goals. For example, Siemens and Koç Holding have 100.000 employees. It is hard to pick up talents inside organization among those huge number of employees. This is the responsibility of strategic HR Director at top level.

Secondly, strategic HR Director has responsibility of applying HRM systems. It applies HRM systems for talents and top performers. Strategic HR Director would appoint talents, performers, and stars to managerial positions. and those managers would increase performance of firm. Because this appointment of talents to management positions will increase firm performance.

Roles of strategic HR Director would resemble to matrix organization. According to this study, strategic HR Director would operate at top level, while SHRM division operates inside HRM department. Responsibility of SHRM division talent management and HRM system. Therefore, settlement of strategic HR Director requires matrix organization structure.

Talent management consists of three dimensions: succession planning, career planning, and talent pool. HRM departments fulfills empty managerial positions from talent pool and succession planning. Firms apply career development for employees that are included in succession planning. Therefore, the most important part of talent management is succession planning, then career planning, and then, talent pool. HRM are to apply career planning and career development for employees listed in succession planning. Talent is defined as highly competent employee in HRM theory. Succession planning may be second role of Strategic HR Director. First role is talent management for stars and talents, and talent management role includes three sub-roles.

Most important part of talent management is to develop careers of talents (Schiemann, 2014). A talent is defined by competency at job and top performers at work. Thus, in talent management talent is elected from talent pool, it includes in succession planning list, then strategic HR Director applies career development for talents in succession planning. Those are three sub-roles of talent management.

Collings and Mellahi (2009) say that talent management lacks consistent definition. Those authours define talent management as fulfilling key positions with top performers, competent incumbents and talents. Collings and Mellahi (2009) add fourth dimension to talent management field, which is key positions in organizations. According to their model, key positions enable firms to achieve firm performance. Therefore, individual performance of talents at key positions gains managerial priority for organizational goals. HRM are to fulfill key positions with talents from talent pool and succession planning list. That strategy of HRM department may have an impact on firm performance.

According to Vaiman et al. (2012), firms compete for war for talents. This is major decision making of talent management. War for Talents is related to recruitment and retaining of talents. Those authours describe strategic person, or key staff. Strategic personnel is talent of organization that firms achieve organizational goals via key staff. In addition to role of managers in SHRM theory, this study adds strategic person that enable firm to achieve organizational goals. Definition of strategic person may include human capital, talents and managers. Vaiman et al. (2012) discusses talent management decision making. Talent management is critical part of SHRM due to war for talents. Therefore, war for talent becomes the decision making element.

# 2.3. Talent Management in Turkey

Turkish firms (İstanbul) implement talent management in organizations by talent managers. Talent managers pick up talents in bureaucratic organizations, and it establishes talent pool. This study proposes that Strategic HR Director implements talent management at top level of organizations.

Yumurtacı (2014) relates talent management with business strategies, i.e., Yumurtacı (2014) identifies talent management with 1st definition of SHRM made by Devanna et al. (1981). Maybe in Turkish context HRM is related with strategy and performance (Uysal, 2020). That might be definition of SHRM in Turkey. Turkish firms use talent manager position to apply talent management in organizations.

In Turkey, some firms possess talent managers to manage talents. Talent managers are responsible for succession planning, career planning, and talent pool. Furthermore, talent manager is responsible for talent scanning in bureaucratic organizations. Enderun System (Devşirme method such as Sokullu Mehmed Pasha or Köprülü Fazıl Ahmed Pasha) is historical way of talent management in Turkey; therefore, talent management exists in history including personnel management. Institutions or firms expect from talents to impact on organizational goals (profits and efficiency). Because in modern management devşirme or Enderun method is considered as talent management. Therefore, talents must become effective in key positions. Bureaucratic organizations (Siemens, Toyota, etc.) applies talent management by decentralization because applying talent management in bureaucratic organizations is difficult duty.

Talent management includes three important duties: finding talent, developing talent and retaining talent. This is responsibility of HRM department or talent managers. Talent managers also operate inside HRM department. Applying HR requires huge organization because HRM department includes SHRM division, PM division, and talent managers at modern age. Therefore, HRM department in general would possess three sub-roles: personnel managers,

strategic HR Directors and talent managers. In Turkey, firms find talents at university level, and develop their career paths in this era of education. Enderun system is exploited at university level in Turkey.

In western literature a talent is defined by two words: competent and performance. If talent possesses competent and high performance, it serves for organizational goals. In Turkey, talent is defined by skills or human capital. For example, professionals must have marketing skills, finance skills etc. In production workers must become human capital to serve for organizational goals.

This study defines talent management as filling key positions by talents to achieve goals. Aksakal and Dağdeviren (2015) also join this definition. In Turkey, definition of talent management is paralel to Enderun system. In addition, American Society for Training and Development defines talent management by short and long term business goals. Because talent management has four dimension:

- Talent pool
- Succession planning
- Career planning
- Key positions

If talent management is defined as fulfilling managerial positions with talents, thus, most important part of talent management is succession planning.

Finally, talent management has two major dimensions: attracting, developing, and retaining talents; and, establishing talent pool, succession planning, and career planning. Talent manager is responsible for implementing those dimensions in organizations.

In Turkish context talent management is described by three phrases: skills, qualification, expertise (Akar, Balcı, 2016). Those phrases make an employee human capital or intellectual capital in long term career. This is important because talents serve for organizational goals and performance. In Western context a talent is described as competent, performance, and potential. Therefore, potential of candidates at work is important in HRM after becoming talent. This study relates talent management with fulfilling management positions.

Retaining talent is critical issue for organizationals. Organizational commitment appears as important way of retaining talents in organizations, and equal compensation (Equity Theory) make an employee committed. The other side of retaining is succession planning and career planning. If employee is included in the list of succession planning and career planning, commitment level may be satisfactory.

### 2.4. Strategic Human Resource Management in Turkey

SHRM in Turkey is related to strategy dimension among four definitions listed above. Many HR scholars (e.g., Öğüt vd., 2004; Seviçin, 2006; Altuntuğ, 2009; Yumurtacı, 2014; Gürlek, Uygur, 2019) emphasizes strategy words in definition of SHRM. Currently performance dimension is added to HRM definition in Turkey due to higher education abroad. In addition, SHRM is defined with fit between HRM department and business strategies. Strategic planning provides of this fit between HRM and strategy. In addition, SHRM is partly related to resource approach in Turkey. HR is viewed as organizational resource to achieve goals; therefore, organizational resources is related to individual performance in Turkish context. Since strategy perspective is important in SHRM in Turkey, organizational resources are important. Because organizational

resources increase competitiveness of firm, and resources provide of achieving organizational goals.

There is not systemic approach to HRM in Turkey. Firms apply individual HRM practices, not interrelated. HRM practices improve employee performance to achieve goals. In USA the most important goal is business performance (e.g., profit, sales). In system perspective HR system affects employee performance and organizational performance. This is definition of HRM in this study. There are a little bit differences between SHRM and HRM definitions. In HRM, HR of company are to contribute to firm-level objectives; therefore, HRM is related to organizational goals. SHRM aims to impact business performance. Therefore, HRM is related to organizational goals, and SHRM is related to firm performance.

Strategy and resources are two variables of SHRM in Turkey. Strategy approach is first definition of Devanna et al. (1981), and resource approach is obtained from Barney (1991). Third keyword is fit approach in Turkish type of SHRM, and fourth is HRM Practices. Turkish firms aim to achieve internal fit between HRM practices and line management, and business strategies and goals.

Barney's idea (1991) sets a base for SHRM through HRM-performance relationship. Employee is called as strategic person in SHRM, employee is called as professional in HRM; and employee is called as personnel or workforce in personnel management (PM). Finally, Turkish type of SHRM is built upon four keywords: strategy, performance, fit, and HRM practices.

# 3. METHODOLOGY

Main objective of this study is to describe job description of strategic HR Director. It is HRM systems. Strategic HR Director applies HRM system accross organization to improve performance of talents and stars, i.e. to improve the performance of individuals, who has career planning.

This study also suggests talent manager role to apply talent management in organizations. Talent managers are also operate inside HRM department, and it is responsible for founding talent pool, succession planning, and career planning activities for talents.

Importance of this study is to clarify strategic HR Director and talent managers in order to put SHRM in practice in organizations. American HR scholars do not define definitions of HRM obviously. Therefore, there is confuse in HRM field about definition of HRM. In American literature, HRM is defined with organizational objectives. i.e., HR are to contribute to firm-level performance (e.g., market share, shareholders). In Turkey, definitons of HRM is applying individual HRM practices.

Major limitation of this study is that this research is only based on 36 references list. Because the study is literature review; and so, this study must include double reference studies. Because the study establishes three propositions. and it requires more reference list to increase impact of propositions in SHRM field.

This study possesses three propositions below.

Proposition 1: SHRM is related to business strategies and organizational resources in Turkish context. HRM in Turkish firms is strategic partner of top management in the context of strategic plans and HR strategy-business strategy relations, and strategic advisor of line management in implementation of HRM practices organizationwide.

Proposition 2: In Turkey, HRM is related to behavioral science and line management. Behavioral science is related to organizational behaviours; therefore, firms pay attention to behavioral

science of candidates through recruitment process. Further, line managers have big impact on applying HRM accross organizations.

