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**Islamic Finance Performance and Economic Growth:
An Empirical Evidence from the Southeast of Asia**

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Degree of Doctor of Philosophy in Economics - Monetary and Banking
Economics**

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Abstract

This study aims to investigate empirically the link between Islamic finance performance and economic growth from a robust sample which is the top pioneer countries of the Islamic finance industry in the Southeast of Asia (Malaysia, Indonesia, Brunei Darussalam). This study's sample consisted of all full-fledged Islamic banks working in all of Malaysia, Indonesia, and Brunei Darussalam covering a period range from the last quarter of 2013 (2013Q4) until the last quarter of 2019 (2019Q4). This study employed the profitability ratios of the return on assets (ROA), return on equity (ROE), and net profit margin (NPM) as the main factors of Islamic finance performance, while the gross domestic product (GDP) was used as a measurement of economic growth. For robust empirical results without bias, this study controlled the empirical modeling with various macro-economic factors like the gross fixed capital formation (GFCF), trade openness, and consumer price index (CPI). This study applied Dynamic Panel One-Step System GMM as the most suitable econometric model to explore the effect of Islamic finance performance on economic growth. The results showed that Islamic finance performance has a positive effect on economic growth through the return on equity (ROE) and the net profit margin (NPM) which leads to conclude that Islamic finance performance is contributing to economic growth which validates the 'Supply-leading hypothesis' that Islamic finance is leading to economic growth through the contribution of the highly lucrative investment opportunities in economic growth that are produced from the Islamic banks' profits in Southeast Asia.

Keywords: Islamic Finance Performance; Economic Growth; Supply-leading Hypothesis; Dynamic Panel One-Step System GMM; Southeast Asia.

JEL Classification: G21; G32; O47; C23.

Dedication

The work of this thesis is dedicated to my beloved mother Fatima Al Zahraa and my beloved father Medjahed, my beloved brother Omar Ibrahim, for my beloved sisters Soumia and Nour El Houda, for their love, endless support, and encouragement.

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In the name of *Allah*, The Compassionate the Merciful, Praise be to *Allah*, *Subhanahu Wata'ala*, Lord of the Universe and peace and prayers be upon His Final Prophet and Messenger *Muhammad* peace be upon him (ﷺ).

First of all, I should thank the Almighty *Allah* for his guidance and blessing on my success in writing and completing this thesis. On the basis of the Holy narrative of Prophet Muhammad peace be upon him (ﷺ) said: "He who does not thank Allah does not thank people", I would like to thank those without whose help, guidance, and support this study could not have been completed.

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Last but not least, my sincere thanks go to my beloved parents Fatima Al Zahraa and Medjahed for their prayers for me. My special thanks are due to my beloved brother Omar Ibrahim, my beloved sisters Soumia and Nour El Houda.

Declaration

I hereby declare that this thesis results entirely from my own efforts and confirm that none of the material in this study has previously been submitted by me for a degree in this or any other university.

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PART I: Theoretical Discussion

This part concludes theoretical analysis over three chapters as the following:

- **Chapter 1:** General Overview.
- **Chapter 2:** Islamic Finance System and Economic Growth (A Literature Survey).
- **Chapter 3:** Islamic Finance Performance and Economic Growth (A Literature Survey).

Chapter 1: General Overview

PART I: Theoretical Discussion

Chapter 1: General Overview

1.1 Introduction

Today, capital markets and financing play an important role in all countries' national economies, including those related to economic growth. Indeed, there is a clear association between a financial system's level of growth and economic growth. Though population growth is a necessary requirement for economic prosperity, investment often plays a significant role in plant growth (RAJAEI-BAGHSIYAEI, 2011). As a result, a financial system, particularly banking, which provides credit to borrowers, is critical in financing economic growth. Since there are two major categories in every social structure: those who have surplus money but are unable or unable to spend and create, and those who are able to work as manufacturers, and also originators, but lack sufficient funds to invest, the primary duty of banks is to raise surplus money from savings accounts and depositors (mobilization) and distribute it to producers and makers (RAJAEI-BAGHSIYAEI, 2011). Even so, because conventional banks have an interest rate (usury, which is Riba according to Islamic law), which is forbidden in Islam, Muslims have such a problem with this form of banking; hence, Muslim thinkers have attempted to create a bank that can carry out the key functions of conventional banks without the dilemma of interest (RAJAEI-BAGHSIYAEI, 2011).

The Islamic financial sector appears to show high growth prospects, but analysts have noted a significant difference between its ideology and practical activity. The sector faces the dilemma of either changing more decisively in accordance with its own ethical values or following the same trajectory of development, reducing its distinctiveness compared to traditional finance (Kapetanovic, 2017). Hence, Islamic finance performance and economic growth are in a precarious position. This research addresses the nexus between Islamic finance and economic growth. Prior to that, however, we shall critically assess whether the Islamic

finance performance is worth being a contributor to economic growth in the Southeast of Asia as one of the top developed regions in the Islamic finance industry.

1.2 Research Overview

The Islamic finance industry has been one of the quickest-growing industries in the last 10 years, estimated to be worth US\$ 2.4 trillion in 2017 and projected to grow by 6% of CAGR to grow to us\$ 3.8 trillion by 2023 (DinarStandard, 2020b). This idealistic high growth rate of Islamic finance assets year after year catches the attention of all policymakers, bankers, and financial scholars to the Islamic banking industry. In the last decade, regarding the relationship between Islamic finance and economic growth, one of the main debates among financial scholars and policymakers has been whether Islamic finance's financial performance stimulates economic growth. According to Bourke (1989), high profitability financial institutions keep on well-capitalized and their access to financial resources is easy.

Certainly, well-functioning financial institutions play a vital role in economic growth and financial performance (Rabaa and Younes, 2016). Furthermore, the performance and profitability of the banking sector were indeed influencing economic growth and boosting it to absorb negative shocks. Besides, Bikker and Hu (2002) and Demirgüç-Kunt and Huizinga (1999) have shown a positive supportive bond between economic growth (GDP) and bank performance. Also, the growth of the GDP and investment in the Middle East has been significantly affected by Islamic banks as stated in the investigation of Tabash and Anagreh (2017).

Presently, the Islamic banking industry comprises 71% of all Islamic finance assets with a share of 1,721 trillion US dollar (DinarStandard, 2020b; Thomson Reuters, 2018) and could expose its steadiness in and after the 2008' global financial crisis (Tabash and Dhankar, 2014; Olson and Zoubi, 2017).

According to Reuters (2020), Malaysia is a pioneer country in Islamic finance with a Global Islamic Economy Indicator (GIEI) score of 111 subsequently an Islamic Finance Development Indicator (IFDI) score of 132 according to *Islamic Finance Development Report 2018* (2019). Besides Brunei Darussalam and Indonesia were the most excellent performers in

South East Asia, Brunei Darussalam was the biggest beneficiary in South East Asia and completed 9th place with an IFD score of 50 equals to Indonesia that reached 10th place.

Moreover, this big success of the Islamic finance industry in Malaysia, Indonesia, Brunei Darussalam, Turkey, and Saudi Arabia synchronized a high economic growth rate, while Malaysia's economy grew by 4.9% year-on-year in the second quarter of 2019, followed by a 4.5% increase in the previous three-month process and a 4.8% increase in business potentials (*Trading Economics Report*, 2019), furthermore, Indonesia's economy is forecast to grow to 5.1% by 2019 and to rise to 5.2% by 2020 (World Bank, 2019). In comparison, Brunei Darussalam's gross domestic product expanded by 0.1% relative to 2017 (countryeconomy.com, 2018).

To the best of the authors' knowledge, the studies that investigated the link between the financial performance of Islamic finance and economic growth are limited consequently there is a lack of understanding of this link (Tabash, 2019). Thus, the contribution of this study is to investigate empirically this link based on theoretical background analysis through international evidence from Southeast Asia countries (Malaysia, Indonesia, and Brunei Darussalam) as the pioneer countries in Islamic finance.

As a result, this thesis is positioned to address the debate over the relevance of Islamic finance performance on economic growth, which leads to the conclusion that Islamic finance is a potential alternative financial system for achieving economic growth.

1.2.1 Why the Southeast of Asia?

According to the report of DinarStandard (2020), Southeast Asia is witnessing notable growth in the Islamic finance industry with a global Islamic banking assets share of 23.5% (2019Q3) and 26.7 USD Billion in total Islamic fund's assets (2019), compared to the Middle East & South Asia that have 25.9% (2019Q3) and 16.5 USD billion in total Islamic funds' assets (2019) based on the report of IFSB (2020), this notable expanding in Islamic finance is especially exposed in Malaysia, Indonesia, and Brunei Darussalam. Malaysia continues leading the total Global Islamic Economy Indicator (GIEI) rankings for the eighth year with a Global Islamic Economy Indicator (GIEI) score equals 290.2 in 2020 after 111 in 2019 which determined that Malaysia achieved a notable advance in the Islamic finance industry and

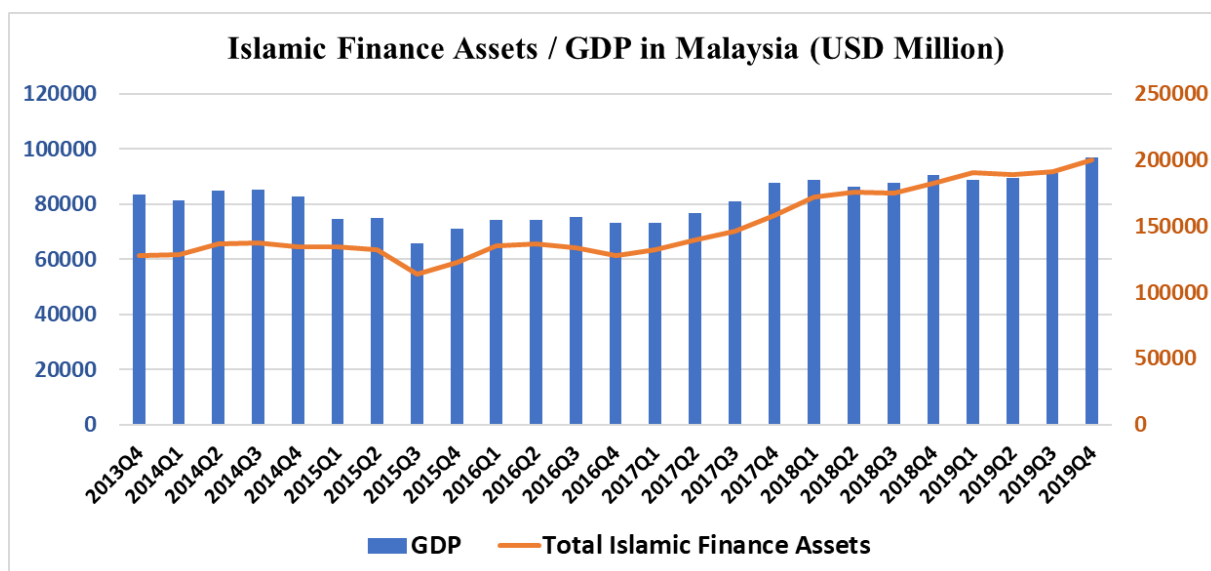
remains as the top pioneer country in the global Islamic finance (DinarStandard, 2020a). On the same path as Malaysia, Indonesia continues to rise as one of the best countries in Islamic finance best performance, scoring strongly on Islamic finance awareness has allowed the country to rank the 4th with a Global Islamic Economy Indicator (GIEI) score equals 91.2 (DinarStandard, 2020a). Following the path of the developed Islamic finance in Malaysia and Indonesia, Brunei Darussalam was ranked in 10th position with a Global Islamic Economy Indicator (GIEI) score equals 40 (DinarStandard, 2020b).

According to Ledhem and Mekidiche (2020, 2021), Islamic finance became one of the main topics among scholars due to the global expansion of the Islamic finance industry in the Muslim and non-Muslim countries, and what most attracts the scholars' attention is the matter of the contribution of Islamic finance to economic growth. Over the last few years, the Islamic finance industry in Southeast Asia has witnessed notable growth synchronizing a high level of economic growth in all of Malaysia, Indonesia, and Brunei Darussalam starting from 2013' fourth quarter (2013Q4) until 2019' fourth quarter (2019Q4) (Figure 1, 2, and 3). Therefore, this matter brings attraction to investigate the link between Islamic finance and economic growth in Southeast Asia.

By focusing on the previous year, Islamic finance in Malaysia witnessed a notable growth with an increase in its assets from USD 182572.9032 million (RM* 755577.9598 million, in 2018' fourth quarter (2018Q4) to USD 199958.4088 million (RM 818329.788 million) in 2019' fourth quarter (2019Q4) (Islamic Financial Services Board (IFSB), 2020), this expansion has synchronized a remarkable economic growth when the gross domestic product (GDP) increased from USD 90522.4115 million (RM 361968 million) in 2018' fourth quarter (2018Q4) to USD 90522.4115 million (RM 395823 million) in 2019' fourth quarter (2019Q4) (Bank Negara Malaysia, 2020) (Figure 1).

* RM refers to the Malaysian Ringgit in which 1 United States Dollar (USD) = 4.0925 RM at the end of 2019Q4' period according to the IMF (2021).

Figure 1: The synchronized growth of Islamic finance assets and the gross domestic product (GDP) in Malaysia (USD Million)

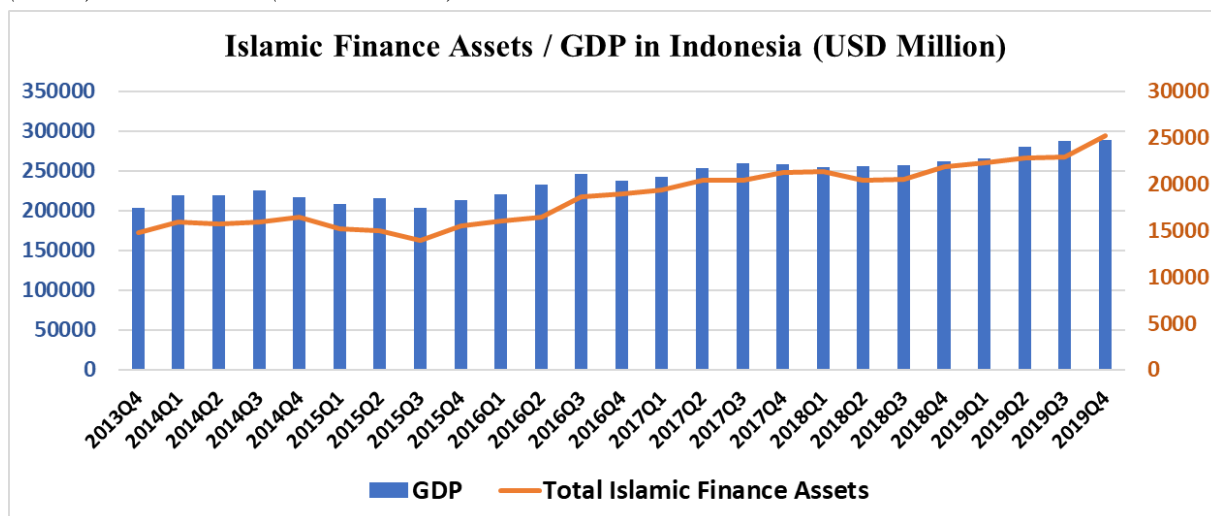


Sources: Prepared chart by authors based on the extracted data from the Islamic Financial Services Board (IFSB) (2020) and Bank Negara Malaysia (2020).

Similarly, Indonesia also witnessed a remarkable development in the Islamic finance industry when it achieved outstanding growth in its assets from USD 21869.43697 million (Rp 316691.3167 billion) in 2018' fourth quarter (2018Q4) to USD 25204.18809 million (Rp* 350363.5446 billion) in 2019' fourth quarter (2019Q4) (Islamic Financial Services Board (IFSB), 2020), this expansion has synchronized a noteworthy economic growth when the gross domestic product (GDP) increased from USD 262352.8831 million (Rp 3799132.1 billion) in 2018' fourth quarter (2018Q4) to USD 289104.5935 million (Rp 4018844.4 billion) in 2019' fourth quarter (2019Q4) (IMF, 2020) (Figure 2).

* Rp refers to the Indonesian Rupiah in which 1 United States Dollar (USD) = 13901.01 Rp at the end of 2019Q4' period according to the IMF (2021).

Figure 2: The synchronized growth of Islamic finance assets and the gross domestic product (GDP) in Indonesia (USD Million)

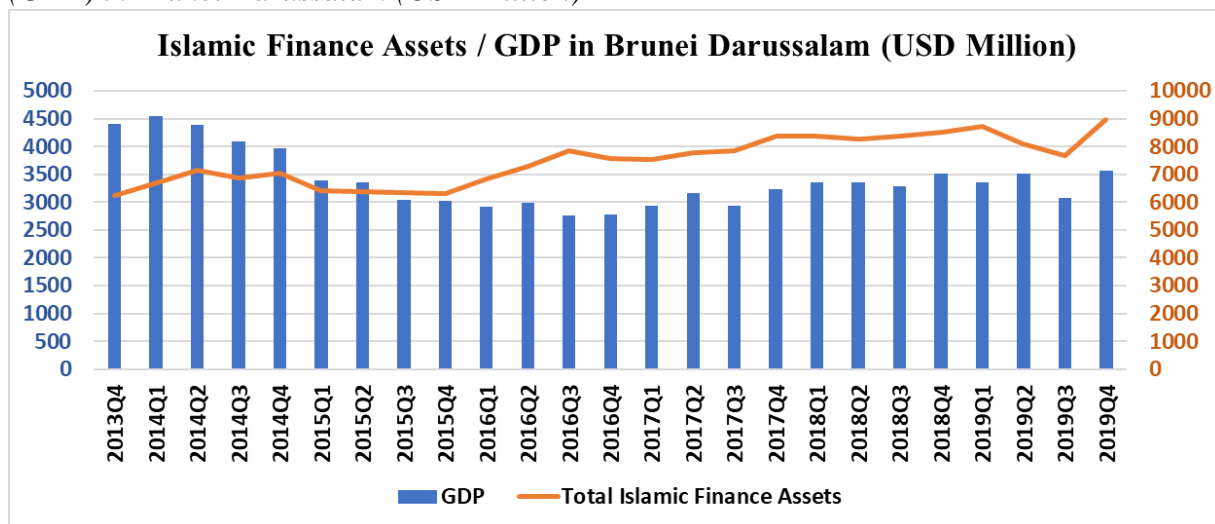


Sources: Prepared chart by authors based on the extracted data from the Islamic Financial Services Board (IFSB) (2020) and IMF (2020).

Following the path of the developed Islamic finance industry in Malaysia and Indonesia, Brunei Darussalam is an astonishing underground for Islamic finance due to the notable rise in its assets from USD 8509.427075 million (B\$* 11645.15095 million) in 2018' fourth quarter (2018Q4) to USD 8972.088176 million (B\$ 12110.52462 million) in 2019' fourth quarter (2019Q4) (Islamic Financial Services Board (IFSB), 2020), this expansion synchronized a significant economic growth when the gross domestic product (GDP) increased from USD 3517.067088 million (B\$ 4813.10631 million) in 2018' fourth quarter (2018Q4) to USD 3567.58868 million (B\$ 4815.5312 million) in 2019' fourth quarter (2019Q4) (Brunei Ministry of Finance and Economy, 2020) (Figure 3).

* B\$ refers to the Brunei dollar in which 1 United States Dollar (USD) = 1.3498 B\$ at the end of 2019Q4' period according to the IMF (2021).

Figure 3: The synchronized growth of Islamic finance assets and the gross domestic product (GDP) in Brunei Darussalam (USD Million)



Sources: Prepared chart by authors based on the extracted data from the Islamic Financial Services Board (IFSB) (2020) and Brunei Ministry of Finance and Economy (2020).

1.3 Research Problem and Secondary Questions

Under the lack of understanding of the issue of Islamic finance performance and economic growth nexus, this study answers this research question:

“What is the relationship between Islamic finance performance and economic growth?”

Sub-Questions (Secondary Questions):

- *What are the factors (determinants) of Islamic finance performance?*
- *Do all the factors of Islamic finance performance matter for the economic growth process in the Southeast of Asia?*
- *Does the effect of Islamic finance performance reflect the contribution of Islamic finance development on economic growth?*

1.4 Research Objectives

The overall objectives of this research are:

- Targeting economic growth through Islamic finance performance.

- Exploring the determinants of Islamic finance performance, then, assessing and examining the relationship between Islamic finance performance on economic growth by using a sample of some pioneer countries in Islamic finance.
- Answering a debate of whether the Islamic finance performance has a significant effect on economic growth through a powerful evidence sample of the most pioneer countries in Islamic finance.

1.5 Research Importance

The researcher intends to examine empirically the contribution of Islamic finance on economic growth by testing the effect of Islamic finance performance through the main effective performance financial ratios of all full-fledged Islamic banks in Southeast Asia, therefore, this study carries vital evidence for financial researchers, decision-makers, policymakers, and related authorities that Islamic finance is promoting economic growth in Southeast Asia across the pioneering countries in Islamic finance industry like Malaysia, Indonesia, and Brunei Darussalam, which attracts global attention to the weighty role of Islamic finance as an imperative player in endorsing economic growth alongside conventional finance system in Southeast Asia. Consequently, this research expects to benefit many participants in the Islamic finance sector, as the results of the research are anticipated to shed light on our understanding of the future of the Islamic finance industry to be a significant global contributor to economic growth.

The research is also expected to assist the key players in forming a better understanding of the significant role of Islamic finance and provide valuable knowledge to promote the performance of Islamic banks for increasing profitability which reflects the weighty investments which promote economic growth. From an academic point of view, this research is expected to contribute toward enhancing the knowledge and information in the field of Islamic finance and economic growth nexus. The output of the research hopes to provide new knowledge to the field and to be used as a reference for future studies.

1.6 Research Hypotheses

Based on the theoretical discussion and literature review on the nexus between Islamic finance performance and economic growth in Chapter 3 (see Section 4 in Chapter 3), this research has settled on this hypothesis:

- *H1: Islamic finance performance has a positive effect on economic growth.*

1.7 Research Methodology and Strategy

This section provides an overview of the research methods used to perform this study. performance of Islamic finance and the impact of this performance on economic growth in Southeast Asia.

The quantitative methodology is used in this study since it requires the collection of secondary data on Islamic finance performance. As for the research method, quantitative methods are used in the research through explanatory and descriptive studies. This method aims to define the problem more precisely, identify a relevant course of action, and gain additional insight before any measures and recommendations can be developed.

In terms of sampling, population, and the study period, this study includes all the licensed Islamic banks in Southeast Asia (Malaysia, Indonesia, Brunei Darussalam) that are a member of the Islamic Financial Services Board (IFSB) starting from the last quarter of 2013 (2013Q4) till the last quarter of 2019 (2019Q4), in which 16 Islamic banks in Malaysia, 14 Islamic banks in Indonesia, and 2 Islamic banks in Brunei Darussalam. The selection provides an overall view of the Islamic finance industry. The researcher obtained the list of the related Islamic banks from the Islamic Financial Services Board (IFSB) which are licensed from the central banks of each selected country.

In terms of data sources, the researcher relied on secondary sources such as the Islamic Financial Services Board (IFSB) database, IMF database, Bank Negara Malaysia (Central Bank), the Financial Services Authority (Otoritas Jasa Keuangan) under the Indonesian central bank, the Department of Economic Planning and Statistics under the Brunei Ministry of finance and economy, Trading Economics database, and DinarStandard reports of Islamic finance. For

obtaining the required Islamic financial data, data providers such as the Islamic Financial Services Board (IFSB) online were effective. It must be noticed that secondary data sources are critical for the researcher to evaluate the importance of Islamic finance performance to Southeast Asia's economic growth.

1.7.1 Research Design

The research design is a plan for collecting, measuring, and analyzing data (Blumberg, Cooper, and Schindler, 2014). Kothari (2004) the research design is described simply as the decisions made about what, where, where, how much, and how an investigation or research analysis is performed. While according to Saunders et al. (2009), Exploratory, explanatory, descriptive, and hypotheses checking are the classification of research design. The research objective of this thesis can be categorized as exploratory and explanatory since it aims to investigate the determinants of Islamic finance performance, and then examine and explain this performance's impact on economic growth.

1.7.2 Research Method

The adopted methodology in this research is exploratory and explanatory, and it is discussed in detail in Chapter Five. In Chapter 5, the methodology is discussed briefly. As this study has two parts: the theoretical part, the quantitative analysis part, two kinds of methods should be utilized.

1.7.2.1 Theoretical discussion

This section is divided into two sections. The first deliberate on the link between the Islamic financial system and economic growth. In this section, the analysis goes through a brief explanation of economic growth and its difference from economic development and the theory of economic growth over financial development by exploring Islamic finance methods and transactions for economic growth. The second section explored the Islamic finance performance through the financial performance of Islamic banks focusing on the profitability ratios as a measurement for Islamic finance performance, then, the theoretical background among the Islamic finance performance and economic growth was addressed, and finally, a survey on the

literature surrounding previous studies on the Islamic finance performance determinants, and existing literature on the nexus between Islamic finance performance and economic growth.

1.7.3 Quantitative Research Methods

The quantitative research method is employed for collecting and analyzing numerical data. These data are referred to as secondary data, and they are primarily retrieved from official centers and institutes. To show a picture of Southeast Asia's (Malaysia, Indonesia, and Brunei Darussalam) economy and also to examine the possible contribution of Islamic finance to economic growth, the quantitative research method will be utilized. For this reason, secondary data were collected from diverse trustworthy sources such as:

- *The database beneath Islamic Financial Services Board (IFSB).*
- *The database beneath International Monetary Fund (IMF).*
- *Bank Negara Malaysia (Central Bank).*
- *The Financial Services Authority (OJK: Otoritas Jasa Keuangan) under the Indonesian central bank.*
- *The Department of Economic Planning and Statistics underneath the Brunei Ministry of finance and economy.*
- *Trading Economics database.*
- *DinarStandard under Thomson Reuters reports of global Islamic finance.*
- *Islamic finance News IFN Annual Guide underneath REDmoney database.*

Just after the data collection phase, this study ran the requisite measurements and investigated the results empirically using appropriate econometric models.

1.8 Research Challenges and Limitations

This study may have limitations as follows:

- (i) *This study was performed within a limited period from the fourth quarter of 2013 (2013Q4) until the fourth quarter of 2019 (2019Q4) owing to macroeconomic data limits that are accessible in the International Monetary Fund (IMF) and each country's central bank.*

- (ii) *This study is limited before 2020 due to the Covid-19 pandemic, because the Covid-19 epidemic has generated a lot of volatility in the Islamic finance sector, according to the State of the Global Islamic Economy 2020/21 Report (2020), empirical research is not valid during this era of the pandemic.*
- (iii) *Southeast Asia countries (Malaysia, Indonesia, and Brunei Darussalam) have a dual banking system (conventional and Islamic) and both can influence Southeast Asia's real economy. This study is limited to the effect of Islamic finance performance through Islamic banks on the economic growth of Southeast Asia.*

1.9 Contribution of the Thesis

In this study, the relationship between Islamic financial performance and economic growth is being studied in a new approach. Unlike previous studies that assessed whether Islamic finance is contributing to economic growth by evaluating the impact of Islamic finance development on economic growth, this study takes a different path of empirical investigation, focusing on the factor of financial performance to evaluate the investigated contribution of Islamic finance to economic growth. As a result, this thesis is the first of its class, attempting to fill a gap in the literature by discussing the contribution of Islamic finance to economic growth via its performance impact; hence, it is expected that this thesis will contribute significantly to the current literature.

1.10 Research Structure

This thesis consists of six chapters including two parts. The first part concludes the theoretical analysis, with three chapters. The second part concludes quantitative analysis which focuses on descriptive analyses, empirical analysis with reflections on theoretical backgrounds.

The overview of the research is as follows:

- The introduction chapter is a general overview that focuses on the background of the research, the research overview, the aim and objectives of the research, research questions related to the aims and objectives, the importance and contribution of the research, and describes briefly the adopted research methodology.

- Chapter 2 discusses the literature on the Islamic finance system and economic growth
- Chapter 3 explored and surveyed the link between Islamic finance performance and economic growth
- Chapter 4 examined the growth and developments of Islamic finance in Southeast Asia in terms of financial performance and economic growth, as well as analyses of competition and the economy's prospects in Malaysia, Indonesia, and Brunei Darussalam.
- Chapter 5 explained the methodology and modeling of the research devoted to exposure to six important aspects. As well, this chapter addressed the data analysis and the empirical model to investigate the impact of Islamic finance performance on economic growth. As well, chapter 5 discussed empirical findings and tested the research hypotheses.
- Chapter 6 addressed conclusions by reflecting on its major findings with theoretical analysis. In addition, chapter 6 offered recommendations for the Gulf Countries Council (GCC) and the Middle East & North Africa (MENA) regions countries and future research whilst bringing the thesis to a close with some concluding annotations.

**Chapter 2: Islamic Finance System
and Economic Growth (A Literature
Survey)**

Chapter 2: Islamic Finance System and Economic Growth (A Literature Survey)

2.1 Introduction

This chapter reviews the literature and considers theories about the role of financial systems, in general, and Islamic finance, in particular, in economic growth. This chapter also discussed the distinctions between economic development and economic growth (the most important difference is that while in the former the emphasis is on the qualitative aspects, in the latter, the emphasis is on the quantitative aspects). Even so, it is self-evident that economic growth is not only desirable but also a critical prerequisite for economic development. As a result, and since economic growth can be determined, it is possible to concentrate on economic growth rather than economic development. In the next part of this chapter, this study attempt to define some terminologies such as economic development, economic growth, and financial development. Furthermore, this study addressed an overview on Islamic finance in reflection to the theoretical schools of economic growth over financial development especially over the contribution of Schumpeter, MacKinnon, Shaw, King and Levin, also, this study delivered the specific method one the role of Islamic finance in economic growth with further explanation of them.

2.2 Definitions and Brief Explanation

In this section, some terminologies such as economic development, economic growth, and financial development were defined, explained, and discussed briefly.

2.2.1 Economic Growth

From Adam Smith to the present, most economic analyses and models have focused on economic growth, which is characterized as an improvement in Gross National Product (GNP) or Gross Domestic Product (GDP). There were some viewpoints on this subject even before Smith (RAJAEI-BAGHSIYAEI, 2011).

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Growth is still a significant subject of serious debate among economists today. (Endogenous growth) Moving from exogenous to endogenous growth models was a step forward in acquiring knowledge. Although exogenous growth models focused on capital accumulation and inventions and technical advances were calculated beyond the model, endogenous growth models decide them from the inside. The information spillover effect, for example, determines the technology element in Romer's (1987) model. Romer (1990) has created a new development paradigm that combines the knowledge flow-on effect and the monopoly control models. Besides that, Romer (1994) contrasted endogenous and exogenous growth models using the five facts that should be used in any growth model.

Furthermore, King and Levine (1993b) established an endogenous growth model that focuses on the relationships between finance, entrepreneurship, and economic growth.

There are some factors influencing economic growth in endogenous growth models, including services offered by financial intermediaries, that have a positive impact on economic growth.