Proposition 3: Talent manager, and Personnel Management operate inside HRM department, however, strategic HR Director operate at top-level. Head of HRM department is HR manager, and HR professionals operate inside HRM department, and HR professionals colloborate with line managers to implement HRM practices in organizations.

This study adopts systematic review method. For systematic review authour pose out a research questions, and it answers this question by well-known literature articles by citing wellknown HR scholars.

Major research question of this study is that SHRM increases firm performance through managers. Second research question is, strategic HR Director has talent management duty and HRM systems duty. Strategic HR Director may put SHRM in practice at organizations.

This study replies those questions via citing well-known article and HRM scholars such as D.Lepak, K.Jiang, S.Jackson, R.Schuler, P.M.Wright, M.Huselid, C.Brewster, other.

## 4. DISCUSSION

What is the difference between SHRM and HRM? Managers. Answer might be managers. HRM appoints talented managers to manage organizations, and those talents carry firms to achieve organizational goals. This is SHRM. HRM is related to employee performance and organizational goals. It can be proposed that, future of SHRM depends on managers, human capital and intellectual capital. Managers achieve firm performance as human resources and talent, and human capital and intellectual capital carry firm to organizational success in Industry 4.0. Because human capital and intellectual capital enable firm to produce competitive products and those kind of capitals differentiate products from rival one. In industry 4.0 most important competitive edge might be differentiation strategy and intellectual capital achieves differentiaton of products.

Strategic HR scholars emphasize human capital and HRM systems in SHRM. This study adds intellectual capital to achieve competitive advantage. In addition, this study also discuss managers as important in SHRM field. Human capital must possess related skills and expertise. Those capabilities show its effect on firm's products. Human capital of firm is related to competitive product. Current definition of SHRM in 2010s is made by some HR scholars such as D.P.Lepak and K.Jiang. This study adds talent management dimension to this definition. Because HR finds and develops talents, appoint talent to managerial position, and firm achieve expected performance.

Human capital is related to skills. Skills or human capital enable firm to produce competitive products. It means more sales and market share. More sales and market share is related to firm performance. Thus, human capital might be mediating factor between HRM and firm performance (Wright, McMahan, 2011). Wright and McMahan (1992) relates HRM with organizational goals in their wellknown article. and Sales and market share is key goals in firmal management. Human capital is highly skilled employees that improve products of company. Therefore, future of SHRM might be defined by human capital. Some HR scholars (Lepak, Jiang) identify future of SHRM with human capital. This study adds intellectual capital and manager dimensions to this identification.

How does a human capital of firm increase firm's competitiveness? In human capital theory knowledge and expertise of workers built skills in workers. Human capital approach is related to

workers (labors), and intellectual capital is related to professionals (managers). Further, human capital is related to function of production in firm management.

Human capital is defined by three words: knowledge, skills, and ability (KSAs analysis). Lepak et al. (2018) relates human capital field with SHRM theory by KSAs analysis and AMO analysis (ability, motivation, opportunity framework). Boon et al. (2018) say that human capital of firm is related to quality of products and efficiency of operations that make human capital strategic resource. and by doing so, a human capital may become core competence of firm. Boon et al. (2018) say that human capital resources are positively related to firm performance.

At 21st century business ecosystem and future Industry 5.0, talents are intellectual capital of firms. Intellectual capital increases competitiveness of firm.

Lepak (2014, 2018) views that human capital is strategic resource of firms. Because human capital affects unit-level performance (i.e. production department). Lepak is one of key researchers in human capital and SHRM fields that it relates human capital as a mediator between HRM and performance. Lepak aims to integrate human capital with SHRM. KSAs analysis and AMO frameworks integrate human capital with SHRM theory. Therefore, human capital is next generation of research in SHRM (Nyberg et al., 2014). Human capital is mediator between HRM and unit level performance.

Human capital is based on knowledge, skills, and abilities of employees (KSAs). According to Nyberg et al. (2014), theoretical knowledge is necessary in order to perform job definition, and skills and abilities are built upon knowledge. Therefore, human capital is maybe related to professionals and intellectual capitals. According to Lepak et al. (2014) human capital is departmental resource in firm management. This study contrasts with this ideology. Human capital is maybe production departments resource, other departments in firms are to recruit intellectual capitals or professionals. However, by KSAs analysis, human capital is partly related to intellectual capital and professionals. Accordingly, Lepak argues that human capital is related to KSAs analysis and unit-level performance; therefore, it can play mediator role between SHRM and performance. Performance of production departments enourmosly affects firm-level performance.

Lepak (2007) associates human capital with KSAs analysis, especially with skills. According to D.P.Lepak human capital is skills, and knowledge accumulates skills. Skills might belong to workers or professionals. This study associates human capital with workers, and relates intellectual capital with professionals. Thus, to become competitive in 21st century era managers are to become talents or intellectual capital. In addition, Gowan and Lepak (2007) say that tenure accumulates knowledge and skills in employees. Firm-specific human capital leads to core competence of firm.

Li et al. (2015) found that human capital has positive impact on firm performance in Chinese context. Human capital is related to KSAs analysis. KSAs of labors is built upon employee expertise and experiences (i.e., tenure). In addition, training and compensation develop human capital of employees (Li et al., 2015).

# 5. CONCLUSION

In American HRM interests of owners in company are important, in European HRM stakeholders have priority in management of HR. On the other hand, doing task is important in Turkish HRM rather than performance.

Mission of HRM in organizations is to achieve organizational goals. Organizational goals is achieved through employee performance. Major goal is profit and market share. Those 4 factors

describe SHRM in this study. Performance is Wright's dimension (1992) and HRM systems are Lepak ang Jiang (2012) dimension, strategy is Devanna et al. dimension (1981). Fourth one is human capital. This study proposes managers for practitioners.

Suggested model of HRM is below:



Figure 1. An HRM Model that depicts SHRM.

According to this model, HRM department adopts HRM systems to develop potentials, or incumbents, and HRM systems increase individual performance of employees, and individual performance of employees enable them to reach organizational goals.

HRM has three roles in organizational body: talent management, organizational goals, and performance. Talents carry firms to achieve goals and performance. Therefore, there is war for talent among organizations. HRM is 50% talent management and 50% performance variables. Altuntuğ (2009) relates HRM with strategy and competition. Therefore, talents are strategic resources of firm. Yumurtacı (2014) also relates HRM with strategic management. Therefore, in Turkish culture, SHRM may be identified with strategy dimension of Devanna et al. (1981).

This study aims to develop 4th point to SHRM field. It may be professionals (managers). Managers are human capital and intellectual capital of firm. Therefore, HRM are to develop human capital in firms, and are to obtain, develop and retain intellectual capital to become competitive in the era of severe Industry 4.0 context.

Currently HR scholars define SHRM with human capital approach. First definition is strategy; second definition is related to performance; and third definition is related to HR systems. This study defines SHRM by managers involvement with firm objectives, human capital and intellectual capital.

In conclusion, strategic HR Directors at top level have three job definitions: appointment of managers, talent management, and HRM systems.

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# Choice of Transport Mode By Residents of The City of Asmara-Eritrea

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#### Abstract

The choice of mode for commuters is a crucial thing and the choice of transportation mode is affected by many factors such as: gender, income, travel cost, travel time...etc. This paper investigates factors influencing mode choice behavior of the residents of Adi-Guaedad and its environs towards different destinations of the city of Asmara. Adi-Guaedad is one of the suburbs of the city of Asmara. Multinomial logit regression model was used to study the choice of transport mode among 400 residents of this locality. The mode choice is between bicycle, public bus and minibus. The results of this study shows that gender, monthly income, occupation, trip purpose, residential location of the respondent, waiting time, access, egress, travel time (in minutes), travel cost, and distance (kilometers) to destination are the factors that statistically and significantly affect the probability that a commuter uses a bicycle, a public bus or minibus to his/her destination.

#### Keywords

Commuters, Choice Mode, Transportation, Destination, Asmara, Eritrea

### **1. INTRODUCTION**

Transportation is one of the vital sectors supporting people's activities because without any movement it is impossible for humans to fulfill their needs. Commonly many activities are done with variety of purposes, which are working activity, education activity, recreation activity, and social activity. People then tend to choose and determine which travel mode most suitable for them to fulfill these needs. The travel modes nowadays are available starting from the cheapest one to the most expensive one and also from the availability of the common service standard to the exclusive quality.

The need to understand the travel behavior of people and to be able to model this behavior is increasingly important in order to ensure the adoption of the right policy for the benefit of the society and the economy of a country. The issue of mode choice, therefore, is probably the single most important element in transport planning and policy making. It affects, for instance, the general efficiency with which we can travel in urban areas, the amount of urban space devoted to transport functions, and whether a range of choices are available to travelers. It is important then to develop and use models which are sensitive to those attributes of travel that influence individual choices of mode (Ortu´zar and Willumsen 1999).

Henceforth, the goal of this research work is to develop a discrete choice model, which is based on disaggregate data, for daily trips made by the residents of Adi-Guaedad and its environs towards different destinations of the city of Asmara. Travel demand models are employed to predict the need for travel routines, as well as to identify the value, individuals put on the numerous aspects, which influence their options.