2.2.2 Economic Development

Economic development encompasses not just economic growth but also product efficiency. Economic growth, according to McKinnon (1973), is described as the reduction of large disparities in social returns on capital on existing and new investments under national entrepreneurial power. The definition of development, according to Schumpeter (1934), encompasses the following situations:

- (a) The launch of new products or a new level of goods to buyers that are unfamiliar with them.
- (b) The implementation of a modern process of manufacturing a new product that has not yet been validated by practice in the relevant branch of production, which may not have to be based on a technically novel invention and may also occur in a different form of treating a commodity commercially.
- (c) The development of a new industry, which is a sector into which the country's specific branch of manufacturing had never previously ventured, whether or not this demand exists.
- (d) The discovery of a new source of raw materials or semi-finished products.

(e) The implementation of a new business structure, such as the establishment of a monopoly position (for example, by fructification) or the dismantling of a monopoly and dominant position.

There are also differing viewpoints about what constitutes economic development. One would be that economic development is a structural improvement in an economy's composition, such as a shift in the GDP share of manufacturing and agriculture toward industry, the migration of people from rural regions to towns, and changes in consumption habits. People no longer spend the bulk of their earnings on necessities; instead, they invest in long-lasting consumer products and have more free time. However, people's involvement in the process of transition is another factor in economic development; everybody in a country can benefit from reforms, like, but not only or even primarily, foreigners (RAJAEI-BAGHSIYAEI, 2011).

2.2.3 Financial Development

Every financial structure typically has unique roles and services that have an effect on savings utilization, allocation of resources, and economic development. Their growth enhances whenever they execute their duties better and more effectively (RAJAEI-BAGHSIYAEI, 2011).

When financial instruments, markets, and intermediaries reduce – but do not negate – the impact of information, regulation, and transaction costs, financial growth occurs. As a result, changes in (i) ex-ante knowledge about potential acquisitions, (ii) fund tracking and corporate governance, (iii) trade, diversification, and risk control, (iv) mobilization and accumulating of savings, and (v) exchange of products and services are all part of financial growth. Over of these financial features has the potential to affect savings and investment decisions, as well as economic growth. Since there are so many market tensions and rules, legislation, and policies vary too much between markets, changes in one dimension can have varying consequences for resource allocation based on other tensions (Levine, 2004).

2.2.4 The Theory of Economic Growth across Financial Development

Economists typically address the association between financial (banking) development and economic growth rather than the association between financial (banking) systems and economic growth, but both express the same fact (RAJAEI-BAGHSIYAEI, 2011).

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The literature on the association between financial development and economic growth is comprehensive and widely detailed. The association between financial development and economic growth is a contentious topic. Finance, according to some writers, is an essential component of economic growth (Goldsmith, 1969; King and Levine, 1993b; McKinnon, 1973; Joseph A. Schumpeter, 1934; Shaw, 1973). whereas others, on the other hand, consider it a small growth factor (Lucas Jr, 1988; Robinson, 1952). On the one hand, Schumpeter (1934) sees the financial system as a driver of economic growth through financing profitable investment; on the other hand, Lucas (1988) believes that finance's position has been exaggerated.

Based on the theory, the growth of the finance industry is beneficial to economic growth because bank investment increases saving mobilization, improves capital allocation productivity, and promotes technical innovation. In both kinds of research, we note that an effective financial system accelerates economic growth, whether explicitly or indirectly. The primary contribution of the financial sector to the realization of development is that it ensures the smooth operation of an effective and evolving payment system, mobilizes savings, and increases their impact on investment. As a result, growth necessitates the existence of a stable and efficient financial exchange mechanism (RAJAEI-BAGHSIYAEI, 2011).

One of the most extensively researched subjects, especially in the sense of conventional finance, is the relationship between finance and economic growth. Finance has been seen to have a beneficial effect on real economic activity since the pioneering work of Bagehot (1873) when money market growth allowed the transfer of capital to profitable trades in England at the time. Financial intermediaries (particularly banks), according to Schumpeter (1934), are at the core of economic growth. The financial repression theories advanced by McKinnon (1973) and Shaw (1973) logically solidified these perceptions. Later, the introduction of endogenous growth models offered additional perspectives and a foundation for empirical research on the role of finance in the economic growth mechanism, with prominent empirical studies such as King and Levine (1993), Levine and Zervos (1998), Rajan and Zingales (1996), and Hassan et al. (2011) supporting the finance-growth nexus. Despite the extensive literature on the finance-growth nexus, economists were split on the essence of the association. The “Supply-leading hypothesis”, “demand-following hypothesis”, “mutual dependence hypothesis”, and “neutrality hypothesis” are the four main theories that have arisen as a result of this. The “Supply-leading”

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principle, which is based on Schumpeter's views and promoted by McKinnon (1973) and Shaw (1973) throughout their 'financial repression theory', claims that financial development contributes to economic growth. The 'demand-following theory', on the other hand, was championed by Robinson (1952), who claims that "finance follows growth leads," meaning that real-economy growth leads to financial progress. Patrick (1966) proposed the 'mutual dependence hypothesis', which states that the causality between financial development and economic growth is reciprocal. It was argued that in underdeveloped nations, finance promotes growth, while in advanced economies, finance becomes more demand-following. Finally, Lucas Jr, (1988) argued for the 'neutrality hypothesis', which claims that the finance–development partnership is over-stressed because it is not really a significant factor in the economic growth.

As a result, there aren't a lot of studies on the connection between Islamic finance and economic growth. This research finds that methodological studies to date have primarily focused on the performance, dominance, and stability of Islamic banks in comparison to conventional banks in order to attain any intermediate monetary aim for the overall goal of maintaining real economic growth, decreasing inflation, and reducing unemployment. Darrat (1988), as an example, discovered that the interest-free banking sector is superior in terms of achieving the monetary objective.

2.3 Islamic Finance and Economic growth

Although the Islamic finance industry has begun to gain traction in more than 75 countries around the world, studies on its contribution to the real economy in such countries have been few. Several studies have focused on the specific role that Islamic finance can play in the economic growth process, as its prevalence and importance have grown. An optimal Islamic financial system is largely equity-based, implying a strong correlation between the financial and real sectors of the economy, and hence a bidirectional causality between financial development and economic growth Kassim (2016). A well-developed Islamic financial system will raise more investment funds and distribute them to businesses, boosting investment and real-economy growth. A stable and prosperous real sector would provide Islamic banks with more returns, allowing them to grow. Furthermore, as is the case with other organizations in an Islamic economic system, promoting economic growth (social benefit) is a central function of

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all Islamic financial institutions, as is the case with other organizations where socioeconomic unity amongst economic actors is one of the profit objectives (Kassim, 2016). The profit-sharing theory, which promotes equality in income allocation and leads to social equality and long-term economic growth, is a significant defining feature of an Islamic finance system that allows it to contribute specifically to the economic growth process. It also increases resource investment efficiency since the return on capital is determined by its output. Furthermore, Islamic financial institutions promote savings by rewarding depositors with a portion of the bank's earnings (Kassim, 2016). To sum up, the Islamic finance system is supposed to be more resilient than its conventional equivalent due to lower reliance on debt financing. As a result, resources and asset losses due to recurrent financial crises and their disruptive effects on the development mechanism are eliminated, resulting in more balanced economic growth (Goaied and Sassi, 2010). Despite the perceived importance of Islamic finance in economic growth, the majority of research in this field has been theoretical and philosophical (Kassim, 2016). Above and beyond, a lot of empirical studies that Islamic finance is leading to economic growth (All Sources). Thus, this study is building the path of analyzing the nexus between Islamic finance performance and economic growth, this study is following the path of the “Supply-Leading hypothesis” of Schumpeter (1934).

2.3.1 Islamic Finance (Overview)

Islamic finance, also known as Islamic banking or shariah-compliant finance, is a term used to describe financial and banking practices that follow Islamic law (Shariah). The ultimate precept of Islamic finance is profit and loss sharing (PLS), which forbids borrowers and lenders from collecting and paying interest rates (Riba or Usury) (K. Hassan and Lewis, 2009; M. K. Hassan and Rashid, 2018; M. K. Hassan, Saraç, and Khan, 2021), therefore, Islamic finance become also known as RF (Riba-Free) finance (Abdul-Rahman, 2014).

Islamic banks, unlike conventional banks, are not able to charge interest (returned to a pre-determined fixed rate) while lending money to their customers since making money from money (Riba) is specifically forbidden through Islamic law (Shariah). Conventional banking, on the other hand, charge interest on customer loans and pay interest on deposit accounts (Ben Bouhenni, Ammi, and Levy, 2016), which makes it illegal for Islamic banks to borrow money on the interbank market (Ben Bouhenni et al., 2016). The bank makes a benefit from the difference

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between the rate of interest on its reserves and the rate on its debts when it charges a higher rate of interest on lending than it does on savings (Ben Bouheni et al., 2016).

Usury, the aggregation, and payment of interest, also known as Riba in Islamic discourse, are all prohibited under Islamic law. Furthermore, Islamic law forbids engaging in companies that are deemed illegal or haram (for example businesses that trade alcohol or pork, or businesses that produce media that are divergent to Islamic values). Any of the cash holders have chosen to handle it from Islamic financial institutions. This has aided the Riba-free financial sector in establishing itself as a well-established and fast-growing sector. In the early 1980s, the banking sector made its way to Europe (Abdul-Rahman, 2014; Ben Bouheni et al., 2016).

After the Third Islamic Conference of Foreign Ministers in Jeddah throughout 1972, Islamic banking became a serious subject. The finance ministers of 18 countries proposed a proposal to incorporate Sharia principles into the financial and business systems, and many countries have taken steps in this direction since the meeting (Ben Bouheni et al., 2016). The Conference of Finance Ministers of Muslim Countries, which was conducted in Jeddah once more in December 1973, issued a Declaration of Intent of creating an Islamic Development Bank (IDB), which began operating in 1975. The bank's mission is to promote the economic and social growth of member countries and Islamic countries in compliance with Sharia values by investing in equity capital and making loans, the IDB founded a venture capital fund aimed at high-tech businesses in Muslim countries (Ben Bouheni et al., 2016).

In this section, this study is defining Islamic finance upon history into classical and modern, also, this section is exploring the concepts and principles of Islamic finance.

2.3.1.1 Classical Islamic finance

Early forms of proto-capitalism and free markets were prevalent in the Caliphate during the Islamic Golden Age, where an early commercial economy and an early version of merchant capitalism, which some point to as "Islamic capitalism," were established between the 8th and 12th Centuries. The expansion of the circulation of a stable and high currency (the Dinar) and the incorporation of historically isolated monetary areas resulted in the creation of a thriving monetary system (Ben Bouheni et al., 2016).

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In early Islamic financing, innovative concepts and technology have been introduced, involving contracts, exchange bills, long-range international tradings, first partnership forms (Mufawada) such as limited partnerships (Mudaraba), and early forms of loans, loans, revenue, losses, capital (Al-Mal), accumulation of capital (Nama Al-Mal), capital circulation, capital spending, Income, checks, banknotes, trusts, startups, savings accounts, transaction accounting, pawning, loaning, exchange rates, bankers, changeover, leading banks, loans, duplicate accounts, and legal proceedings (Ben Bouheni et al., 2016). In the medieval Islamic world, organizations, equivalent to state-owned companies, still prevailed, whilst the organization was also launched. In medieval Europe since the 13th century, many of these early capitalistic ideas have been embraced and further evolved (Ben Bouheni et al., 2016).

Riba (Usury) commonly held that it is the only Riba (interest rate) and, thus, illegal to apply interest to money (exclusive of silver and gold commodities), however, that it is not Riba and, therefore, acceptable to apply interest on fiat money (currencies consisting of other materials such as paper and basic metals), The term Riba was "excess value without counterpart" in classical Islamic jurisprudence. "When basic metal currencies were introduced in the Islamic world for the first time, no lawyer would have ever thought that the payment of the debt in a greater amount of this fiat money was Riba" (Ben Bouheni et al., 2016). When "base-metal currencies first were introduced in the Islamic world, no lawyer ever thought that it is not numerical value but the actual value of money (defined by weight only) that payment of a debt is Riba in more amounts of this fiat money (Ben Bouheni et al., 2016).

2.3.1.2 *Modern Islamic finance*

The modern Islamic financial revolution began humbly in Egypt (1963) as a little group finance initiative and progressively developed into a small growing financial industry in the Middle East (1973). Many of the hydrocarbon countries of the Gulf now have vast sums of cash accused of rising demand for oil and gas and increasing commodity costs. Any of the cash owners choose to use Islamic banks to handle it. This contributed to the well-established and fast-growing industries of Riba's free banking sector. In the early 1980s, Islamic finance arrived in Europe (Ben Bouheni et al., 2016). Since the Third Islamic Foreign Ministers' Conference conducted in Jeddah in 1972, Islamic Banking was on the agenda. In the aftermath of the summit, some of the finance ministers from 18 countries proposed a proposal to bring concepts

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of Islamic law into the finance system (Ben Bouheni et al., 2016). Then, in December 1973, a statement of intent for establishing an Islamic Development Bank (IDB) was given at the Conference of Finance Ministers of Muslim Countries, again held in Jeddah, which began its business properly in 1975. The aim of the Bank, through equity capital participation and loans, is to promote the economic growth and social advancement of the Member States and Islamic countries in line with the Shariah concept. Recently, the IDB set up a risk capital fund for high technology companies in Muslim countries (Ben Bouheni et al., 2016).

2.3.1.3 *Islamic finance concepts*

Islamic finance is not a recent and principled practice during the Prophet Muhammed's period (Peace Be upon Him, or PBUH). While Islamic lessons were still based on fundamental and philosophical rules, which could be used as a framework for commercial and economic life, there were no banking institutions at the time. These Islamic values, together with ingenuity and invention, have become an orientation for Islamic banks to respond to Muslims' and non-Muslims' financial needs (Alam, Gupta, and Zamani, 2019). The main goal of setting up Islamic finance is, by encouraging and promoting Islamic values in the corporate field, the promotion of economic stability under Islam's moral standards, the below are the main objectives (Alam et al., 2019):

- *Economic Development:*

Islamic banks have a specific profit and loss sharing concept as a basis for economic growth through companies such as Musharakah and Murabaha. This creates a strong and close connection between the bank's return on investment and the entrepreneurs' profitable activity, resulting in the country's economic growth in turn (Alam et al., 2019).

- *Offer financial services:*

Islamic financing states strictly comply with the rules and laws of Shariah on banking transactions, where Riba, Gharar, are both anti-Islamic and pursue risk-sharing funding and the tight emphasis on Halal activist relations. It is therefore essential to deliver shariah-free banking transactions and avoid traditional banking transactions based on interests (Alam et al., 2019).

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- *Ease stability in money value:*

Islam sees currency as an exchange means rather than as an asset, where the cost for its use should be. Thus, Riba-free means a stable valuation of currency, allowing a secure account component to be a medium of trade (Alam et al., 2019).

- *Optimal resources allocation:*

Islamic banks maximize the allocation of ventures which are deemed to be the most efficient, religiously acceptable, and advantageous to the economy by investment in capital resources (Alam et al., 2019).

- *Reasonable distribution of resources:*

Islamic finance ensures that revenue and wealth are equally distributed between the involved parties: the bank, the depositors, and businessmen by their own profit-sharing strategy. In essence, human brotherhood and righteousness will be distributed (Alam et al., 2019).

- *Optimist approach:*

The theory of profit-sharing allows Islamic banks to pursue long-term profit rather than short-term profits for ventures. Thus, the Islamic bank carries out an appropriate analysis before entering the project, which guarantees absolute banking and investor participation. High returns on shareholders increase socioeconomic gains and promote economic growth (Alam et al., 2019).