The choice models associate the choices of travelers with the features of the available modes (such as the time and cost of traveling to each destination, purpose of travel and so on), the characteristics of trips, and the characteristics of the traveler (such as age, gender, education and income). The complex system under consideration here is a specific aspect of human behavior dedicated to transport mode choice decisions. The complexity of this 'system' clearly requires many simplifying assumptions in order to obtain operational models.

This study attempts to analyze the commute mode choice of the residents of Adi-Guaedad and its environs and investigates the extent to which their travel patterns differ from those of other suburbs in light of the populace socio-economic background and the fragmented public transport system of the city. It is hypothesized that the residents' sensitivities to modal attributes governs their mode choice decisions. This hypothesis is tested by developing discrete choice models for the travel mode choice of the commuters. If this hypothesis is confirmed, the transportation policies that can be effective for the general population have to be tailored to the needs and preferences of these residents. The study is also believed to contribute to the emerging literature on understanding people's travel behavior.

# 2. LITERATURE REVIEW

Overall, factors influencing mode choice may be classified into two groups and a good mode choice model should include the most important of these factors—internal and external factors. Internal factors include attitudes, socio-economic and demographic factors, habits and perceived level of control, while external factors consist of travelling time and the cost of the journey (Bergström, 1999).

On the other hand, Magelund (1997) has divided factors into subjective and objective factors. The objective factors are normally based on objective measures and are easy to measure and quantify. Travelling time, cost, comfort, information, purpose, weather, topography, security, environment and socio-economic variables are counted as objective factors. Subjective factors here include valuations of the alternative's characteristics, attitudes and lifestyle. These factors are based on the individual's perception and are often more difficult to quantify.

Researchers have gained many insights on how people choose different modes of transportation. Thus, literature related to mode choice analysis is the focus of the following review. The literature on mode choice is vast, and thus the following will not be exhaustive, but will focus on research relevant to the present study. To understand the relation between mode choice and the factors influencing the mode choice behavior various researches have been conducted under heterogeneous traffic condition. For instance, Magelund (1997) studied how a number of factors affect people's choice between car and public transport. Her study shows that income and work have a direct impact on the choice of travel mode. According to her findings people who choose public transport are characterized by low income and parking conditions at their place of work.

Nkegbe *et al.* (2012) used the multinomial logitmodel (MNL) to study the choice of transport mode among 384 non-residential university students in Ghana. The results show that distance of campus from residence, travel time to campus, amount earned by mother, mother's level of education and amount remitted to student statistically affect the probability whether a student walks, uses a motorbike or takes a bus to campus.

Using mixed logit model (random parameter logit model) and data from respondents of the city of Dhaka, Mahamud and Rabbani (2012) pointed out that mode substitution is sensitive to characteristics and performance of each mode. Travel time for both car and bus and comfort and

security for bus appeared to be the most important determinants of mode choice. Travel time for car as well as bus cost per trip has higher elasticity and marginal effect. Their study revealed that the most important features for a successful public transportation system can attract people away from private mode at least for the purpose of commuting to work reducing congestion and saving travel time and increased productivity. Teshome (2007) using data from the city of Addis Ababa and different specifications of MNLmodel observed that the mode choice model shows continuous improvement as explanatory power, as it is enhanced from being restricted to mode related variables to including socio economic and trip related variables.

Danaf *et al.* (2013) investigated differences between the mode choice patterns of students of the American University of Beirut and the general population of the Greater Beirut Area. They developed discrete choice models to model the choice among car, bus, and shared taxi (or jitney). They found that travel time, cost, income, auto ownership, gender, and residence location are the main factors affecting mode choice, and those students who come from wealthier families have a significantly higher value of time than the general population.

Tejaswi1 *et al.* (2015) examined factors influencing mode choice behavior in metropolitan city of Hyderabad. They have used MNL model for evaluation of influencing factors in mode choice behavior. Variables like age, income, travel time and travel cost are considered in generating the model. It is observed from the results that preference to public transport is more compared to all other modes of travel. Yun and Liu (2014) using stated preference and revealed preference survey data of 1491 cases from the Chinese city of Yichang indicated that if infrastructure related to bus rapid transit were built, the percent of respondents choosing public transit would increase from 55% to 71.3%, whereas the share of taxis and private cars would decrease.

Kamaruddin (2008) investigated the transportation needs of senior citizens in Malaysia and explored the problems encountered by them in relation to public transportation. The survey was particularly focused on travel concerns of older people, because it is known that personal mobility of individuals shrinks as their age increases. In light of the demographic profile, bus and own transport were the preferred mode of transport according to various categories of age, income and gender of the majority of older consumers.

Mohammed and Shakir (2013) using logit model have examined the factors that affect the determination of choice on the type of transportation mode by Malaysia students on their trips to university campus and the results indicated that if travel time reduces by 70% the amount of private cars users can be reduced by 84%, while reduction of the travel cost was found to be highly improving the utilization of public modes of transport. Similarly, Eluru *et al.* (2012) examined the effect of the performance of the public transportation system on commuter travel mode and transit route choice (for transit riders) in Montreal. The analysis was undertaken using MNL model for the travel mode choice results clearly highlight the role of travel time, number of transfers, walking time, and initial waiting time on the propensity to choose transit.

While most of the studies have found a negative relationship between travel time of a specific mode and the attractiveness of that mode, Whalen *et al.* (2013) who developed a MNL model to explain the mode choice of students at the McMaster University in Hamilton, Canada, found that the travel time coefficients for private auto and bicycle were positive, indicating that students tend to enjoy longer trips by these modes.

Finally, according to Miskeen and Rahmat's (2011) study of the entire intercity traveler's in Libya indicated that gender, age, traveler nationality, monthly income, car availability, purpose of travel, duration of stay at destination, egress distance to airport/bus terminal, total travel cost and
mode characteristics (privacy and convenience) have impacted the choices associated with intercity travel mode choices for intercity travels in Libya.

# 3.METHODOLOGY

### Sample and procedures

This study is mainly quantitative in nature for the purpose of examining magnitudes of the effects of various factors. The study investigates factors influencing mode choice behavior of the residents of Adi-Guaedad and its environs towards different destinations of the city of Asmara. A total of 420 self-administered questionnaires were distributed to respondents. Out of the total distributed questionnaire, we obtained 400 correctly completed usable questionnaires, which contributed 95.2% response rate. Individuals were contacted based on a stratified random sample of residential addresses and were requested to give information related to their daily travel mode from their place of residence to their place of work, school or other related purposes. The questions forwarded to respondents were arranged based on relevance to the respondents' experiences and trips. This questionnaire comprises extensive range of parameters, which characterize the trip such as access and egress time, travel mode, distance, number of trips per week, purpose of trip, residential origin and desired destination, the service features of the selected mode such as travel time, and cost and the features of travelers such as age, gender, marital status, household size, monthly income, profession and level of education.

Secondary data was collected from different institutions regulating the city's public transport undertakings, journals...etc.

Data collected were analyzed and interpreted by using SPSS version 23 and multinomial logit (MNL) regression model. The logit model is the most common economic method of describing how individuals choose between different alternatives and it is based on the assumption that individuals choose the alternative that provides them the highest utility. The model also shows how strongly different factors influence the choice of alternatives and the linkages between the variables (Ben Akiva, 1985; Algers *et al.*, 1992). The utility of the alternative travel modes is dependent on the different characteristics of the alternatives, the design of the transport system, and the traveler. The utility is described as a function of these factors.

These models were first introduced in the context of binary choice models, where the logistic distribution is used to derive the probability. Their generalization to more than two alternatives is referred to as Multinomial logit model (McFadden, 1974). McFadden (1974) first introduced the MNL model to explain the choice of transportation modes of urban commuters with the random utility model. The model is preferred since it permits the analysis of decision across more than two categories in the dependent variable; therefore, making it possible to determine choice probabilities of different channels. In addition, MNL is simpler to compute compared to Multinomial Probit (MNP) model which poses a challenge in computing multivariate normal probabilities for any dimensionality above two (Greene, 2001).

The modeler assumes the utility  $U_{ij}$  of a transport mode i (walking, cycling, public transport and car/motorcycle) to a commuter j, and includes a deterministic component  $V_{ij}$  and an additive random component  $\epsilon_{ij}$ 

$$U_{ij} = V_{ij} + \boldsymbol{\varepsilon}_{ij}$$
(1)

Here, the deterministic component of the utility function is linear in parameters. Assuming that the random component, which represents errors in the modeler's ability to represent all the

elements that influence the utility of a transport mode to an individual, is independently and identically Gumbel-distributed across individuals and transport modes. The model (MNL) is as follows:

$$P_{ij} = \frac{exp \, Vij}{\sum_{i'}^{I} exp \, Vij}$$
(2)

Where  $P_{ij}$  is the probability that transport mode i is chosen by commuter j and i is the set of different transport modes. The closed form of the MNL makes it straight forward to estimate (maximum likelihood estimation procedure), interpret and use. Detailed work on theory, shortcomings and some applications can be found in the literature (Greene, 2003).

SPSS analytical system has been used to determine which parts of the questionnaire were relevant and which were not to each other. The procedure used for the variables assesses the number of commonly used measures and also provides information on the relationships between the individual items in the scale such as gender, age, household size and mode of transportation. Thus, it enables us to analyze the influence of the variables distance, travel time, travel cost, etc., respectively, on commuting mode choice. In addition, we see also the influence of demographic variable on commuting mode choice.

The designing of mode choice model needs extensive evaluation of observed data and the efficiency of whole model system. In the current study, specific parameters are predicted to impact travelers' behavior, when they have different choice of transportation modes. Some of the parameters (such as, travel cost and travel time) are considered to be substantial in literature, while other variables are presented exclusively to deal with specific research problems. These requirements consist of the parameters such as gender (*Gender*), educational (*Education*) level, monthly income (*MIncome*) in Eritrean Nakfa, distance (*Distance*) of travel in kilometers, access (*Access*) and egress (*Egress*) time in minutes from public bus or minibus stops to final destination, total travel cost (*Tcost*), in-vehicle travel time (*TravelT*) in minutes. In addition, variables such as purpose (*Purpose*) of the trip, occupation (*Occupation*), household size (*HH*), age (*Age*), marital status (*Mstatus*) of the traveler has been considered.

A MNL model for all trips has been designed for three options such as, *bicycles, minibus* and *public buses*, to compare the application of these travel modes and determine the aspects, which might impact minibus users to shift from traveling by minibus, to choose bicycles or public buses. In this model, the dependent variable was "1" for bicycle, "2" for public buses and "3" for minibus.

The mode choice results can be used to compare the attractiveness of travel by different modes to determine their relative usage.

# 4. RESULTS

# Demographic characteristics

The data comprises of 400 travelers making the journey to work, school, business or other personal activities on daily basis. The respondents consisted of 46% of females and 54% males. Out of the total respondents, 69 respondents use bicycles, 236 respondents use public buses, and 95 travelers use shared taxis to reach their destinations. On average, respondents live about 5.5 kilometers away from their daily destinations and spend on average of 16 minutes using various means to travel to their destinations and expend about 49 Eritrean Nakfas every week on transportation. Table 1 below provides the statistical summaries.

Variables	Statistics				
Gender	Frequency	Percent			
Female	184	46%			
Male	216	54%			
Choice of transport	Frequency	Percent			
Bicycle	69	17.25.8%			
Public Bus	236	59%			
Multinomial	195	23.75%			
Transport characteristics	Mean	Stand. Dev.			
Distance to destination (Km)	5.5	5.46			
Travel time (minutes)	16	15.98			
Weekly expense on	49 ENF	58.30			
transport					
Waiting time (minutes)	12.2.	14.48			
Access time (minutes)	5.90	6.93			
Egress minutes (minutes)	7.18	10.17			
Trips per week	8.6	7.24			
Trips per day	1.91	0.99			
Socio-economic status	Mean	Standard deviation			
Income	1586.00 ENF	1328.44			
Household Size	5.39	1.9			

 Table 1. Summary Statistics

In conducting the analysis, the public bus was used as a base (reference) so that the other two choices (bicycle and minibus) were compared to this base. The model summary as presented in table 2 shows a likelihood ratio value of 505.144, which is significant at the 0.05 level. The Nagelkerke and McFadden Pseudo R-squared values of 0.843and 0.516 reveals that the model is useful in predicting the city's transport choice. Table 2 and table 3 below provide further details.

Model	Fitting criteria	Likelihood Ratio Tests				
Intercept only	759.591	Chi-square	Df	Significance		
Final	254.447	505.144	24	.0001		
The Goodness-of -Fit						
Pearson		35374	760	0.00		
Deviance		254 760 1.0		1.00		
Pseudo R-square	ed	Cox and Snell	Nagelkerke	McFadden		
		0.717	0.843	0.516		

Table 2. Model Summary

Table 3. Classification

	Predicted					
Observed	Bicycle	P. Bus	M.Bus	Percent Correct		
Bicycle	68	4	3	90.7%		

P. Bus	3	230	7	95.8%
Mini Bus	2	21	62	72.9%
Overall Percentage	18.3%	63.7%	18.0%	90.0%

The regression results as presented in table 4 shows that gender (*gender*), monthly income (MIncome), Access time in minutes (AccessT), waiting time in minutes (WaitingT), travel cost in Nakfas (*TravelCost*), occupation (*Occupation*), travel time to the destination in minutes (*TravelT*.), residential location (ResidentialL),trips purpose (TripPurpose), distance to destination in kilometers (DtD) and egress time in minutes (*egress*) are statistically and significantly affect the probability that a traveler uses a bicycle, takes a minibus or a public bus to reach his/her destination.

	Bicycle as a mode of transport				Mini Bus as a mode of transport			
Variables	Coeffi.	Std.	Sig.	Odds	Coeffi.	Std.	Sig.	Odds
		error		Ratio		error		Ratio
Intercept	0.161	3.329	0.961		1.419	1.563	0.364	
Gender	1.582	0.703	0.024*	4.863	0.695	0.458	0.129	2.003
MIncome	0.000	0.000	0.713	1.000	0.001	0.000	0.000*	1.001
AcessT(minutes)	-0.343	0.081	0.000*	0.709	-0.032	0.034	0.340	0.968
WaitingT(minutes)	-0.176	0.035	0.000*	0.838	-0.033	0.016	0.037*	0.968
TravelCost(week)	-0.006	0.009	0.480	0.994	-0.073	0.022	0.001*	0.930
Occupation (3)	2.374	1.230	.054*	2.374	245	.864	.777	.782
TravelT(minutes)	0.011	0.029	0.696	1.011	-0.073	0.022	0.001*	0.930
ResidentialL	-3.988	1.445	0.006*	0.019	-1.796	0.846	0.034*	0.166
TripPurpose (2)	5.049	2.550	0.048*	155.943	-1.073	1.316	0.415	0.342
DtD (kilometers)	-1.794	1.661	0.280	0.166	2.239	1.186	0.059*	9.388
EgressT(minutes)	-0.061	0.036	0.094*	0.941	0.001	0.022	0.957	1.001

**Table 4**. MNL results for bicycle and mini bus choices as compared to public bus choice.

a. The reference category is public bus

b. \* Statistically significant at 5% significance probability level

Several variables, based on the review of literature, were used in the tuning process. Some of the models that were analyzed have revealed inadequate statistical goodness of- fit and/or had counter-intuitive signs; and therefore, with the exception of a few, handful were invalidated and discarded. Table 4 above presents the most acceptable model of transport for the residents of Adi-Guaedad and its environs to the city of Asmara. Many variables were tested during the tuning process, but due to space considerations these trials are not presented here. As stated previously, the basic idea behind the mode choice estimation was to identify factors influencing the people to use one or other modes of transport (public bus, bicycle or mini bus). The basic test of the estimates are indicated by their signs (+ or -). The summary of estimations using the MNL model is presented in the above table. Almost all of the variables presented have significant parameter estimates and logical signs.

# Gender

In this study, the demographic variable gender (*gender*) has substantially contributed to explain the bicycle mode choice behavior. The coefficient for gender was positive, which implied that males were more likely to use bicycle than public bus or mini bus; the odds ratio for males being just about three folds in contrast to females. This difference is likely due to two reasons. Firstly,

the traditionally Eritrean females' way of dressing is not convenient to bicycle riding. Secondly, bicycle riding is usually associated with sweating and inconveniences that women are not ready to accept.

# Monthly Income

In the model, monthly income (MIncome) was found to explain significantly the mini bus mode choice behavior. The coefficient for monthly income was positive, which implied that as the monthly income of respondent increases there is a probability for a respondent to choose minibus as a mode of transportation than public bus.

# Access time

The estimated coefficient for access time in minutes (AcessT) for bicycle mode choice was found to be significant but with a negative sign indicating that as access time to a public bus stop increases people prefer public bus rather than a bicycle.

# Waiting time

This variable indicates the amount of waiting time in minutes a respondent has to devote in order to get a mode of transport to travel. The estimated coefficient for this variable was found to explain significantly bicycle and minibus mode choice behavior. However, both coefficients have negative signs. While this sign is meaningless for the bicycle mode choice whereas it indicates that as the waiting time for mini bus increase respondents prefer public bus to mini bus mode.

# Travel time

The length of travel time (*TravelT*) is obviously a major factor affecting travel mode choice. This variable was used to investigate whether the traveler avoids or tolerates lengthy travel time with one or the other mode choice. The result was found to be negative and significant indicating that the probability of selecting a mini bus as a mode of transport decreases with an increase of traveling time of the user. The result shows that travelers prefer the other cheaper modes of transport such as public bus when the time required to travel is found to be long and expensive.

# Travel cost

The level of service variable, such as weekly travel cost (*TraveCost*) was found to be significant for both modes of choice with negative coefficient signs. This result indicates that with the increase of weekly travel cost the probability of selecting bicycle or mini bus as a mode choice decrease. This is evident as the public bus is the cheapest mode of transportation in comparison of other modes in Eritrea. For instance there is an initial and running cost for people who choose to use a bicycle mode.