2.3.1.4 *Islamic finance principles*

Islamic finance (Islamic rules on dealings) is banking on the basis of Shariah laws and does not encourage payment and interest to be received in favor of profit-sharing. The object of banking is the same as traditional, except that it functions under Shariah, the law of Islam which covers every aspect of life, on the basis of the Holy Coran. Fairness by shared benefit and loss and the prohibition on Riba is the best-known characteristic of Islamic Banking. The below are the guidelines for Islamic finance (Alam et al., 2019):

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- *Prohibition of Riba:*

Riba under Islam is expressly forbidden and Haram is considered (non-permissible). Islam forbids Muslims from taking or providing Riba for any reason or irrespective of which interest rate is levied and for which certain loans are made. Islam permits only a kind of loan, i.e. Qard-EL-Hassan (literally a decent loan), in which the prime minister does not owe a loan or extra income (Alam et al., 2019). Traditional Muslim legal professionals have so narrowly interpreted this theory that "This prohibition corresponds to any benefit or benefit that such borrower may secure, for example, from riding a borrower's mule, eating at his table, or even reaping the benefits of the shade of his wall," according to one commentator. The idea arising from the quote highlights the prohibition of related or indirect advantages (Alam et al., 2019).

In the same path, according to Samad (2021), the avoidance of Riba (Usury) in all financial transactions is the most special characteristic of Islamic finance. This is because, the Holy Quran, the Divine book of Islam strongly forbids Riba (usury) in business dealings. The Holy Quran says: "...That is because they say: Trade is just like usury; whereas Allah permitted trading and forbidden usury." (Holy Quran, *Surah Al-Baqara Verse 275| 2: 275*).

Even so, neither the Quran nor the Islamic Prophet Muhammad (PBUH) defined Riba. Currently, Riba is translated as "interest." The current Shariah (Islamic) scholars have concluded that a predetermined fixed return on business dealings is not allowed in Islamic finance (Samad, 2021).

- *Profit and Loss Sharing (Sharing of Risk and Reward):*

Benefit and loss sharing (PLS) is the operating concept of Islamic financial institutions. Islamic banks do not charge interest on loans to borrowers but instead shares in the profits generated from the use of funding. Depositors, on the other side, receive a fixed percentage of the bank's earnings. Usury and interest-based transactions are prohibited in Islamic banking. The economic reasoning for abolishing Riba (interest) is to create a banking system that values justice, social responsibility, equity, prosperity, and development. The Islamic financial system encourages investors and entrepreneurs to share risk and returns in an equitable manner based on capital proportions and services provided. It promotes the theme "Banking for Everyone," in which banking services are provided to people of all social backgrounds without discrimination.

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The goal is to close the divide between rich and poor people and to foster solidarity among society's various groups (Alam et al., 2019).

Since Riba is forbidden in Islam, fund providers become owners rather than creditors. In exchange for a share of the income, the financier and the developer share market risks. Rather than being borrowers, Islam urges Muslims to spend their money and become investors in the company, sharing benefits and risks. Here's where Profit and Loss Sharing (PLS) fits in, replacing the interest in financing and deposits with profit and loss sharing. Financing in Islam is founded on the idea that the burden of a business enterprise should be shared equally between the financier and the creditor. The idea of distributing risk and incentives distinguishes Islamic banks from traditional banks, in which the creditor bears all risk and the consumer is responsible for paying the principal and interest regardless of whether the investment is profitable or not. The aim is to stimulate the economy by encouraging entrepreneurs to increase their efforts by high-risk investments (Alam et al., 2019).

• *Money as a Potential Capital*

Under Islam money is only a medium of exchange, a way of defining the value of a thing; it has no value in itself, and therefore should not be allowed to give rise to more money, via fixed interest payments, simply by being put in a bank or lent to someone else. A mere postponement of consumption of saving is no justification for reward. Money is treated as “potential” capital and it becomes actual capital only when it joins hands with other resources to undertake a productive activity. Islam recognizes the time value of money, but only when it acts as capital, not when it is “potential” capital. This principle encourages Muslims to invest money into different ventures and hoarding of money is considered as Haram. It is accepted that money represents purchasing power but only for the proper use of money and cannot be used to make more purchasing power (money) without any productive activity.

Money, according to Islam, is just a means of trade, a way of determining the value of a thing; it has no intrinsic value, and therefore should not be able to generate more money, either by fixed interest payments or merely through being deposited in a bank or lent to anyone else. A simple delay in consumption or saving does not justify an incentive. Money is considered “potential” capital, and it only becomes real capital when it is combined with other wealth to carry out a profitable operation. The time worth of money is recognized in Islam, except when

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it serves as capital, not when it is “potential” capital. This theory allows Muslims to spend their wealth on various projects, and it is called Haram to hoard money. Capital is understood to reflect buying power, but only when used properly; it cannot be used to generate additional purchasing power (money) without engaging in constructive action (Alam et al., 2019).

- *Prohibition of Gharar (Refers to uncertainty)*

Hoarding is discouraged in an Islamic financial environment, and dealings involving serious Gharar (uncertainties) and Maysir are prohibited (gambling). Any commercial activity entered into under this prohibition should be free of doubt, risk, and speculation. In the market, Gharar refers to embarking on a venture without proper expertise or engaging in overly risky transactions, though minor confusion may be tolerated when considered appropriate. Hoarding is discouraged in an Islamic financial system, and transactions with high Gharar (uncertainties) and Maysir are prohibited (gambling). Any economic transaction entered into under this prohibition should be free of risk, speculation, or uncertainty. In business, Gharar refers to embarking on a venture without adequate knowledge or engaging in excessively risky exchanges, though minor uncertainty can be tolerated when needed (Alam et al., 2019).

- *Sanctity of contracts*

Contractual rights and the sharing of knowledge are considered sacred in Islam. This function aims to reduce the chance of asymmetric knowledge and moral hazard. As a consequence, exchanging parties should be well aware of the counter values/products that will be traded as a consequence of their transactions. Furthermore, parties cannot promise a return in advance. This is founded on the concept of "uncertain gains," which, if strictly applied, prohibits the customer from promising to refund the borrowed principal plus a sum to account for inflation. The ban stems from a need to protect the vulnerable from exploitation (Alam et al., 2019).

- *Shariah-approved activities*

Islamic banks are allowed to engage in commercial practices that do not break Shariah laws and are thus eligible for investment. Any interest in companies that deal in alcohol, gaming, or casinos, for example, will be explicitly banned. As a result, Islamic banks will be required to create a Shariah Supervisory Board made up of Shariah jurists who will serve as impartial

Shariah auditors and counselors to the banks. They will be in charge of ensuring that Islamic banks' policies and operations do not violate Moral values (Alam et al., 2019).

2.3.2 Specific Islamic Finance Methods (Financial Transactions) for Economic Growth

Islamic finance, according to RAJAEI-BAGHSIYAEI (2011), will contribute to economic growth. Some economists also claim that Islamic finance plays a larger role in this respect than traditional banking structures due to the removal of interest (Riba), the use of Profit and Loss Sharing (PLS), and its resemblance to banking institutions. Several longitudinal studies have been conducted on the importance of the Islamic financial system in economic growth. Ahmed (2005), for example, looked at the importance of Islamic finance in economic growth. He went through the factors that influence economic growth before delving into the involvement of Islamic financial institutions and instruments in promoting those factors. According to Ahmed (2005), there are management problems with using equity-based tools to fund various financial growth drivers, especially working capital. According to Ahmed (2005), debt and lease contracts cannot be used to fund working capital, and there are no operating mechanisms for using Murabahah and Mosharakah to fund working capital. In order to fix the issue of funding various growth drivers, Ahmed (2005) believes that operating mechanisms of corporate finance, in overall, and workable equity-based mechanisms and institutions, in particular, must be created.

In conclusion, Islamic finance has a number of basic mechanisms that incorporate the above ideas which can be used to promote economic growth. Despite the fact that these mechanisms (instruments) available, many have not been widely adopted because Islamic banks have focused their deposits on short-term, low-risk business transactions instead of industrial and agricultural investments. Benefit and loss sharing strategies, bay' al-Salam, Sukuk, and Qard-El-Hasan are only a few examples (Mavrakis, 2009).

2.3.2.1 Financial transactions of Islamic finance with the participation of Islamic bank

Some of the most common Islamic financial products are described in the following sections.

2.3.2.1.1 Mudarbah (The Profit Sharing)

Mudarbah is a contract between financial institutions (capital providers) in which the organization offers funds to the entrepreneur for the production/creation of money (Ben Bouheni et al., 2016). For manufacturing, the entrepreneur arranges the labor, managerial skills, and experience. Before the launch of the project, the banks and the entrepreneur agree on a predetermined or agreed profit sharing ratio. If a loss happens, all sides are responsible for it: the bank in terms of money and resources, and the capitalist in terms of managerial ability and experience (Ben Bouheni et al., 2016). Since a bank takes a financial risk by investing in an entrepreneur project, the bank is entitled to a benefit contribution. The profit-sharing scheme will run till the loan is repaid (Ben Bouheni et al., 2016).

2.3.2.1.2 Musharakah (Joint Venture)

Musharakah is derived from the word *Chirka*, which requires having participation in Islamic jurisprudence (*Fiqh*). Since all ways of sharing are referred to as *Chirka* in *Fiqh* vocabulary, the word *Musharakah* does not appear in the libraries of *Fiqh*; the expression *Musharakah* is more modern (Ben Bouheni et al., 2016). It is an arrangement between two people, namely a bank and an investor, who spend money in a company in order to make a profit and split the profits according to their contribution or agreement. *Musharakah* is mainly used for three major reasons or projects: letter of credit, large-scale acquisition, and the buying or rental of real estate, which has seen a boom in the last four years. The banker and the owner determine their potential rental profits and split the portion in advance when buying real estate or land (Ben Bouheni et al., 2016). Both parties are not required to engage in the administration, but they are allowed to participate in the events. Since the project's profits are predetermined and benefit is divided according to a fixed proportion, the partners will bear the loss in the proportion of that capital expenditure or investments (Ben Bouheni et al., 2016).

2.3.2.2 Financial transactions of Islamic finance without the participation of Islamic bank

2.3.2.2.1 Murabahah (Refers to the Cost Plus)

Murabahah is derived from the word *Riba*, which means profit. It means "profit-taking" in a commercial context. *Murabahah* is a buying deal between a dealer and a customer in which the banker sells the customer a product for a certain price that includes the profit margin settled upon by all parties. All are listed in the deal, including the profit margin, rate, and purchase price at the time of the transaction (Ben Bouheni et al., 2016). For the time worth of capital, the bank/financier charges or needs to compensate the customer in the manner of profits. The consumer may relate to it as a fixed income loan for the acquisition of assets such as property or real wealth upon which profit is paid at a fixed rate determined by profit margin (Ben Bouheni et al., 2016).

2.3.2.2.2 Musawamah

The seller makes the deal with the buyer negotiating the price of the goods, but no mention is made of the price paid by customers or how much it cost the seller to purchase the product (Ben Bouheni et al., 2016). As a result, the vendor in *Musawamah* is not required to announce the price of its goods, which is the biggest distinction between *Musawamah* and *Murabahah* in terms of pricing. The remainder of the provisions is the same for the *Musawamah* and the *Murabahah*. The *Musawamah* statement refers to where the vendor is unsure or unable to disclose or determine the cost of his items in front of the seller whilst selling his goods (Ben Bouheni et al., 2016).

2.3.2.2.3 Ijarah

The word *Ijarah*, which means "to rent," derives from the Fiqh. It's simply a lease, a rent, or a salary. The banks grant the service or the rights to use their asset, house, factory, office, motor car, machinery, or facilities for a certain amount of time and at a specified price. As a result, the idea of *Ijarah* is to sell the advantages or usage of another party's properties for a certain price and date (Ben Bouheni et al., 2016).

2.3.2.2.4 Bai al-Inah (Agreement of sale and buy-back)

The bank or financial company sells the asset to the lender, followed by a paying back deal on the same asset in *Bai-Inah*. This ensures that the asset is transferred to the customer with deferred fees and then promptly bought back or repaid at a lower amount, retaining the financier's, banks, or financial organization's possession of the asset. It is intended to protect the financier from default without directly paying interest (Ben Bouheni et al., 2016).

2.3.2.2.5 Bai' Bithaman Ajil (Refers to the deferred payment sale)

Mudabah and *Bai' Bithaman Ajil* are similar terms that include deferred compensation in the selling of merchandise, as well as a benefit margin on both parties' deals (Ben Bouheni et al., 2016). The major distinction is that in *Bai' Bithaman Ajil*, clients, consumers, or debtors make complete payments on maturity rather than monthly equivalent installments. The debtor is paid a premium price for using an asset to earn a profit, which is greater than or equal to the average interest rate at the moment, as in most types of financing (Ben Bouheni et al., 2016).

2.3.2.2.6 Bai Muajjal (Refers to the credit sale)

A *Bai Muajjal* is a credit selling of any commodity on credit. The investor purchases the goods at market price with the goal of selling them at a cheaper price with such a profit margin, and the customer is asked to pay the balance in one lump sum and into installments at a later date. The cost and benefit are listed in the deal, just as they are in most contracts, where both parties have jointly agreed to comply with the arrangement. The price of such a deal can be set at the spot price, whether it can be greater or lesser than the retail price or spot price (Ben Bouheni et al., 2016).

2.3.2.2.7 Bai Salam

Salam is an unusual financial bundle with Isaiah, which the Holy Quran has expressly approved. Indeed, we're dealing with an exception to the Islamic regulation law by not selling something until the vendor owns it. *Bai Salam* is a form of financing in which the buyer pays in advance for items that will be sold by the vendor at a later date. The buyer must pay the entire price in advance in order to make the deal, and the seller must supply the merchandise on the

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agreed-upon date (Ben Bouheni et al., 2016). The transaction will not be considered effective until and unless the purchase is received in whole, and if the payment is made in increments, the transaction will be defeated. If the purchaser does not pay in full, the transaction would be considered a debt-for-debt deal, which is forbidden under Islamic law. In *Bai Salam*, the entire jury concluded that the vendor would pay the full price of the goods in advance in order to satisfy the contract terms and conditions (Ben Bouheni et al., 2016). The vendor may make a delivery day concession, such as two or three more days for the vendor to make the full payment to the purchaser that is not included in the arrangement. However, the condition of the goods that must be delivered should be the same as stated in the contract; otherwise, a conflict will arise between the two parties. The sellers and buyers in *Bai Salam* may exchange everything but gold, silver, and money, which are prohibited. The contract shall specifically describe the cost, quantity, and craftsmanship (Ben Bouheni et al., 2016). According to *Salam*, a vendor cannot sell a commodity without specifying its quality and quantity. *Salam* principles are now used to substitute traditional finance options, which also contain a significant element of uncertainty, *Gharar* prohibited *Salam* standards (Ben Bouheni et al., 2016).

2.3.2.2.8 *Hibah* (Refers to gift)

In Islamic banking, the principle of *Hibah* was adopted in place of interest. *Hibah* refers to the borrower's voluntary donation to the debtor in exchange for the loan that he obtained from the creditor. Banks pay *Hibah* to their customers at a set rate in their savings accounts (Ben Bouheni et al., 2016).

2.3.2.2.9 *Qard Hassan* (Refers to the good loan)

This is an interest-free loan for borrowers, in which case borrowers only collect the loan's principal value, which he or she redirected to the debtor for the selling or growth of his or her company. The borrower receives no reward for the time worth of capital. According to some authors, this is the only form of loan that is legal since it does not require *Riba* and thus does not contradict Islamic values. The debtor may pay an additional sum on the return of *Qard Hassan* as a gesture of gratitude to the borrower, but that's not needed (Ben Bouheni et al., 2016). It is a charitable loan that is repaid in full at maturity without interest, benefit, or loss. It is provided in small amounts for brief periods of time and bears the burden of a more social

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method of funding: microbusiness, personal issues, and so on. In reality, not having to pay the capital amounts to a subsidy; moreover, the *Qard Hassan* covers all transactions on Islamic deposit savings accounts (Ben Bouheni et al., 2016).

2.3.2.2.10 *Wadiah (The Safekeeping)*

For its clients, the bank serves as the *Wadiah* or guardian of their funds. Customers invest money in accounts, and banks serving as trustees are required to repay the entire sum upon demand. Banks sometimes send the *Hibah* to their customers as a token of gratitude since the funds invested by the customers are used by the bank at its discretion. However, the main purpose of this *Hibah* (gift) is to repay depositors by interest, also known as the time value of a property. It's named *Hibah* because it's not expected to be awarded every time (Ben Bouheni et al., 2016).

2.3.2.2.11 *Sukuk (Refers to Islamic bonds)*

Sukuk are interest-bearing Islamic financial certificates. It functions similarly to other bonds, but Islamic law and investment rules forbid the payment of any sort of interest. In the secondary industry, *Sukuk* are categorized according to traceability and non-tradability (Ben Bouheni et al., 2016).

2.3.2.2.12 *Takaful (The Islamic insurance)*

Takaful is a form of insurance that protects against the possibility of failure due to unpredictability. *Takaful* is based on the idea that something that is unknown for one person would be uncertain for a wide group of people at the same time. As a result, the rule of large numbers gives ease to the user by balancing the threats of multiple individuals. The idea of welfare, where services are combined to support the poor, is not prohibited in Islamic finance. Islamic financing differs from traditional insurance in that it has an aspect of risk and gambling (Ben Bouheni et al., 2016).

The *Takaful* are profit-making insurance companies that are divided into two independent entities (Ben Bouheni et al., 2016):

1) a trust that pays claims and receives investments.

2) a management firm that handles refunds and disbursements accounts.

These funds are invested in construction programs as well as Islamic funding mechanisms like *Musharakah* and *Mudarabah*. In the event of a deficit, the management firm will have a zero-interest guarantee, which will be repaid from potential surpluses. As Sharia bans betting, slots, chance, and *Maysir*, traditional insurance provides guarantees dependent on a likely future.

2.3.2.2.13 *Wakalah (Refers to Agency)*

An agreement or contract in which an agent acts as a third party and undertakes operations on behalf of the first or primary entity. Shariah-compliant services are provided by all Islamic banks. Non-Islamic banks as well as entirely Islamic banks sell Islamic financial goods. Many western banks are involved in this area, including Citibank, Deutsche Bank, HSBC, BNP Paribas, and Standard Chartered (Ben Bouheni et al., 2016). They appeal to both the retail and wholesale sectors in Muslim countries; however, they prefer to focus on the wholesale market abroad. HSBC and Lloyds TSB, as well as specialist Islamic companies, serve the retail sector in the UK. In other places of the globe, penetration is also growing. ABSA, for example, is a financial hub in South Africa that provides Islamic financial services to both businesses and customers (Ben Bouheni et al., 2016). This is mostly done by the creation of a new legal body. This does not appear to be exclusively important, nevertheless, as long as all money sources, including the financing of Islamic practices, are completely separated from the bank's regular operations (Ben Bouheni et al., 2016).

2.3.2.2.14 *Tawarruq*

The *Tawarruq* structure is used by Islamic banks to provide cash lending to their customers. The bank buys an asset directly or indirectly and immediately transfers it to a buyer on a deferred payment basis in this arrangement. The client then sells the same asset to a third party who can supply and pay for it right away. As a result, the buyer collects an instant cash payout and is required to make additional payments to the bank for the asset's marked-up amount (Ben Bouheni et al., 2016). In modern Islamic banking, the Islamic bank typically handles all of the *Tawarruq* finance transactions. Since the consumer has no real intention of purchasing or

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selling the underlying asset that funds the financial transaction, *Tawarruq* funding is problematic and has been the topic of discussion in Islamic financial fields. *Tawarruq* funding is banned by the Islamic Fiqh Academy of Jeddah, Saudi Arabia since no real commodities are exchanged. *Tawarruq* creates debts, widening the economic divide between the real and financial sectors. It contributes to the creation of a debt market, and a debt instrument is not a real commodity (Ben Bouheni et al., 2016). When a customer engages in a trade, his or her sole goal is to raise cash, which could be regarded as a violation of Shariah (Ben Bouheni et al., 2016).

2.3.2.2.15 Islamic investment funds

According to Ben Bouheni et al. (2016), Islamic finance funds can be described as following collections:

- *Murabaha* funds: are raised and deposited in *Murabaha* by the fund manager. Because the *Murabaha* contract requires them to sell properties at a defined margin, they will give guaranteed income.
- The *Ijarah* funds work on the idea of buying shares of businesses and leasing them to consumers as if they were properties. Customers pay leases on the shares, which remain the estate of the financial institution. The Manager, *Mudarib*, raises and invests funds in the capital, which is then invested in rents and provides a guaranteed income.
- Equities funds: benefits are earned by trading in equity or by receiving a portion of annual dividends and other earnings from the selling of shares (variance between the price at the time of the sale and time of gaining). It should not discredit any of an entity's activities either because it has to take out a loan or do a marginal transaction on its resolved interest. It's possible that he'll donate any of his ill-gotten earnings to charity (*Zakat*).
- Hedge funds: Sharia-compliant hedge funds are available. By definition, all derivatives-related activities are banned in practice, but there are ways to "bypass" this prohibition. In Islamic finance, you can't sell something you don't own, and you can't sell something that doesn't keep its value on the day of the auction. The *Salam*, the *Arboun*, the *Kiar*, and the *Wad* activities have all been used to solve this challenge.

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- The *Salam* permits the delivery of assets at a fixed price (titles) to buyers who pay in cash.
- The *Arboun*, in which an offer is concluded up of a deposit (lost instead of retrievable payments) paid upon contract signing and kept by the seller if the buyer defaults. This distinction between deposit and deposit distinguishes it from traditional options, with policy pending being set at a date in the future decided upon in advance by the buyers and the sellers.
- There is a probability of including a clause in the deal, according to *Kiar*.
- In practice, the *Wad* is a contractual irreversible binding promise.

2.4 Summary

This chapter aimed to investigate the relationship between the Islamic finance system and economic growth, in other words, the role of banking systems in general and Islamic banking in particular in economic growth and development. For this reason, the relevant literature has been analyzed. The vast majority of the reviewed literature showed there to be a significant positive association between financial development and economic growth. Also, the contribution of Islamic finance to economic development and growth has been stated. Furthermore, some theories and opinions regarding the role of financial systems, with an emphasis on the impact of the banking system on economic growth, have been deliberated. They displayed the ways in which banking systems can affect economic growth. In addition, the advantages of Islamic finance regarding economic growth have been considered from all the financial transactions of the Islamic finance industry. According to this review, there are several advantages in Islamic finance in this regard including well-organized use of money, distribution of risk between investors and depositors based on the profit and loss sharing concept, the significance of a business plan's quality rather than the borrowers' credit ratings, stability, the management of inappropriate credit creation, and the reduction of moral hazard and adverse choice

In the next chapter, this study explored and surveyed deeply the link between Islamic finance performance and economic growth.

Chapter 3: Islamic Finance
Performance and Economic Growth
(A Literature Survey)

Chapter 3: Islamic Finance Performance and Economic Growth (A Literature Survey)

3.1 Introduction

This chapter is exploring the Islamic finance performance and economic growth relationship by surveying both theoretical and empirical literature surrounding this link. First, to understand Islamic finance performance, it is necessary to explore the methods and techniques of measuring financial performance through Islamic and conventional banks, therefore, this chapter provides theoretical definitions of banking performance analysis followed by a deliberation of the methods and techniques commonly used in measuring the financial performance since it is necessary to determine the most used financial methods and ratios based on the empirical papers. Finally, this chapter is defining the most used determinants of Islamic finance performance to investigate its effect on economic growth.

3.2 Financial Performance Measurement Tools of Islamic and Conventional Banks

3.2.1 Conceptual Definitions

The word 'performance' can be broadly interpreted as a comparison of the accomplishment of some particular mission or index to a predetermined level or target. In the case of financial institutions, performance is an indicator of how the bank's practices and activities affect both monetary and non-monetary operations. Many economic texts describe the performance as profitability, according to Bikker and Bos (2008). This concept, however, is distinct from production, competitiveness, concentration, and productivity (Neves, Gouveia, and Proença, 2020). Furthermore, the majority of the literature, according to Basri (2016), focuses on profitability as the framework for assessing financial performance.

Researchers also have an alternative description of financial performance by elaborating on the significance of profits to shareholders. Shareholders would usually aim to maximize earnings (profits), which can be accomplished by increasing sales while decreasing costs.

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Furthermore, based on market strength, one bank may have the ability to raise output prices while lowering input prices in order to maximize profits. Iqbal and Molyneux (2005) classified bank performance into five categories: profitability, soundness, prudence, effectiveness in the use of funding, and economy. According to Iqbal and Molyneux (2005), profitability is an important component of bank performance. Bank profitability is calculated using return on assets (ROA) and return on equity (ROE) (ROE). ROA is an important ratio for measuring banks' performance and operating success since it considers earnings produced from assets funded by the banks. ROE, on the other hand, calculates how a bank earns profits from the assets of its owners.

Harker and Zenios (2000) characterized banks as business organizations whose primary purpose is profit. As a result, they describe the performance as an economic achievement measured by different financial metrics in order to achieve profitability. The writers went on to say that banks serve as service providers and intermediaries for their customers.

Based on these conceptual backgrounds from the notable studies surrounding how the banking performance is defined, many studies of Tabash, (2019), Rabaa and Younes (2016), Alkhazaleh (2017), Alharbi (2017), Setyawati et al. (2017), Olson and Zoubi (2017), Yazdani, (2011) have agreed that the performance of Islamic banks is determined through profitability which was measured by Return on assets (ROA), Return on equity (ROE), and net profit margin (NPM).

As a summary, based on the literature review above, the study employed profitability in measuring the performance of Islamic banks in Southeast Asia. Thus, Islamic finance performance is that refers to the financial performance of Islamic finance across Islamic banks. The performance assessment approach was selected due to its usefulness and widespread use in calculating the performance of banks worldwide. The following section will go into the strategies and techniques for calculating bank performance.

3.2.2 Classical Methods

The traditional approaches, according to Ben Bouheni et al. (2016), are dependent on profitability (earnings and profits). Supervisors have traditionally used these conventional

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approaches to assess financial results. The following are some of the most common traditional metrics used in performance evaluation:

3.2.2.1 *Financial Methods / Ratios*

The estimation and comparison of financial ratios obtained from facts in a company's balance sheet are known as financial ratio analysis. The degree and historical patterns of these ratios can be used to draw conclusions regarding a company's financial state, activities, and investment attractiveness. Financial ratio research categorizes ratios, which inform us about various aspects of a company's finances and activities (Gupta, Jain, and Yadav, 2011). The following are the various ratio categories:

1) Leverage ratios: These ratios indicate how much debt is included in a corporation's economic structure. According to Berk and DeMarzo (2014), one crucial bit of knowledge we can derive from a company's balance sheet is its leveraging or the degree to which it depends on debt for funding.

$$\text{Debt Equity Ratio} = \frac{\text{Total Debt}}{\text{Total Equity}} \quad [3.1]$$

Debt-to-Capital Ratio:

$$\text{Debt Equity Ratio} = \frac{\text{Total Debt}}{\text{Total Equity} + \text{Total Debt}} \quad [3.2]$$

2) Liquidity ratios: These ratios provide information about a company's short-term financial status or soundness. There are three major ratios that we differentiate:

$$\text{Current ratio} = \text{Current assets} / \text{current liabilities} \quad [3.3]$$

$$\text{Quick ratio} = (\text{Cash} + \text{short-term investments} + \text{account receivable}) / \text{current liabilities} \quad [3.4]$$

$$\text{Cash ratio} = \text{Cash} / \text{current liabilities} \quad [3.5]$$

3) Profitability ratios: According to Berk and DeMarzo (2014), the statement of income offers very valuable knowledge about a company's profitability and how it compares to the valuation of its stock. A company's gross margin is the amount of gross profit to profits (sales):

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– Gross margin:

$$\text{Gross Margin} = \frac{\text{Gross Profit}}{\text{Sales}} \quad [3.6]$$

The gross profit of a company represents its willingness to market a commodity for more than the cost of production. Since there are indirect expenditures associated with running a company in addition to the actual costs of products sold, the gross margin, or the percentage of operating profits to revenues, is a significant profitability ratio:

– Operating Margin:

$$\text{Operating Margin} = \frac{\text{Operating Profit}}{\text{Sales}} \quad [3.7]$$

– Net Profit Margin (NPM):

Net profit margin (NPM) is a financial ratio used to compute the proportion of profit a corporation produces from its overall revenue.

$$\text{Net Profit Margin} = \frac{\text{Operating Profit}}{\text{Sales}} \quad [3.8]$$

As well, Net Profit Margin is calculated in banks as following (Altan, Yusufazari, and Bedük, 2014; Karim, Alhabshi, Kassim, and Haron, 2018; Wanke, Azad, and Barros, 2016; Tabash, 2019; Islamic Financial Services Board (IFSB), 2020):

$$\text{Net Profit Margin (NPM)} = \frac{\text{Net Income (Profit after Tax)}}{\text{Gross Income (revenue)}} \quad [3.9]$$

- Operational ratios:

They use turnover metrics to determine how effective a company's processes and resource utilization are. Despite the fact that financial ratio analysis is well defined and the exact ratios are well established, practicing financial analysts commonly devise their own metrics for specific markets and even individual firms. The below are the most recognized and highly used ratios:

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– Return on Equity (ROE):

Return on Equity (ROE) is the most important benefit metric, as it calculates banking management in all of its aspects and provides an image of how to employ the capital provided by shareholders, as well as the impact of their retainer in the bank's operations. According to Berk and DeMarzo (2014), a high ROE may mean that the company is capable of identifying highly lucrative investment opportunities (Altan et al., 2014; Dincer, Gencer, Orhan, and Sahinbas, 2011; Karim et al., 2018; Lahrech, Lahrech, and Boulaksil, 2014; Munir, Salwa, and Bustamam, 2017; Peltonen, Constantin, and Sarlin, 2015):

$$\text{Return on Equity (ROE)} = \frac{\text{Net Income (Profit after Tax)}}{\text{Equity}}$$

[3.10]

It is defined as the difference between net profit after deducting all expenditures and taxes and the book value of equity. The specialized literature devotes significant studies to this metric, which is regarded as one of the most distinctive key indicators of certain commercial enterprise results. In the case of banks, a typical margin of this measure is considered to be between the relevant thresholds of 10% and 30%.

- Return on Assets (ROA):

This metric expresses the viability of a banking society's overall operations. This index, also recognized as profit to assets or asset profitability, calculates the impact of management's ability to leverage an organization's financial and actual capital to achieve profit. The return of assets metric is thought to be the most accurate measure of banking activity because it clearly represents the outcome of successful operations optimization, according to the precise management of banking intermediates, in relation to the amount of capital considered. This indicator's equation is (Alqahtani, Mayes, and Brown, 2017; Dincer et al., 2011; Karim et al., 2018; Wanke et al., 2016):

$$\text{Return on Assets (ROA)} = \frac{\text{Net Income (Profit after Tax)}}{\text{Total Assets}}$$

[3.11]

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ROA measures a company's profitability before debt and is contrasted to other firms in the same sector. Since the measure for the company's net assets is dependent on the carried value of the assets, some care is needed for businesses whose bearing value differs from the real market value. Since the bulk of their reserves would have a carrying value that is similar to their real market value, ROA is a standard measure used when measuring the performance of financial companies (like banks). since the rest of the investments would have a holding value equal to their real market value

The range of predictor differences is usually between 0.5 and 1.6 percent. The small value (1%) is unique to large banks, while an extra unit aspect of the predictor is unique to small and medium banks. Return on assets (ROA) has the advantage of being less vulnerable to debt than the return on equity (ROE) as a performance metric. It is, however, subject to working capital – for example, an equivalent rise in the firm's receivable accounts and payables increases net assets and hence lowers ROA (Berk and DeMarzo, 2014).