# Occupation

The variable occupation has four categories namely respondents have indicated that they are either students or employed in two sectors of the economy (government, private sector-selfemployed and private sector-employee). The estimated coefficient for occupation (private sector employees) for bicycle was found to be significant with a positive sign indicating that employees of this sector choose bicycle mode of transport. This might be related with the flexible nature of their working hours.

# Distance

Distance (DtD) in number of kilometers a commuter travels per trip was found to be significant with a positive coefficient sign indicating that the longer is the trip distance the more people

depend on mini bus as a mode choice. It supports the common notion that people use public bus for short distances only as it is inconvenient to travel long distance trips in crowded public buses where the probability of getting a sit is very low.

# Residential location

The site of this study Adi-Guaedad and its environs include Adi-Guaedad, Merhano and Adike. Residents of Merhano and Adike have to walk more to get access to public bus and minibus than Adi-Guaedad. The variable residential location (ResidentialL) has got two categories (1 = Adi-Guaedad and 2 = Merhano and Adike) and its estimated coefficient was found to be significant for both modes of transportation with a negative sign. These results imply that residents of Adi-Guaedad proper prefer public bus to bicycle and minibus. Unfortunately there is no meaningful reason to give for their choices.

# Trip purpose

Trip purpose (TripPurpose) has five categories namely work, school, business, social places and other purposes. The estimated coefficient was found to be significant for the category school with a positive sign for the mode choice bicycle. This simply shows that students prefer the flexible mode of transport (bicycle) as they are young with full energy and can bear the inconvenience that bicycle riders' face after riding.

# Egress time

The estimated coefficient for the variable egress time (*EgressT*) in minutes was found to be negative and significant for the bicycle mode choice, implying that as the egress time for the bicycle mode increases travelers choose public bus than bicycle. This may seem to be illogical but the case is that bicycle riders are not allowed to ride in the main roads of the downtown area of the city where traffic congestion is high. They have to lock their bicycles far away and walk a distance to work or visit any downtown office or café for that matter. Therefore, this could be the reasons why users avoid using bicycle as the egress time increases since they have to walk long distances to reach their destination after alighting from their bicycles.

# 4. DISCUSSION AND CONCLUSION

This study examines the effects of socio-economic and other attributes have on the selection of travel mode by the residents of the Adi-Guaedad and its environs as measured by a MNL model. The travel mode-choice behavior model was successfully developed and validated. The model indicated that gender, monthly income, occupation, trip purpose, residential location of the respondent, waiting time, access, egress, travel time (in minutes), travel cost, and distance (in kilometers) to destination statistically affect the probability that a commuter uses a bicycle, takes a public bus or minibus to his/her destination have impacted the choices associated with travel mode choices for the residents of Adi-Guaedad and its environs. Almost all the estimated coefficients possessed the expected signs and were statistically significant at the 5% level.

The variable monthly income indicates that minibus is so popular among people who can afford to pay from 20 to 30 Eritrean Nakfas per day. It is convenient, fast and comfortable way to travel. On the other hand, the public bus is popular among the poor and it is associated with crowdedness, discomfort, and lateness. Bicycle is popular among the youth and students who do not have a permanent income. Bicycle riders are disadvantaged travelers as they have to take long and inconvenient roads since larger part of the downtown area is not accessible to bicycle users and the city does not provide bicycle lanes (except in two different sites with about 1.5 Km.)

contributing to more traffic accidents. In addition, there are no public bicycle parking areas and other convenience facilities to encourage bicycle riding.

The alternative modes of transport included in this study are public buses, minibuses and bicycles. Traditionally, the most popular modes of transport in the city of Asmara and suburbs were bicycles, horse carts, walking and public buses. However, at present people heavily depend on different sizes of public buses, shared taxis, private cars, motor cycles and bicycles to travel from place to place and this definitely is creating congestion, pollution and massive traffic accidents.

Obviously, transportation have many kinds of negative effects or externalities, such as traffic congestion and increasing pollution levels. Pollution causes a number of environmental problems and negative impacts on human health due to emissions, noise or vibrations. Accidents and congestion are other visible negative manifestations of transport where both represent social as well as economic problems. The externalities of transport are more severe if every individual prefers taking private car than public transport, walking and bicycles. Thus, it is prime time to think about planning a transport system which is safe, convenient, reliable, environmentally friendly and cheap transport mode.

The need to change individuals' choices from private car and taxi use to the other relatively environmentally friendly modes is urgently needed. One of the efforts to support these changes is by improving the quality of these transport modes and to help improve this effort the factors affecting individuals' mode choice should be identified. Understanding mode choice is important since it affects how efficiently we can travel, how much urban space is devoted to transportation functions as well as the range of alternatives available to the traveler (Ortu'zar and Willumsen 1999). Furthermore, this factor is the basic knowledge which helps determine any effort to change travel behavior of the public.

Increasing the number of public buses and improving their punctuality can play a big role in attracting many people to avoid using private cars and minibuses. Moreover, provision of bike lanes and creating infrastructure that makes bicycle riding attractive can motivate people to use bike on their daily trips. Although these results cannot be generalized, they can provide important insights.

This study is expected to help in finding out which factors affect people in choosing transportation means for different social and economic activities and to give recommendation to the policy makers and other stakeholders to accommodate what people need related with transportation mean. The basic goal of this attempt is to use the results of this study as a steppingstone for further research to be done in the future which could deliver beneficial information to the policy-makers and transport planners of the city.

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# Modern International Politics Towards the Dissipative-Bifurcating Order

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#### Abstract

The international system is in the transition phase from a simple and linear system to a complex and chaotic one, within the framework of multicomponent systems, which has created new challenges in explaining the order in it. The international relations literature has studied order from a simple and classical point of view and has a linear conception of it, while this system is complex and chaotic. A new paradigm of order is emerging that existing theories of international relations are incapable of explaining it. Based on this, the main question of the current study is based on the centrality of the theoretical model explaining the complex and chaotic order of the complex international system. The main purpose of conceptualizing such an order is that the author uses the ontological and epistemological foundations of complexity theory and its theoretical propositions and uses an innovative method approach. The model of distributed branch order is an innovative theoretical model for the scientific community of relations between international relations.

#### Keywords

Complexity, The Branch-Distributive Order, The Branch Power Balance, The Complex International System, The New World Order.

### 1. INTRODUCTION

With the collapse of the Soviet Union, the Cold War order changed and the international system was confronted with many emerging realities. Prominent manifestations of such realities can be seen in the structures of order and its networking, increasing the level and density of communications within the international system and the formation of internal and external feedback flows and mechanisms, a variety of behaviors, strategies, and controls. On the other hand, the complexities of systemic and interconnected dynamics, as well as their simultaneity, the stable transition in the international system, and the nonlinearity and adaptability of control systems have changed the pattern of controlling order. The scope of international relations' theorizing is confronted with an accumulation of such emerging realities.

Among one of the most prominent challenges is the alteration in the structures of order and the emergence of multicomponent systems, which is a manifestation of the complexity and transition of classical systems to complex and chaotic systems. In such systems, the dynamics of power and control are very prominent and heterogeneous from classical international systems, which have had theoretical and functional consequences in explaining the systemic order. Changes in the systemic order of international relations can be conceptualized in terms of the concept of complexity and turmoil of the international system and its place in the analytical framework of complexity theories.

Complexity is defined on the basis of two foundations for distinguishing levels of order and the relationship between structures and their dynamics. The model of the new international order, unlike previous models which defined on the basis of power polarizations, today is based on the

complexity and diversity of organs and the entanglement of separate systems to each other. In such a model, the international system is an accumulation of correlated systems, each of which, in addition to having its own order, has cycles of connection with others. In such a situation, it is possible to move the regulating or disruptive currents of one system to another without facing a fundamental deadlock. These bodies may be linked to each other by a linker, or they may have thematic, spatial, or functional interference with each other. Finally, such systems operate non-linearly in the sense of disproportion in their inputs and outputs.

In general, the pattern of the new order can be defined as heterogeneous from the past and as a pattern that is multifaceted in terms of instruments, has a nonlinear process in terms of dynamics, Dissipative Process, and is nonlinear in terms of behavioral dynamics and its processes are also defined as Circularity. The behavioral patterns of the system and its parts will be unpredictable and will appear in the body of the emerging pattern and in the Attractor points that represent the point of formation of such patterns. Third, order, which reflects feedback control and the various levels of national, local, regional, and global feedback mechanisms, as well as the interrelationships between them, is definable.

On the other hand, in the field of international relations, the dynamics of power and its transformation into a tool of control are considered strategic research. In other word, power is defined by the process of its formation, its transformation into forms of control, and finally the emergence of a model of proper order, including theoretical inquiries, in the field of knowledge of international relations and the practical scope of its actors' policies. Following the metamorphosis of the international system and its increasing complexity, a body of international relations literature emerged that sought to address other elements in the realm of international order. The question of the complexity and chaos of the international system is so valuable that some suggest a fifth campaign in international relations based on the campaign between linear and nonlinear systems. The existing literature, meanwhile, has a special emphasis on the regionalization of the international system of orders, which can be examined in the context of the branching of the world order.