– Return on Invested Capital (ROIC):

The return on investment (ROI) or return on invested capital (ROIC) is a measure of a company's performance; that is, how much benefit the company can earn given the resources offered by its shareholders. Shareholders usually seek out businesses with strong and increasing ROI.

This indicator's formula is as follows:

$$\text{Return on Invested Capital (ROIC)} = \frac{\text{Earnings before Tax (1 - Tax Rate)}}{\text{Equity + Net Debt}}$$

[3.12]

Decision-makers also seek ways to increase ROIC by lowering costs, growing gains, or speeding up gains. It's also a metric on how well a business invests its profits to produce more profits. The ROIC correlates the capital collected by equity and debt investors that has already been invested to the after-tax benefit earned by the company. The most valuable metric of operating returns (ROE, ROA, and ROIC) in assessing the performance of the underlying market is ROIC (Ben Bouheni et al., 2016).

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5) Solvency Ratios:

Give an impression of a bank's capacity to obtain cash flow to meet its financial obligations. The categories of ratios are organized as follows (Berk and DeMarzo, 2014):

– Working Capital Ratios:

The integrated statistics from the income statement and balance sheet will be used to determine how well the company is using its net working capital. Companies also calculate the number of accounts receivable days or the number of days' worth of revenue accounts receivable reflects, to assess how quickly they convert sales into cash:

- Accounts Receivable Turnover

$$\text{Accounts Receivable Turnover} = \frac{\text{Accounts Receivable}}{\text{Average Daily Sales}}$$

[3.13]

A rise in the total number of days it takes to receive money from customers may be a serious concern (perhaps indicating the firm is doing a poor job of assembling from its customers or is trying to increase sales by presenting generous credit terms).

Accounts payable and inventory both have identical percentages. It's reasonable to equate these expenses to the company's cost of sales, which should represent the overall amount charged to vendors as well as inventory sold. Accounts payable days are thus specified as (Ben Bouheni et al., 2016):

- Accounts Payable Turnover

$$\text{Accounts Payable Turnover} = \frac{\text{Accounts Payable}}{\text{Average Daily Cost of Sales}}$$

[3.14]

6) Valuation Ratios:

Analysts use a variety of ratios to determine the final value. The price-earnings ratio (P/E) of a firm is the most general (EPS) (Ben Bouheni et al., 2016):

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– *Earnings per Share (EPS):*

Earnings (profit) is the most important metric for shareholders. As a result, the EPS, which splits gross annual profits by the number of shares in issue, is a widely used performance indicator. The earnings per share (EPS) are the profits on the original investment. Preferred dividends are not used in the EPS calculation for categories other than continuing activities and net profits. The calculation of EPS and net profits for ongoing activities is more difficult since any preferential distributions are deducted from net income before measuring EPS.

$$\text{Earnings per Share (EPS)} = \frac{\text{Market Capitalization}}{\text{Net Income}} \quad [3.15]$$

The EPS ratio is a simplistic metric for determining if a commodity is overvalued or undervalued. It is founded on the premise that a stock's worth should be equal to the amount of profit it will make for its owners. EPS ratios vary somewhat by industry, but they are typically higher in sectors with high projected rates of growth (Berk and DeMarzo, 2014).

– *Book Value vs. Market Value:*

Since borrowers understand that the market value of the assets is much greater than the book value, successful businesses are therefore able to invest in terms of the book value of their assets. As a result, it's not shocking that the book value of equity always differs significantly from the price at which investors can pay for it. The number of outstanding shares multiplied by the firm's stock price per share equals the gross market value of its equity:

$$\text{Market Value of Equity} = \text{Shares Outstanding} \times \text{Market Price per Share} \quad [3.16]$$

The market capitalization (or "market cap") of a company refers to the market value of its shares. The market value of the shares is determined by what buyers expect the firm's assets to deliver in the future, rather than the historical expense of those assets.

$$\text{Market to Book Ratio} = \frac{\text{Market Value of Equity}}{\text{Best Value of Equity}} \quad [3.17]$$

Many profitable companies have a market-to-book ratio that is far higher than 1, meaning that the worth of their investments when used exceeds their historical expense. Variations in this ratio represent variations in both underlying company features and

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management value-added. Profit shares have low market-to-book ratios, while growth stocks have strong market-to-book ratios, according to analysts (Berk and DeMarzo, 2014).

– *Enterprise Value:*

The market capitalization of a company is the market value of its shares, or the value left over after the company has paid its debts. The enterprise value of a company (also known as overall enterprise value) determines the value of the company's financial market properties, which are unconstrained by debt and distinct from cash and marketable securities. It's calculated like this:

Enterprise Value (EV) = Market Value of Equity + Net Debt (or Debt – Cash)

[3.18]

The cost of taking over a company can be viewed as the enterprise value (Berk and DeMarzo, 2014).

3.2.2.2 *Income Statement (Profit and Loss Statement)*

The income statement, also known as a statement of financial reports, records the company's profits and expenditures over time, according to Ben Bouheni et al. (2016). The income statement's last or "bottom" line represents the company's net income, which is an indicator of its performance over the year. The profit and loss, or "P&L," account is also known as the income statement, and the net income is also known as the company's profits.

The amount a company makes by subtracting costs and losses from overall sales is known as net profits. The core inflows and outflows of funds that exist during a company's economic period are revenues and expenditures.

3.2.2.3 *Market Value-Added*

The disparity between a company's actual stock valuation and the capital provided by investors is known as market value added (MVA). If MVA is favorable, the company has increased its worth. If it's bad, the company has depreciated in value. The sum of value-added must be greater than what the company's customers may have gotten by buying in the investment

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portfolio, calibrated for the company's leverage (beta coefficient). The MVA is described as follows (Gupta et al., 2011):

$$\text{Market Value Added (MVA)} = \text{Market Value} - \text{Invested Capital}$$

[3.19]

The MVA is stronger the higher it is. A high MVA means that the firm has made significant profits for its owners. The current value of all possible projected economic value added is equal to MVA (EVA). The valuation of management's decisions and acquisitions is less than the value of capital added to the firm by the capital markets, resulting in a negative MVA. This suggests that something of worth or money has been lost. A company's goal should be to increase MVA. The aim need not be to increase the firm's worth since this can simply be achieved by spending ever-increasing sums of money (Gupta et al., 2011).

3.2.2.4 Cash Flow Statements

Cash flow statements indicate how much money comes in and moves out of a company over the course of a quarter or year, i.e., how much real cash a company has produced, and are essential for determining a company's growth. It demonstrates how the firm will fund its activities and potential expansion (Ben Bouheni et al., 2016).

The income statement, according to Berk and DeMarzo (2014), contains a calculation of the firm's earnings for a given time span. It does not, though, show how much money the company has made. There are two key reasons for the discrepancy between net profits and cash gained. In the income statement, there are non-cash items like depreciation and amortization.

Second, certain cash costs are not listed on the income statement, such as the purchasing of a property or inventory purchases. The income report and balance sheet are used to calculate how much revenue the company has earned and how the cash has been spent over a certain time span in the statement of cash flows (Berk and DeMarzo, 2014).

Operating operations, investment activities, and funding activities are the three parts of the cash flow statement. The first segment, operating operation, begins with the income statement's net income. The figure is then adjusted by adding in all non-cash entries relating to the business's operations. The cash used for investing is listed in the next segment, Investment

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Operation. The third part, titled funding operation, depicts the cash balance between the company and its owners. Harrison, et al. (2013) define cash flow groups as follows:

– Operating Activities:

Customers purchase products and services from businesses. Operating operations generate either a profit or a loss, and they raise or decrease cash. The income report determines whether or not the business is sustainable. The statement of cash flows shows when the company's cash reserves have risen as a result of its sales. The most critical operations are those that generate revenue for the organization, and they should be the primary source of funds. Continuing to have negative operating cash flows may result in bankruptcy (Ben Bouheni et al., 2016).

– Investing Activities:

Companies put their money into long-term resources. An organization purchases fixtures and appliances and then sells them until they become obsolete. Long-term resource acquisitions and sales are both investing in cash flows. After operations, investing in cash reserves is the second most significant factor (Ben Bouheni et al., 2016).

– Financing Activities:

Financing is needed by companies. Issuing stock, paying dividends, saving, and repaying borrowed funds are all examples of funding. The company can also repurchase its own shares to pay off loans.

– Liquid Funds End of the Period (as presented by Petersen and Plenborg (2012)):

+ Cash Flows from Operations

+ Cash Flows from Investments

+ Cash Flows from Financing

= Increase/Decrease in Liquidity

+ Liquid Funds Beginning of the Period

= Liquid Funds end of the Period

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Companies generate and spend capital in a variety of ways, which is why the statement of cash flows is split into three sections: operating cash flows, funding cash flows, and spending cash flows. As a result, investors like businesses that generate a lot of free cash flow or liquid reserves at the end of the year (Ben Bouheni et al., 2016).

The funds flow statement, also known as a "source and application of funds" statement, offers information about the flow of funds and aids in the understanding of improvements in the composition of cash, liabilities, and equity capital. The standard financial statements, like the financial statements and benefit and loss accounts, provide the documents needed to prepare funds to flow statements. On a total resource base, a working capital basis, or a cash basis, a "funds flow statement" should be written. The working capital fund balance is the most widely known method of calculating cash flow (Ben Bouheni et al., 2016).

The flaws in cash flow-based performance criteria are explained by Petersen and Plenborg (2012). They note that when going from one moment to the next, little consideration is paid to uncompleted transactions, which is a challenge for growing businesses and businesses with long-term transactions (e.g., Shipyards, Software implementation). Cash balances can be diverted by deferring purchases, failing to pay retailers, and so on. They point out the connection between the information quality of performance indicators and transaction time. The potential of a success metric to measure value production (share price return) is shown by a correlation coefficient close to zero.

3.2.2.5 Variance Analysis

The discrepancy (or variation) between real costs and the regular costs allowed for decent performance is generally explained using variance analysis. Management may use variance analysis to better grasp current costs and therefore control potential costs. The disparity between real and budgeted revenue can also be explained using variance analysis (Ben Bouheni et al., 2016).

Standard costing is a cost-control and business-operations management technique. It aims to reduce waste and improve performance quality by establishing criteria or formulating cost estimates. The term "standard" refers to a yardstick or a benchmark. The standard cost is a specified price that dictates how much and good or service can cost under specific conditions.

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It is a method of cost accounting that is used to determine how much good can cost under current conditions. Only after manufacturing begins will the true cost be determined. The predetermined expense is relative to the real cost, and the distinction between the two allows managers to make decisions (Ben Bouheni et al., 2016).

Traditional models, as described by Bourne et al. (2000) as models focused on accounting systems and financial data, were not considered adequate for today's managerial requirements. They have some major flaws, which is why conventional measures dependent on earnings cannot be used as a credible indicator of output assessment in today's world. As a result, new methods to success assessment are needed, taking into account the viewpoints of stakeholders as well as the resources of shareholders (Ben Bouheni et al., 2016).

3.2.3 Modern Methods

Performance assessment has long been recognized as having the ability to control an organization's actions and, as a result, the effective execution of company strategy (Ben Bouheni et al., 2016).

To relate the approach to the goals of functions, classes of people, and entities, as well as organizational aspects, performance measurement must be planned and applied in conjunction with a company's corporate plan (Ben Bouheni et al., 2016).

One of the biggest challenges to obtaining the desired outcomes from a performance measurement system has been found to be a shortage of compatibility between performance measurement and business policy in classical models (Ben Bouheni et al., 2016).

Indeed, models including the 'Balanced Scorecard' (Kaplan and Norton, 1996) and the Performance Pyramid method (Lynch and Cross, 1991) proposed since the mid-1980s emphasize the correlation between tactic and performance assessment.

Performance can be assessed in a competitive overall quality company by the gains seen by customers as well as the benefits provided to other investors, such as shareholders. Examining an organization's performance is often a critical factor in determining the tactical activities' course. The wealth maximization principle, as well as other non-financial factors such as creativity, consumer loyalty, and employee motivation, are all taken into account in modern

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approaches. The following are a few examples of modern methods: Step TPM process (Zigon, 1999), TPM procedure (Jones and Schilling, 2000), the Cambridge Performance measurement procedure (A. Neely, Jr, and Gregory, 2000), Performance Pyramid System (Lynch and Cross, 1991), the Balanced Scorecard (Kaplan and Norton, 1996; Kaplan, Robert, Kaplan, and Norton, 2001), the Prism of Performance (A. D. Neely, Adams, and Kennerley, 2002). In this section, the focus will be on the EVA, the most commonly used tool for the measurement of a bank's performance (Ben Bouheni et al., 2016).

3.2.3.1 Economic Value Added (EVA)

Because of its soundness and tolerance to "creative accounting," the EVA system created by Stern Stewart & Company is increasingly replacing conventional financial performance measures (Gupta et al., 2011).

Since making GAAP accounting corrections, such as deducting the opportunity cost of equity capital, EVA is an approximation of real economic benefit. EVA calculates the financial volume of value generated or lost in a reporting period by factoring in all capital expenses, including the cost of equity. Gupta et al. (2011) measured EVA as shown below:

$$\text{Economic Value Added (EVA)} = (\text{NOPAT}) - [\text{WACC} \times \text{Capital Employed}]$$

[3.20]

In this case, NOPAT stands for net operating income after taxation. Earnings before taxes (EBIT) minus adjusted taxes (AT) equals NOPAT. EBIT stands for earnings before taxes, and WACC stands for the weighted average cost of capital. It is made up of the following two elements:

$$\text{Cost of Debt} = \text{Borrowing Rate} \times (1 - \text{Marginal Tax Rate}).$$

$$\text{Cost of Equity} = \text{Risk-Free Rate} + [\text{Risk Premium} \times \text{Beta (Capital Asset Pricing Model)}]$$

$$\text{WACC} = [D/V \times \text{Cost of Debt}] + [E/V \times \text{Cost of Equity}]$$

Where:

$$D = \text{Average Debt}$$

$$V = D + [E (\text{Total Value of Firm})]$$

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E = Average Equity (market capitalization)

The risk-free premium is the same as the interest on an administration's long-term debt. The volatility of a share price concerning the market is measured by beta. The additional return investors receive from the equity market over and over the risk-free rate is known as the market risk premium.

Capital employed is calculated by subtracting net assets from non-interest-bearing liabilities at the start of the year. This description ignores the money injected into the company at various points during the year and has a positive effect on the resultant prices. Through the use of average capital working, on the other hand, would correct this bias (Ben Bouheni et al., 2016).

3.2.3.2 CAMELS Model

'CAMELS' is an abbreviation for 6 parameters, (capital adequacy (C), asset quality (A), Management efficiency (M), Earnings (E), Liquidity (L), and Sensitivity to the market risk (S)) to calculate financial performance (Wanke et al., 2016) as it is shown in Table. 2, CAMELS is a stretched method to the CAMEL model which has been used in the USA since 1979 to judge the reliability of banks (Christopoulos et al., 2011; Roman and Şargu, 2013). Later, CAMEL has been protracted and used as a technique to evaluate the soundness and financial performance of banks for the managerial authorities in diverse countries (Roman and Şargu, 2013). The financial softness and soundness were calculated by the International Monetary Fund (IMF) using five main constraints of financial system soundness with the CAMEL system ('Capital adequacy, Asset Quality, Management Quality, Earnings Size, and Liquidity'). However, it has been prolonged to comprise the sixth parameter "S" which mirrors the bank sensitivity to the deviations in the market (Roman and Şargu, 2013). This "S" measures the sensitivity to market threats of foreign exchange, and inflation risk which captures the establishment's risk (Gasbarro et al., 2002; Karim et al., 2018). Presently, the CAMELS system is an assessment tool for bank performance (Roman and Şargu, 2013). According to the report of the IMF (2000), the International monetary fund (IMF) and the World Bank promoted the use of CAMELS as a valued measure for financial system steadiness.