Theoretical currents of international relations, in the last two decades, have been diligent in reconstructing their concepts in order to adapt to systemic and operational changes.(see Bousquet and Curtis, 2011; Geller, 2011; Harrison, 2012; Juntunen and Virta, 2019; Kavalski, 2007, 2008, 2015). Part of the international relations literature has paid attention to the model of the new world order and what it is (see Cox, 1996; Holm, 2019; Nye, 1992; Stephen and Zürn, 2019; Van Langenhove, 2016). In the analytical spheres of the structures of order, modern regionalism has grown against traditional regionalism (see Fawcett, 2004; Fukuyama, 1989; Hettne, 1999, 2006; Hettne and Söderbaum, 1998; Huntington, 2000; Söderbaum, 2016; Söderbaum and Shaw, 2003; Väyrynen, 2003).

In the domain of the dynamics of order, a new literature has been formed that has highlighted some of the conflicting dynamics against the dynamics of military power (see Adler, 2005; Geyer, 2003; Hopf, 1998; Spandler, 2015; Wendt, 1999). Also, some international relations literature also insists on changing power cycles in the world order (see DiCicco and Levy, 1999; Lemke, 2002; Lemke and Tammen, 2003). A group of international relations literature has put the facts related to order control systems and its changes in their research agenda (see Arie, 2016; Feng and He, 2017; Filippidou, 2020; Frantzen, 2020; Knopf, 2010; Lebow, 2020; Moffat, 2003; Paul and et al., 2009; Wilkinson, 2020). In response to the new realities, a fifth campaign has been formed in international relations, which has placed complexity at its core theoretical focus (see Kavalsk, 2007, 2008, 2015). Thus, the existing literature shows a paradigm shift in the analysis of order. At the heart of this change, like other areas of the humanities, is the tendency toward the complexity of the international system and the formation of a complex and chaotic order. In the science of

international relations, the theoretical explanation of the emerging order suffers from fundamental backwardness. The existing literature lacks a coherent analytical apparatus for analyzing the phenomenon of order. Although Kavalski (2007, 2008, 2015) has shown some limitations to overcoming this analytical apparatus and introduced elements of it following the announcement of the Fifth Campaign, the scientific scope of international relations has taken lame steps in this direction.

In general, considering the emerging realities in the field of international politics and the inefficiency in the answers of the existing literature, the main theoretical question that has been put forward by the theorists of international relations is how to conceptualize such an order. The main goal and concern of the current study is also to conceptualize such an order that goes through the period of emergence. Coherence with the scientific currents of recent decades, in various fields, especially theories of complexity and turbulence that shape the direction of science in its evolution, is essential. Benefiting from the theoretical range of complexity leads us to new foundations for the analysis of order in the modern international system. The emergence of the analytical apparatus of the emerging order in the science of international relations is based on the logic of complexity of the necessity of dealing with such an emerging issue.

### 2. CONCEPTUAL FRAMEWORK

The most prominent methodological dimension of conceptualizing analytical apparatus of emerging order, by following the perpetually active model, in theoretical inference and benefiting from the presuppositions of complexity-chaos theory is in the scope of science and its conceptualization in complex international relations. The Abductive method is suitable for situations that are associated with a lack of confidence and certainty. Abduction refers to explanatory reasoning in establishing a hypothesis and inferring the best explanation. Explanatory arguments in justifying hypotheses are the basis of the second concept. The complexity of international relations is based on feedback and recursive causality, which leads to various causal passages in the formation of international relations phenomena. On the other hand, diversity in the dimensions of a reality or, at the same time, the existence of different but related realities puts the science of international relations in a state of lack of certainty. Correct identification of reality, a accurate theoretical explanation of it, and finally, optimal control and management, in order to create the desired order, are among the requirements for the efficiency of international relations in a complex situation. Abduction, in order to achieve the best explanation, is more or less unknown in the system.

In general, the three types of inductive reasoning (i.e., inductive, deductive, and abductive reasoning) are different from each other. There is a general rule in deductive reasoning on the basis of which a phenomenon is explained. In other words, the rule is the case and the result of the steps of such an inference. In inductive inference, case, result, and rule are introduced, respectively, and in abduction, order, result, and case are important (Svennevig, 2001). In this case, it can be argued that all systems with type A features will be of the complex type. The emerging international system has these features. The new international system is therefore subject to the rules of complex systems. Thus, research based on this method has steps: examining emerging facts and their implications; recognizing and adapting these facts to general rules; diagnosing the phenomenon in a special grouping that determines its rules; and finally, autopsy is being studied. On this basis, the type of method can be considered hypothetical. Therefore, abduction begins with observing emerging realities. These observations can be accompanied by hypotheses that attribute them to specific rules.

### 2.1 The International Politics between Norms and Emerging Realities

The collapse of the Soviet Union has exposed many emerging realities. These facts can be seen in various dimensions of order. The first emerging reality can be seen in the structures of order. The

first result of the collapse is the formation of new regional structures. Although the region has been a stable reality in social and international life, regional order has become more prominent and has emerged in the form of a multi-level order of regions in which states have prioritized regionalism. The international system has become a system consisting of distinct but interconnected regional orders. The international system was relieved of the structural pressures of strategic competition between the two poles. Thus, the duplex structure gave way to a new structure, which some translated as the globalization of the structure of order.

The collapse of this structure has led to the formation of controversy over new structures of order. The survival of the United States and the notion of victory in the Cold War order introduced the hegemonic structure as an alternative. The Gulf War and the New American Order are thought to be part of an effort to replace such an old structure with the old one. The activation of the dynamics of the international system, including the dynamics of economics, culture, and communication, posed a fundamental obstacle to structural homogenization.

The second emerging fact was related to the increase in the level and density of communications within the international system and the increase in feedback streams. This fact has led to the transformation of the international system into a network system, one of the characteristics of which is the formation of intertwined structures. This has changed the concept of hierarchy in the international system, and the Edo hierarchy has also introduced cyclical structures as a new concept. The third systemic reality is related to system dynamics. The complexity of dynamics should be considered as a new variable. In the past, despite the different dynamics, a kind of parallel or hierarchical performance was observed between them. In the parallel state, there is a kind of dynamic isolation, and in the hierarchy, domination over each other is formed. In the state of complexity, there is a kind of recursive causal relationship between the dynamics that causes the formation of a Circularity relationship between them. Today, the dynamics of the international system, both simultaneously and recursively, are interconnected within the framework of positive and negative feedback mechanisms. The simultaneous interference and interconnection of such dynamics has led to the formation of distinct but intertwined networks.

The fourth fact must be sought in the diversity of agents and their presence in system dynamics. For example, the presence of multinational corporations in economic dynamics, or non-governmental armed groups in military dynamics, or non-governmental organizations in the field of cultural dynamics illustrates such facts. The diversity of brokers has provided systemic conditions for the formation of international relations phenomena of the proxy type. The formation of proxy wars in West Asia is an example of this fact. The fifth emerging reality in the field of diversity of behaviors of units and the international system as a whole is that units and systems, in a particular area, have the ability to exhibit different patterns of that behavior. For example, in the field of war, today there are various patterns, such as full-scale, limited, asymmetric, combined, hybrid, economic, cyber, and so on. Even today, wars are fought with non-governmental agents on behalf of proxies. Finally, the sixth fact is about controlling and distinguishing it from the past. The new control is more of a network type and self-organizing. The deterrent is out of the initial and reciprocal state and acts as a network. Symmetrical deterrence has been replaced by asymmetrical deterrents.

# 2.2 The Complex-Chaotic Systems of International Politics

Emerging realities in the international system lead the field of international relations to a theoretical approach to complexity and turmoil. These facts are very similar to the situations that led to this scientific approach. The complexity approach provides new horizons for theorizing about order as an emerging phenomenon.

# 2.3 The Rise of Complexity-Chaos Order

Complex and chaotic systems have several principles and foundations that are conceptualized, the most important of which are in the framework of the characteristics of nonlinearity, branching of order, sensitive dependence, fuzzy places meaning places where the system has a certain behavioral pattern unfamiliar fascinator means emerging and unpredictable patterns of behavior, evolutionary, dynamic stability, asymmetric order. On the other hand, these systems have different types, including multicomponent, organic, and cyber systems (Auyang, 1999; D'Agostino and Scala, 2014). All complex systems are manifested within the concept of network. However, these networks will have different configurations and types, such as random networks without a specific design and program, clustered ones without a strong connection between them, will be organized, and so on. Complex and chaotic systems are based on the following principles and foundations:

Network as a framework of order, based on complexity with the characteristics of nonlinearity, branching, sensitive dependence, the presence of voids, unfamiliar fascinators and emerging behavioral patterns, evolution, dynamic stability and asymmetric order. Systemic pressures as a constant phenomenon and the beginning of the emergence of emerging orders. The operation of the system is at the edge of turmoil, in the sense that any change in the initial conditions of the system, even to a small extent, can cause the system to leave the threshold of stability and enter the turbulent and disorderly area. Evolution as the basis for providing mania in a state of complexity, in the sense that gradual, adaptive and innovative change replaces revolutionary change in the system. Branching of order is based on operating codes that indicate the path that the system can take to obtain the necessary capital to respond to systemic pressures and eliminate them. Operational codes are like a map that shows the distribution of situations and opportunities over the scope of the international system and the path to access them. formation of clusters, multiplicity of clusters, multiplicity of order patterns, multiplicity of equilibrium points, specialization of clusters, and the formation of an autonomous life cycle in each of them. Linkage between clusters and the formation of a single dynamic between them, as well as synergy between clusters in the process of evolution, clustering and their combination, are recurring phenomena in the complex system and are considered in the context of adaptive and innovative cycles in political order.

In the meantime, bifurcating order is one of the prominent principles of complex and chaotic systems. The principle of bifurcating in complex systems is based on the assumption that such systems face a host of pressures from the environment. These pressures can push the system towards the bifurcated order, i.e., the formation of sub-orders. In this model, instability will increase by creating pressure on the system. In addition, changes resulting from stress can be maximized at certain points. At this point, the system will have to rebuild itself. Bifurcating can be considered as a political innovation in the international system in response to various environmental pressures. The result of bifurcating is the formation of various sub-systems, each of which, having a special order pattern, tries to meet their growing needs by establishing feedback and linkages. This will lead to object scattering structures in the whole system and turn the system into a network consisting of various networks. For this reason, new theoretical assumptions are cited, the most prominent of which are:

The international system has deep and fundamental structures that, although many of them will not be visible, their consequences are observable. The universal system and its arrangements are evolving according to fundamental laws. One of the most prominent laws is the law of increasing bifurcating of the system against systemic pressures. The growing number of countries or regional regimes speaks volumes when it comes to globalization. The world system is conceived as a complex and chaotic system that operates non-linearly. Nonlinear operation indicates that the input and output of the system are disproportionate. Input, however small, can have very serious consequences, and vice versa. In complex and turbulent international systems, local dynamics will be important and largely due to the world order, which is the result of the functioning of these dynamics. Systemic pressures on units are fundamental, as they cause confusion in the international system that continues to operate at the edge of turbulence. It can cause chaos and disorder in the international system. Integration and disintegration exist in complex and chaotic international systems simultaneously. It will be a bifurcating system, resulting in local and regional order as an emerging condition, and larger networks will emerge from the integration of subnets emerging from the new branches of order.

# 3. METHODOLOGY

The author uses a qualitative descriptive-analytical research method and library data collection to study a new paradigm of order is emerging that existing theories of international relations are incapable of explaining it. The main purpose of conceptualizing such an order is that the author uses the ontological and epistemological foundations of complexity theory and its theoretical propositions and uses an innovative method approach.

The science of complexity and turbulence, which has been formed in proportion to the period of complexity of order, comprehensively imagines new features for systems. Inspiration from this range of disciplines leads us to the bifurcated order model as an alternative explanation for the scattered theoretical views of world order. Based on the mentioned model and its benefits, order in general, in the dimensions of physical structures, international system dynamics, cycles derived from dynamics, behavioral patterns and their orientation in the international system, as well as control structures and strategies, tests bifurcating and operate on the basis of a distribution pattern.

### 3.1 Formation of Polymorphic Structures in International Relations

Order in a state of complexity and turmoil is a highly disciplined order that is conceptualized in the context of polymorphic structures and distribution systems (Dingjun and et al, 1997; Sun and Luo, 2006; Yu, 2006). Such systems, in order to increase their internal order, are in dynamic interaction with the surrounding environment, and in this way, they increase their internal order through bifurcating. The multi-body system is one of the new formations of the international system (Chaudhary and Saha, 2008). Such systems consist of a multitude of blocks, each with different inputs and outputs and various feedback loops. Through such mechanisms, the blocks of the international system are interconnected by means of linking elements, exercising power and regulating the flow of communication (Schiehlen, 2013). International polymorphic systems are bifurcating out from both structural and process structural dimensions. The existence of heterogeneous but interconnected regional orders with obvious maneuvering power, various communication circuits between them, point-to-point and functional connections between heterogeneous bifurcated orders, and interference of dynamics, are the characteristics of such systems in the field of international relations.

### 3.2 The Bifurcating Out Order of Multi-Faceted International Order and Systems

The explanation of the bifurcated order in the state of complexity falls into the more pervasive category of Emergentism. Ontologically, bifurcating is based on the premise that the system as a whole is separate from its components. Epistemologically, the system can be identified and received through the structures and rules at the general level (Bedau, 2008; Goldstein, 1999; Tanaka, 2017). The international system has Nodal points that have since tested Emergentism features, including bifurcating. The new disciplinary bifurcatings will be an emerging situation in which the equilibrium point, the number of equilibrium points, and so on will change. In the bifurcating process, the system is at least divided into two parts (Dubitzky and et al, 2013). Each

bifurcate shows one of the system's tracking capabilities. In complex international systems, the system goes through two fundamental steps in bifurcating. The first is positive synergy, in which the system bifurcates out to internal disorder, thereby increasing its internal power to confront disorder. The second passage is related to negative synergy. In this process, the bifurcating of the system arises from the processes of extraction and strategic alliances. The international system needs more capital when it is under internal or external pressures. Bifurcating is a way to take advantage of new capital. This is especially evident in the geopolitical structures of order or the expansion of markets for economic gain.

Bifurcating complicates the question of structural stability. The system has structural stability when the change in the conditions of the first system does not cause structural change in the system (Dingjun and et al, 1997). Structural stability is directly related to structural pressures. The complex international system is steadily facing structural pressures and is said to be on the brink of turmoil. For increasing the desired stability and order require the foundations that are drawn to its bifurcating. As structural pressures increase, the structure of international systems also changes. Although this change indicates instability, the international system is entering a new cycle of stability through this passage. The functional interference of two or more balanced bifurcated regional orders, or heterogeneous orders, or some of the balanced orders with unstable orders, causes the formation of pressures and the appearance of beginnings of bifurcating. If systemic pressures in the complex state of the international system are considered a permanent phenomenon, the bifurcating out of order is also a permanent phenomenon.

Multidimensional systems, structurally, have a model of scattered structures. Bifurcates of order are forming subsystems with their own structures. Each bifurcates of order is equal to the material structure through which the exchange of power takes place. Given the existence of different branches, an accumulation of distinct structures within the international system can be identified. The flow of power is both within each of them and such a flow is exchanged between them. Such a pattern of existence of various structures can be conceptualized in the context of scattered structure. The distribution structure focuses on the production, availability, and decline of power and related flows. The model of the distribution structure appears in a networked system whose structure is highly layered. Each layer, as a distinct network, acquires part of its power by exchanging with other layers. The quest for power leads to a nested network between which the flow of power is exchanged in the form of positive and negative feedback mechanisms.

# 3.3 Power Dynamics in Open International Multicomponent Systems

Power dynamics is one of the dynamics that is subject to bifurcating. Power is the source as well as the end of systemic pressures. The power balance is the beginning of the path that leads to the stability of the system and the end of its functional transformation. Power balance in bifurcating systems is explained based on the connection between the bodies, the connection patterns, and the organization of the feedback flow between the bifurcates. Systematic strategic stability, resulting from point and functional links between bifurcates and the density of communication within the feedback mechanisms between them is conceptualized in the context of feedback stability or strategic feedback deadlock, in which units have the power to destabilize the system. The equation of strategic strength and stability is a fundamental issue in the order of the international system. Although stability is considered a desirable phenomenon, many units do not want to remain in such a state because they lose the power to impose their will on the system and its units. In other words, stability prevents the increase in relative strength of units. In this regard, bifurcating out from systemic order is a way to escape the strategic impasse resulting from such stability. Power in the network state of relations is formed on the basis of the centrality of the network (Hafner-Burton and et al, 2009). Power dynamics are based on focusing on the density of communication flows, connectivity, and the ability to exit the network in a state of need. Power dynamics in international systems, like other anarchist systems, tend to focus. For this reason, the question of the concentration of power is considered to be one of the most prominent issues in the field of searching power. The Realist literature considers polarity as an analytical concept in explaining the dynamics of power and order (De Keersmaeker, 2016). At present, in addition to the notion of polarity, some have proposed cluster polarity (Ibid), which is closer to recognizing power in a state of complexity. In identifying polarity, three analytical elements of polarity have been used as structural issues: grouping around polarity, collisions between groups, and ideas (Ibid).

In the international multi-body system, the centrality, or in other words, the degree of centrality of the units in communication flows, is considered a threat to other units. Therefore, the formation of centrality and its mechanisms, and secondly, conscious strategies to deal with it, are important. In addition, mechanisms related to synergy and the type of selective patterns of synergy occurring within or between bodies can increase focus.

Focusing on communication, bifurcating and power distribution, and the formation of power distribution structures are the three dynamic characteristics of power in such systems. In such international systems, in identifying power, centrality will replace system polarity (Brandes, 2005; Montgomery, 2015). Centrality is considered in some network literature.

Power in such systems is of a situational Power. The status of having the foundations forming the power, productivity, bonding, transmitting, and the amount of consumption of the communication flow are the factors shaping the power of the units. Communication is a characteristic of power through which the will of one is imposed on another or others. The intersection of demands takes place through communication. This connection is made through circuits or communication channels. In multiprocessor systems, two types of communication circuits are responsible for transmitting power: first, the transmitter circuits within each body, and second, the communication circuits between the bodies. Power generation, transmission, and power consumption sites will be connected in this way. Feed loops will give the power transmission circuits a cyclic character. Through communication, units both transfer their power to others and are influenced by the flow of power from others.