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Table 1: CAMELS Method as Modern Assessment for the Financial Performance

PARAMETER	DEFINITION
<ul style="list-style-type: none"> • CAPITAL ADEQUACY (C) 	<ul style="list-style-type: none"> • Capital Adequacy is a measure of the essential capital to control the risk by the value of bank assets.
<ul style="list-style-type: none"> • ASSET QUALITY (A) 	<ul style="list-style-type: none"> • Asset quality is the unsteadiness of banks' reliability tempted by disturbed bank assets exaggerated by non-performing loans.
<ul style="list-style-type: none"> • MANAGEMENT EFFICIENCY (M) 	<ul style="list-style-type: none"> • Management measures the effectiveness of the corporation to diminish and reduce costs and rise incomes to stop the possibility of banks' failures
<ul style="list-style-type: none"> • EARNINGS (E) 	<ul style="list-style-type: none"> • Earning is a measure of profitability to assess the effect of inside-produced funds on the bank's capital.
<ul style="list-style-type: none"> • LIQUIDITY (L) 	<ul style="list-style-type: none"> • Liquidity is the size and capability of banks to repay short-term obligations.
<ul style="list-style-type: none"> • SENSITIVITY TO MARKET RISK (S) 	<ul style="list-style-type: none"> • Sensitivity to market risk is the measure of how robust the assets and bank liabilities are to deviations in market circumstances such as foreign exchange and inflation risk.

- *Sources: Extracted from literature (Altan et al., 2014; Karim et al., 2018; Munir et al., 2017, 2017; Peltonen et al., 2015; Sahut and Mili, 2011).*

3.3 Surveying the Empirical Literature on Islamic Finance Performance

3.3.1 Review of Literature on the Determinants of Conventional Finance Performance

Empirical and theoretical studies have been paying close attention to the factors that influence conventional banks' profitability and performance. To illustrate the bank's profitability and performance on an entity or cross-country basis, various explanatory variables, methodologies, and data were being used. In conclusion, Most of the literature agreed on the classical financial method and ratios of profitability, that's what Basri (2016) has confirmed.

Haslem (1969) used a cross-sectional analysis of 64 banks' operating ratios to determine the performance of commercial banks in the United States for the years 1963 and 1964. To define the influential variables between the operational ratios, the Wherry-Doolittle technique was used, which was then used to construct linear regression. The author discovered that every estimation equation can only have a limit of 12 operational variables based on the Wherry-

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Doolittle review. The outcome demonstrates the validity of the operational parameters chosen for use in the calculations used to calculate profitability.

Sabi (1996) looked at the success of both international and domestic banks in Hungary from 1992 to 1993 using ratios. The author looked at nine factors, which were divided into three categories: profitability indicators, liquidity and credit risk, and domestic economy engagement. The results of the paper revealed that international banks are more profitable than domestic banks in terms of profitability (ROA, ROE, and OPR ratios). The findings have shown that international banks are less vulnerable to liquidity and credit uncertainties, and they handle long-term customer lending with caution.

Samad and Hassan (2006) used different financial ratios to equate BIMB to eight traditional banks from 1984 to 1997. In comparison to traditional banks, the results indicated that BIMB was more liquid and less volatile. Another important finding of the study is that the shortage of profit sharing and joint venture profit sharing operations in Malaysia during that time period was due to bankers' lack of product awareness, especially in selecting, assessing, and maintaining such ventures.

Demergüç-Kunt and Huizinga (2001) calculated ratios to measure the effect of the financial system on bank profitability in most developed and emerging nations from 1990 to 1997. Bank performance was divided into bank profitability. According to their findings, banks in less mature banking markets have higher profit margins than banks in more developed systems. They say that banks in mature financial markets face tougher competition and operate more efficiently, resulting in lower earnings.

Micco et al. (2004) collected 50,000 findings for 119 countries between 1995 and 2002 for their analysis. To create a link between bank ownership and performance, the authors used correlation and regression based on various financial ratios. Return on Assets (ROA) and Return on Equity (ROE) were two of the ratios used by the researchers to determine profitability (ROE). The findings reveal that while there is no connection between bank ownership and success in developed countries, there is a clear link between developing nations. Furthermore, in developed economies, state-owned banks have a tendency to have smaller net margins and higher overhead costs, as well as non-performing loans.

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Just used the ROA through the linear model, Flamini et al. (2009) examined the profitability of 389 banks in 41 Sub-Saharan African (SSA) countries from 1998 to 2006. They discovered that higher credit risk, larger institutions, product diversification, and private equity all contributed to a higher ROA for banks. Macroeconomic factors were discovered to have an effect on bank performance, with policies encouraging low inflation and stable growth-enhancing credit progression. The findings of the study indicate that banks in the area need greater capital requirements in order to maintain financial stability.

In Kenya, Ongore and Kusa (2013) investigated the impact of bank ownership structure on bank performance. Financial ratios including such return on equity (ROE) and return on assets (ROA) were used as dependent variables by the authors. As independent variables, they used bank-specific parameters such as capital adequacy, liquidity, asset quality, and management efficiency. They used GDP and rate of inflation as external indicators, with ownership status as the moderating aspect. Except for liquidity, internal variables were found to be substantially linked to the performance of Kenyan commercial banks from 2001 to 2010. External considerations and ownership status, on the other hand, seemed to have no impact on the profits

In conclusion, Most of the literature agreed on the classical financial method and ratios of profitability especially focusing on return on equity (ROE) and return on assets (ROA), that's what Basri (2016) has confirmed.

3.3.2 Review of Literature on the Determinants of Islamic Finance Performance

Despite significant progress over the last two decades, empirical evidence on the performance of the Islamic banking industry is still in its adolescence, especially when compared to traditional banking literature. Furthermore, the research on Islamic banks has largely concentrated on theoretical questions, with observational studies relying on descriptive analysis instead of rigorous statistical analysis (El-Gamal and Inanoglu, 2002).

This is steadily evolving, as several recent reports have attempted to analyze the performance of Islamic banking industries around the world using different methodological approaches. This section goes into the most important Islamic banking performance literature.

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In conclusion, Most of the literature agreed on the classical financial method and ratios of profitability, that's what Basri (2016) and Abdel-Razzaq (2018) have confirmed.

Bashir (2001), for example, used different financial ratios and macroeconomic metrics to discover the factors of Islamic bank performance in Middle East nations from 1993 to 1998. The findings suggest that international banks are more profitable than domestic banks due to factors such as a robust macroeconomic climate, capital market structure, taxes, and a higher loan-to-asset ratio.

Ghazali (2008) presented foreign data about the bank-specific and macroeconomic indicators of Islamic Bank profitability in another report. From 2002 to 2007, he used data from 60 Islamic banks in 18 countries around the world. Regression models were used in his research to link bank profitability ratios to different explanatory variables. The profitability of Islamic banks is calculated using this proxy: return on investment (ROA), and return on equity (ROE). As substitutes for bank-specific and macroeconomic conditions, seven variables from the traditional banking literature are used. He discovered that capital intensity and productivity considerations are the most important determinants of Islamic Bank earnings, whereas the latter is negatively associated with profitability. In addition, the author discovered an important positive association between Islamic Bank profitability metrics and economic determinants like GDP growth and inflation. The results showed that the factors that influence the profitability of Islamic banks are close to those that influence the profitability of conventional banks. The similarities of variables indicate that many of the methods and procedures used in conventional banking may be used in an Islamic banking context.

Wasiuzzaman and Tarmizi (2010) looked at the financial results of 16 Malaysian Islamic banks from 2005 to 2008. The profitability ratio is described by the Return on Assets Average (ROAA), and the factors of ROAA were discovered using OLS. The study's empirical findings indicate that liquidity, operating performance, GDP, and inflation are positive factors of banking earnings, while asset quality and capitalization have the opposite impact.

During the period 2006-2010, Masood and Ashraf (2012) looked into the bank-specific and macroeconomic profitability determinants of Islamic banks in 12 different countries. A balanced panel data regression model was used. They discovered that the scale of an Islamic bank's assets has a significant and positive effect on its profitability. Banks with bigger reserves

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have greater profitability, according to the positive impact survey. Return on assets (ROA) and return on equity (ROE) have a strong and meaningful association with capital adequacy, lending to assets, and wealth management performance, both of which contribute significantly to bank profitability. The loan loss provision of Islamic banks is smaller than that of conventional banks. Since credit volume and asset quality influence banks' policy issues, non-performing loans have a negative effect on their profitability. The gearing ratio has a positive effect on return on assets and a negative effect on return on equity, a profitability metric. According to their findings, Islamic banks are supposed to take on more pressure than conventional banks. Islamic banks use savings as a form of collateral and share risk with depositors in order to attain greater profitability. True GDP has a negative effect on bank asset profitability while having a positive effect on profitability. Profits for banks. Also, Inflation does not have a direct impact on bank profitability. Liquidity, reserves, and operational performance have little to no influence on a bank's profitability.

Applying for Generalized Least Square (GLS) and panel data review, Ariffin and Tafri (2014) looked at the effect of financial risks on the profitability of 65 global Islamic banks from 2004 to 2011. Credit risk, as well as the relationship between credit risk and rate of interest risk, has a substantial negative effect on return on assets (ROA), which is a measure for Islamic Bank profitability, according to authors. Other financial threats, including such liquidity danger, were found to have a negligible impact on bank profitability.

Between 2009 and 2011, Islam et al. (2014) looked at the viability of 15 second-generation Islamic and traditional banks in Bangladesh. The authors measured profitability using ROA and ROE, as in earlier studies. The findings revealed that traditional banks outperformed Islamic banks in the region, leading to the conclusion that bank corporate policies and modes of activity were amongst the external influences that influence profitability.

Applying a linear multiple regression study, Rahaman and Akhter (2015) investigated the bank-specific factors that influence the profitability of Islamic banks in Bangladesh from 2009 to 2013. According to him, bank size and deposit have a significantly adverse effect on the return on assets (ROA), which would be a metric for Islamic Bank profitability, while equity has a significant positive influence. Loan and cost management, on the other hand, were found to have no effect on the profitability of banks.

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Using dynamic GMM and QR, Chowdhury et al. (2016) investigated the socioeconomic growth and its influence on the success of 55 Islamic banks in 24 countries. They discovered that Return on Assets (ROA) is statistically unfavorable to CIR and substantially favorable to bank-specific variables such as credit risk. It's also been proposed that the risk-return partnership is heterogeneous or distinct across quantiles. The study's findings suggest that socioeconomic factors, especially political stability and investment independence, have a positive and significant impact on the performance of Islamic banks.

In conclusion, Most of the literature agreed on the classical financial method and ratios of profitability especially focusing on return on equity (ROE) and return on assets (ROA), that's what (Basri, 2016) has confirmed.

3.4 Surveying the Literature on the Link between Islamic Finance Performance and Economic Growth

3.4.1 The Theoretical Background of the Nexus between Islamic Finance Performance and Economic Growth

Endogenous growth theory was well-known in the 1980s by Romer, the endogenous growth model means that the lasting growth pace is well-defined by factors inside the model and not by the exogenous level of technological advancement as in the neoclassical growth model (D. Romer, 2011). The endogenous growth model supports technical evolution emerging from the investment grade and the human capital stock size (Jhingan, 2011). As well, the finance development boosts economic growth as an exogenous factor inside the model of endogenous growth (M. K. Hassan et al., 2011; King and Levine, 1993a; Levine and Zervos, 1998; Rajan and Zingales, 1996).

According to the model of endogenous growth, when investments rise as a result of the financial sector, economic growth rises (Petkovski and Kjosevski, 2014). Moreover, Bourke (1989) has established that banks with higher profitability keep on powerfully capitalized and have fast access to funds. As a result, the rise in capital stock in the banking sector due to banking and finance is promoting economic growth according to the theory of endogenous growth. According to Tabash and Anagreh (2017), Islamic finance endorsed investments and economic

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growth of countries in the Middle East. Besides, Kassim (2016), Boukhatem and Moussa (2018), and Ledhem and Mekidiche (2020) confirmed that economic growth is endorsed by the factor of Islamic finance which has been adopted as an exogenous factor within the model of endogenous growth.

In conclusion, the endogenous growth framework is determined exogenously by Islamic finance due to its significant impact on increasing investments and capital stock. This relationship between Islamic finance and economic growth is an extension of the “Supply-leading hypothesis” of Schumpeter's understandings (Joseph A. Schumpeter, 1934) and well-matched with the financial repression theory of McKinnon (1973) and Shaw (1973), wherein the financial development leads to economic growth. That's why this study examined the impact of Islamic finance performance on economic growth in Southeast Asia within the path of the “Supply-leading hypothesis” of Schumpeter (1934) which is well-matched to the endogenous growth concept.

3.4.2 Surveying the Literature on the Nexus between Islamic Finance Performance and Economic Growth

Pure studies on the financial performance and economic growth link are limited, most of them have settled on that there is a link between the financial performance of the banking sector and economic growth, nevertheless, all of them were focusing only on the conventional banking sector. Therefore, this research is one of the limited studies that investigate the link between Islamic finance performance and economic growth and it is the first that examined the Islamic finance performance with economic growth in Southeast Asia based on the concept of Schumpeter (1934) under the “Supply-leading hypothesis”. Thus, it is believed that this study will add a significant contribution to the literature.

In a study, Ledhem and Mekidiche (2020) explored the link between economic growth and Islamic finance performance using panel GMM based on international evidence from a sample of five countries. Their empirical investigation applied CAMELS factors to predict Islamic banking performance with GDP as a proxy for economic growth. Their results designated that the Islamic finance performance endorses economic growth only over the factor of profitability which is the return on equity (ROE).

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Rabaa and Younes (2016) measured the influence of the Islamic finance performance on the economic growth through Islamic banks of Abu Dhabi, Saudi Arabia, Bahrain, Great Britain, and Tunisia over the period range from 2001 to 2012. They employed panel fixed effect and GLS regression with variables of GDP (gross domestic product), return on assets (ROA), return on equity (ROE), industrial production index (IPI), and consumer price index (CPI). They determined that Islamic banking performance influences positively economic growth.

Besides, Tabash (2019) found that there is a positive significant relationship between Islamic finance performance and economic growth in the UAE, through Islamic banks, he used pooled ordinary least square with the GDP, return on assets (ROA), return on equity (ROE) and the net revenue margin (NRM) on a sample of all full-sized active Islamic banks in the UAE from 2000 to 2014.

Similarly, Alkhazaleh (2017) confirmed the link between the banking performance of commercial banks in Jordan and economic growth. He used (ROA), credit facilities, and deposits as independent variables, GDP as a dependent factor. He employed the pooled regression examination to test the link between variables. He demonstrated that commercial banks' performance promotes economic growth in Jordan.

In another empirical study assessing how the performance of the banking sector influences Nigeria's economic growth, Adekola (2016) showed the existence of a straight correlation between banks' profitability and economic growth in Nigeria. He used a pooled regression technique for all banks occupied in Nigeria under the period 2005–2014 using GDP, return on equity (ROE), and return on employed capital (ROC).

In a similar study, Yazdani (2011) explored the effect of banking performance on economic growth in Iran. He adopted GDP, ROA, cash, and investments as research variables. The results showed that bank performance promotes economic growth in Iran.