Two types of power feedback mechanisms can be seen here. The first is the internal feedback that the system output, within the system boundaries, is reconstructed and re-entered into the system. Again, two types of internal feedback flows of power are formed. The first is the feedback that flows within the body, which is reconstructed within the body and re-enters the same body. Alternatively, it involves the flow of internal feedback throughout the system. The second type of feedback stream is of the external type, which can be identified at both the level of the body and the whole system. In this model, the power feedback stream of one body will be reconstructed to and from other bodies and will re-enter the previous fundamental rotation. Another case is related to the external environment of the system, in which the external feedback stream is reconstructed inside this environment. Due to its global scope, the international system is more prone to the first type of feedback. Power dynamics is a multilevel dynamic based on a variety of feedback mechanisms. The dynamics of feedback power underlie the order and balance of power in the international order.

One of the emerging features of complex and chaotic international systems is the dynamic fusion of power with other systemic dynamics. Power in such a state arises from the fusion of various systemic dynamics. In this regard, four patterns of behavior, including the balance of hard

military, soft institutional, asymmetric, and complex branch balancing, can be proposed. The existence of feedback mechanisms provides the basis for the automatic power balance that is considered by some realistic theorists. In multi-body feedback systems, the balance has various mechanisms for feedback and is organized in its own way. Feedback bifurcating and the links between them are the basic tools of such a system.

### 4. RESULTS

Today, balancing is not possible in the traditional context. For this reason, the author has presented a bifurcating balance as a concept as well as a new model of balance in the complexity of the international system. Using the knowledge of Edward Lorenz (1963) complexity and turbulence pattern, it can be said that the balancing system has two regions of stability and turbulence. In the steady state, the input and output of the system are in a steady state of equilibrium, and the severity of the communication imbalance is not such as to place the system on its high behavioral threshold. In this situation, the equilibrium of resilience increases with communication puts the input and output of the system at a high threshold and the system is at the doorstep of nonlinear behavior, which is the same as the performance at the chaotic edge. Here, any change in control system inputs and control behaviors, as well as a change in system size, strikes a balance with nonlinear consequences.

In this situation, the emerging features of the balancing system arise from the collision between two distinct types of behavior by the status quo units and the revision units. The behaviors of the units also depend on the distribution of the sensitive dependency between them as well as the balancing system. Disproportionate distribution of sensitive dependencies increases systemic pressures and balances are divided into two or more bifurcates. On the other hand, based on the theory of catastrophe, Thom René (1975) behavioral rupture resulting from the branching of order provides the ground for changing the structure of the balance of power system. Lack of alignment resulting from the entropies of the balancing system will cause the order of oscillation of the balance of power to have a fundamental role in the evolution of the system of balance of power through Fluctuation. Order by Fluctuation is the main pattern in the bifurcating of the power balance system.

The bifurcating balance is of the basic system type. Bifurcating balancing emphasizes the pairing and manipulation of the degree of freedom of operation of the system. Changing the scope and boundaries of a system is part of Bifurcating balancing strategies. In this regard, a distinction can be made between internal and external Bifurcating. Internal Bifurcating is related to the network and its clusters and does not change the boundaries of the network. External clustering is a state that the network as a whole will test and in which the boundaries of the network will change.

### 4.1 Interference of Network Dynamics and Bifurcating Balancing

In multi-dimensional international systems, power dynamics, through Bifurcating orders, leads to the formation of distributed power balance systems. For distribution systems, (see Barrett, 2019; Brogliato and et al, 2007; Lozano and et al., 2000). In this regard, the balance of power, based on the change of system elements and the direction of the system to pressures, is faced with a point or points of symmetry. This point indicates the situation in which the balance must choose one of the options ahead to increase internal stability. One of these options is the Bifurcating and bifurcating of order, which leads to the formation of distributed structures. Balance, in addition to Bifurcating in the structural domain, also branches in the process domain.

The distributional balance system faces two issues of order and disorder. These types of systems use the external environment and their foundations to increase the internal order and meet the

deficit of the foundations to establish the balance through the external environment. In such a situation, the establishment and increase of internal order is associated with the creation or increase of disorder in the external environment. This disorder itself can eventually spread to the internal order and destroy it. Therefore, in the system of distribution of forces, one of the most prominent security issues is the equation of internal order and external or environmental disorder. The solution to this issue is found in organizing the feedback of the internal and external environment of the system.

In such balancing systems, organizing structures and their distribution processes become one of the central issues. Every process of power requires coordinated structures. For instance, structures with a large range, along with various Bifurcates of order, require a certain amount of power, also of the type of wide power. This kind of power should be able to control and neutralize the centralized power of the Bifurcates, but this kind of balancing system, as the environment expands, may not be able to cover it, despite the increasing complexity and internal order. It may lag behind the outside environment. For order and entropy, (see Brooks and et al, 1988). This will be the source of further pressure and re-branching.

# 5. DISCUSSION AND CONCLUSION

Order is at the heart of scientific conflicts in international relations. The last theoretical campaign is related to the campaign on linear and nonlinear order. In addition, the international system is in transition, moving towards new alignment points. The complexity and turmoil of the international system is one of the realities of modern international relations, which have led to a new campaign in the field of theorizing in this area. One of the consequences of complexity is the formation of multicomponent structures and a nested network within the international system. In this regard, polymorphic structures, patterns of connection between bodies, degree of freedom and maneuverability of bodies, and dynamics are among the power dynamics in open-loop, closed-loop, and controlled multi-body systems. For this purpose, the current study, by establishing a link between the theory of multicomplete and complex systems, has presented a new conceptual framework in the framework of distribution and Bifurcating order. The distribution-Bifurcat order has the following basic features:

**First**, in terms of physical structures, the mentioned order has multi-body structures that, in addition to being interconnected with each other, have heterogeneous properties. One of the most prominent features of such a structure is the existence of an internal feedback system in which each of the body acts like a system in which they use the environment to increase internal order. Accordingly, in increasing their stability, they motivate the disorder of the other or others. At the same time, they will be affected by the external environment through feedback mechanisms and will themselves experience strategic instability. Internal feedback mechanisms confuse nested and intertwined networks in which suborders are interlocked.

**Second**, the physical structure of the international order is manifested within a system that is of the dispersion type. These types of international systems are far from equilibrium and active on the edge of turbulence, and due to the presence of entropies, their power decreases over time. Therefore, in order to reproduce their power, they have to connect with the environment and other subsystems and acquire the necessary capital.

**Third**, in this model, the international system, as a complex system, has a variety of Bifurcating order, each of which acts as a distinct system. The result was the formation of polyglot instruments. According to the complexity approach, the international system is a network of different networks that have a layered structure in the sense that each layer is located within a larger layer. Each layer, in a special order, is connected to the other layers and, as a network, feeds

and nourishes the other layers. Due to this reality, the international system as a whole has a variety of distinct structures within it.

**Forth**, Bifurcating, as a feature of complex and chaotic systems, imposes itself on all components of order. Thus, the complex international order is highly bifurcated in terms of physical structure, dynamics, strategic cycles of countries and systems, patterns of behavior of units and systems, and control. On the other hand, its general structure is a kind of distribution in which each of the microsystems in the whole system, through communication with the environment 'i.e., other systems', gains the necessary power and strength. The international system with a dispersed structure has a set of intertwined feedback mechanisms within it. Therefore, there are two basic conditions for the formation and survival of distribution structures, which include openness and the state of imbalance in the international system.

**Fifth**, the theoretical concept of strategic stability changes from a traditional perspective. In the new order model, strategic stability is derived from the operation of nested and networked feedback systems. In this model, the concepts of strategic feedback stability and feedback deadlock are introduced to the scope of international relations and strategic research. Feedback stability is temporal, short-term, and momentary, and at the edge of turbulence, the system is stable. Layered and nested hierarchies are one of the theoretical concepts explaining the new bifurcating order. In this model, centrality replaces polarity. Order has two properties at the same time, which include cyclicality and hierarchy based on focal, layered, and nested hierarchy. Polarity is associated with the concepts of control and command, while centrality is closer to the concept of management and coordination. If the centrality increases too much, it can turn into polarity. The existence of efficient feedback mechanisms prevents the formation of such a situation.

**Sixth**, the general interference of systemic dynamics and its bifurcating characteristics and dispersion are other new theoretical concepts. The dynamics of the international system are that they fuse with each other, and on the other hand, they will be distributed as a bifurcate and distributed throughout the system. In addition, the variety of cycles resulting from partial and total dynamics within the concept of branch dynamics is one of the new theoretical concepts that form the behavioral patterns of systems and units. Bifurcating-distribution controls based on the fundamental role of bifurcates in system control, this is a new concept in explaining order.

**Seventh**, one of the most prominent security puzzles in the distribution control system is the equation of internal order and external or environmental disorder. This type of order control system, in addition to benefiting from internal capabilities, needs to establish a connection with the environment and establish new bifurcates. In other words, they increase their order through disorder in other systems or the external environment. Thus, the evolution of equilibrium systems is a branch through oscillating equilibrium.

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