Concerning studies of the Islamic finance performance determinants measured by the profitability, Khan et al. (2014) examined factors that affect Islamic banking profitability which was employed as a financial performance measure in Pakistan. They used five Islamic banks of Pakistan for a period ranging from 2007–2014. They used capital adequacy ratio, gearing ratio, operational efficiency, asset management, deposit ratio, GDP, and (CPI) as independent

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variables, return on equity (ROE), return on assets (ROA), earnings per share (EPS) as dependent variables. Their results exposed that Islamic banks' profitability was affected by asset management, deposit ratio, NPL ratio, and consumer price index (CPI).

In another special case of Indonesia, Setyawati et al. (2017) examined both internal and external factors affecting Islamic finance performance, they applied panel multiple regression on a sample of all the Islamic banks in Indonesia for a period ranging from 2004-2012, they adopted internal determinants (non-performing finance (NPF), capital strength (CS), external determinants (GDP, Inflation, dummy variable of the financial crisis) as independent variables and Return on Assets (ROA) as a dependent variable. Their findings revealed that the performance of Islamic banks has been greatly affected by non-performing finance and inflation, and has been much better since the crisis.

Moreover, Alharbi (2017) explored the determinants of the of Islamic banks' financial performance under profitability on a sample of 110 Islamic banks in 25 members in the Organization of Islamic Cooperation's (OIC) from 1992 to 2008 by using panel fixed-effects regression, he used Islamic banks profitability as an independent variable, return on assets average (ROAA) and net profit revenue average over earning assets as the dependent variable, and all of Internal Variables (operating income (OOI), Capital ratio), External Variables (GDP per capita, GDP and oil) and regulation variables of bank taxation and financial structure (Market capitalization to GDP) as independent variables. His results specified that bank size, equity, operating income, and GDP per capita promotes Islamic banks.

Similarly, Zarrouk et al. (2016) investigated if Islamic banks profitability is promoted by the matching factors of conventional banks in the MENA, they employed panel system GMM on a simple of 51 Islamic banks in Jordan, Egypt, UAE, Turkey, Yemen, Saudi Arabia, Kuwait, Bahrain, Sudan, and Qatar from 1994 to 2012, they used risk and solvency, efficiency ratios, asset quality, liquidity, macroeconomic factors (Gross domestic product, consumer price index, and inflation) as exogenous factors and profitability ratios (ROA, ROE, NPM) as dependent elements, they determined that profitability was impacted by the asset quality and capitalization.

As well, Olson and Zoubi (2017) investigated whether the global financial crisis (GFC) caused the convergence of the financial performance of Islamic and commercial banks in the MENASA region from 1996 to 2014, they applied a dynamic panel model using Performance

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ratio which is the return on assets (ROA) as the dependent variable, Return on equity (ROE), and financial variables as independent factors, they stated that Islamic banks weathered the of the global financial crisis outbreak well better than conventional banks in 2008.

Further, in the case of the conventional financial system, Djalilov and Piesse (2016) have investigated bank financial performance with profitability determinants in the early transition countries of Central and Eastern Europe, they applied GMM system, random-effects regression on a sample of 275 banks from 16 transition economies, eight are from the ex-Soviet Union, other countries are from the CEE and the States of Baltic covering the period of 2000-2013, they used credit risk, capital, bank size, GDP growth, inflation as independent variables, return on assets (ROA) as the dependent variable, they showed the existence of credit risk effect on bank profitability in the early transition countries.

Concerning studies on the nexus between Islamic finance and economic growth, Kassim (2016) examined the effect of Islamic finance on important macroeconomic indicators of economic growth by using a sample of all Islamic banks in Malaysia from 1998 to 2013 by applying the ARDL method. Kassim (2016) adopted the industrial production index (IPI) as a proxy for economic growth and total financing by Islamic banks, gross fixed capital formation, and inflation as independent variables. Their results demonstrated that investments through the Islamic banking system promote economic growth. Besides, Boukhatem and Moussa (2018) offered empirical evidence that the implementation of Islamic finance encouraged economic growth in 13 selected MENA countries, Boukhatem and Moussa, (2018) applied panel cointegration and FMOLS regression on a sample of Islamic banks from 2000 to 2014, they employed GDP per capita growth as dependent variable and Loans by Islamic banks/GDP, Inflation, trade openness as independent variables.

Many studies investigated the link between Islamic finance and economic growth, however, to the best of the authors' knowledge, studies on the link between Islamic finance and economic growth in Southeast Asia are limited. Only Lebdaoui and Wild (2016) investigated the link between Islamic banking presence and economic growth in Southeast Asia. Yet, no pure study has investigated the link between Islamic finance and economic growth in Southeast Asia within the endogenous growth model. Thus, to fill this gap in the literature and to enrich the

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literature, this study is investigating the effect of Islamic finance on economic growth in Southeast Asia within a new theoretical context of the endogenous growth model.

Regarding notable studies on the link between Islamic finance and economic growth in the Southeast Asia region, Lebdaoui and Wild (2016) investigated the relationship between economic growth and Islamic banking presence in Southeast Asia. They applied panel 2SLS and panel ARDL regression on quarterly data from 2000 to 2012, their empirical model controlled the gross domestic product per capita as a dependent for economic growth, and the ratio of Islamic to conventional financial assets as independent variables. Their findings showed that there is an existence of a long-run significant role in powering the contribution of Islamic banking share in the financial sector on economic growth.

In the same vein, M. Anwar et al. (2020) investigated lately whether Islamic finance is enhancing economic growth in Indonesia in both the short and long term spanning from 2019Q1 to 2019Q4. They employed variance decompositions, VECM, ARDL approach, and impulse response functions to examine the relationship between Islamic banking and economic growth. They found a significant link between Islamic finance and economic growth in both the short-run and long-term in Indonesia.

In another notable study in Malaysia, Kassim (2016) investigated the impact of Islamic finance on economic growth performance using a sample of all Islamic banks in Malaysia covering a quarterly period from 1998 to 2013 by applying the ARDL regression. Kassim (2016) employed the industrial production index (IPI) as a proxy for economic growth and total deposit of the Islamic banks, total financing by Islamic banks, gross fixed capital formation, general government expenditure, and inflation as independent variables, Kassim (2016) revealed that investment projects from Islamic finance system contribute to economic growth. As well, this positive contribution of Islamic finance to the economic growth of Malaysia was reliable with the findings of Abd. Majid and H. Kassim (2015).

In the same path of investigating the link between Islamic finance and economic growth globally, Atici (2018) explored the causality relationship between Islamic finance and economic growth in Turkey spanning from 2008Q1 to 2018Q1 using the VECM approach. Atici (2018) found that Islamic finance is affecting positively economic growth through the participation of banks in Turkey.

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One of the recent studies that investigated the impact of Islamic finance on economic growth, the study of Boukhatem and Moussa (2018), they presented clear empirical evidence that Islamic finance has enhanced economic growth in a 13 selected MENA region, they used FMOLS regression and panel cointegration on a sample of Islamic banks in the MENA region spanning from 2000-2014, they employed GDP per capita growth as dependent variable and loans by Islamic banks/GDP, trade openness, inflation, regulatory quality, and domestic credits to private sector/GDP as independent variables.

Similarly, Yüksel and Canöz (2017) explored the effect of Islamic finance on economic growth in Turkey, they used Granger causality on quarterly data between 2005 and 2016, they employed the gross domestic product (GDP) as a proxy variable of economic growth and Islamic finance through the loans as the main factor for Islamic finance efficiency, their results showed that Islamic finance is not enough to endorse economic growth since the Islamic finance has a low share in the Turkish banking sector.

Consistently, Kalaysi and Tekin (2016) examined the interactions between Islamic finance development and economic growth in Turkey. They used Granger causality and Johansen co-integration test spanning from 2002-2014. Their results exposed that Islamic finance is boosting economic growth in Turkey.

Compatibly, Imam and Kpodar (2016) investigated whether Islamic banking development is boosting economic growth. They used fixed-effect regression and panel system-GMM regression on 52 countries spanning from 1990 to 2010. They found that Islamic banking is positively associated with economic growth, even after directing numerous determinants of growth. Also, they found when Islamic banking is growing, countries experience earlier economic growth.

Correspondingly, Gudarzi Farahani and Dastan (2013) examined the impact of Islamic finance on economic growth using global evidence. They employed the panel cointegration approach by using the gross domestic product (GDP) as a dependent variable of economic growth and Islamic finance as an independent variable. Their results exposed that Islamic finance is enhancing economic growth in the long run.

Consistently, Mohd. Yusof and Bahlous (2013) assessed the impact of Islamic finance on economic growth in countries that were the first founders of Islamic banks across the Gulf

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Cooperation Council (GCC) countries, Malaysia, and Indonesia. They employed variance decompositions panel cointegration analysis (VDCs), and impulse response functions (IRF) to examine the Islamic finance and economic growth connection. They found that Islamic finance enhanced economic growth for Malaysia, Indonesia, and GCC countries. However, Islamic finance contributed more to economic growth in both the selected East Asia (EA) countries compared to the countries of the Gulf Cooperation Council (GCC).

Also, Abduh and Azmi Omar (2012) examined the effect of Islamic finance on economic growth in Indonesia. They applied the ARDL cointegration method by adopting the gross domestic product (GDP) as a dependent variable of economic growth and Islamic finance as an independent variable. Their results disclosed that Islamic finance is enhancing economic growth.

Similarly, Furqani and Mulyany (2009) studied the interactions between Islamic finance and economic growth in Malaysia, they applied the cointegration regression and vector error model to examine the relationship between Islamic finance and economic growth, they used gross domestic product, Islamic bank financing, trade, and gross fixed domestic formation as experimental variables, they determined an existing connection between Islamic finance and economic growth.

According to the previous studies that examined the link between Islamic finance and economic growth, most of them approved the existence of a positive link between Islamic finance and economic growth internationally. However, to the best of the authors' knowledge, there is a lack of pure investigation surrounding the link between Islamic finance and economic growth in Southeast Asia. For this reason, this study is enriching the literature for a better understanding of whether Islamic finance is promoting economic growth in Southeast Asia based on a new theoretical context of the endogenous growth model. Thus, it is believed that this research will make a significant contribution to the literature.

According to the literature, pure studies on the link between financial performance and economic growth link are limited, most of them have settled on that there is a link between the financial performance of the banking sector and economic growth, nevertheless, all of them were focusing only on the conventional banking sector. Therefore, this research is one of the limited studies that investigate the link between Islamic finance performance and economic

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growth and it is the first that examined the Islamic finance performance with economic growth in Southeast Asia which contains remarkable Islamic finance countries (Malaysia, Indonesia, and Brunei Darussalam), in which this study is framed based on the concept of Schumpeter (1934) under the “Supply-leading hypothesis”. Thus, by surveying the literature, this study is adopting the most appropriate empirical model and the most suitable variables for the Islamic finance performance and economic growth determinants based on the profitability ratios. Therefore, it is believed that the results were more operative and precise than other studies.

3.5 Summary

This chapter explored and surveyed the link between Islamic finance performance and economic growth. As well, for robust analytics, this study explored financial performance measurement tools of Islamic and conventional banks by providing conceptual definitions, classical methods, and modern methods. In addition, this study surveyed the empirical literature on Islamic finance performance across the financial performance of Islamic banks) and reviewed the literature on the determinants of conventional finance performance, and also, it reviewed the literature on the determinants of Islamic finance performance. Finally, for the best conclusions based on the similarities between previous studies surrounding the subject, this study surveyed the literature surrounding the link between Islamic finance performance and economic growth from a theoretical side and empirical explorations to derive the most suitable factors of Islamic finance performance and economic growth. In the next chapter, this study addressed deep analysis on the developments and trends of Islamic finance performance alongside economic growth in the Southeast of Asia.

Part II: Quantitative Analysis

This part concludes quantitative analysis over three chapters as the following:

- **Chapter 4:** Developments and Trends of Islamic Finance Performance Alongside Economic Growth in the Southeast of Asia.
- **Chapter 5:** Research Methodology and Modelling.
- **Chapter 6:** Conclusions and Recommendations.

**Chapter 4: Developments and Trends
of Islamic Finance Performance
Alongside Economic Growth in the
Southeast of Asia**

Part II: Quantitative Analysis**Chapter 4: Developments and Trends of Islamic Finance Performance
Alongside Economic Growth in the Southeast of Asia****4.1 Introduction**

Based on the current study of DinarStandard (2020), the Islamic finance industry in Southeast Asia is expanding rapidly, especially in Malaysia, Indonesia, and Brunei Darussalam. Malaysia continues to lead the overall Global Islamic Economy Indicator (GIEI) ratings for the eighth year, with a Global Islamic Economy Indicator (GIEI) score of 290.2 in 2020, up from 111 in 2019, indicating that Malaysia has made significant progress in the Islamic finance industry and remains the leading leader country in the international Islamic finance (DinarStandard, 2020a). Following in the footsteps of Malaysia, Indonesia continues to rise as one of the best countries in Islamic finance results, scoring highly on the basis of Islamic finance awareness, the country is ranked fourth, with a Global Islamic Economy Indicator (GIEI) score of 91.2 (DinarStandard, 2020a). Brunei Darussalam was ranked tenth with a Global Islamic Economy Indicator (GIEI) score of 40, following in the footsteps of Malaysia and Indonesia, which have developed Islamic finance (DinarStandard, 2020b).

The choice of Southeast Asia as the subject of this study is reasonable. Some Southeast Asian countries, such as Malaysia and Indonesia, as well as Brunei Darussalam, are currently attempting to establish themselves as powerful global Islamic finance hubs. Others, like Singapore and Hong Kong, are working hard to incorporate Islamic finance products into their diverse financial investments (REDmoney, 2020). This study aims to determine if Islamic finance performance contributes to economic growth. The population is different, and unlike the MENA area (as well known as the Middle East), the population is multiracial and multireligious, with Islam not always being the dominant religion. Despite this backdrop, Islamic finance is gaining popularity among non-Muslims and Muslims alike, owing to the competitiveness of the offered products. Remotely similar to what occurred in the banking and financial industries, the proposed idea in this chapter would be that Islamic finance performance

and development can be used to stimulate economic growth in three Southeast Asian countries: Malaysia, Indonesia, and Brunei Darussalam (DinarStandard, 2020a) (See *Appendix I*).

4.2 Economic Structure, and Islamic Finance Performance in the Southeast of Asia

The growth of Islamic finance around the world has been fast. The estimated global Islamic financial industry assets increased by 8% from USD 1.573 billion during the first quarter of 2017 to USD 1.699 billion in the first quarter of 2018. This is according to statistics from the Islamic Financial Services Board (IFSB) (L. N. Rani, Sukmaningrum, and Mohd, 2020). Islamic banking is well-developed in Islamic nations, including Indonesia, Malaysia, and Brunei Darussalam, which make up the Association of Southeast Asian Nations (ASEAN). In Indonesia, there were 14 public Sharia Banks as of 2021 (Otoritas Jasa Keuangan (OJK), 2021), 16 in Malaysia (Bank Negara Malaysia, 2021), and 2 in Brunei Darussalam (Islamic Financial Services Board (IFSB), 2021).

Table 2: Selected Countries profiles in Southeast Asia

<i>Country</i>	<i>Income Category</i>	<i>Population</i>	<i>Covered City</i>	<i>GDP (2019Q4) USD Million</i>	<i>Religion</i>
<i>Malaysia</i> (.)	Upper middle income	31.528.585	Kuala Lumpur	96719.12	Islam (official): 61.3% Buddhism: 19.8% Christianity: 9.2% Hinduism: 6.3% Chinese folk: 1.3%
	(World Bank Group, 2020c)	(World Bank Group, 2020c)	(World Bank Group, 2020c)	(Bank Negara Malaysia, 2020)	(Malaysia Department of Statistics, 2017)
<i>Indonesia</i> (.)	Lower middle income	267.663.435	Jakarta, Surabaya	289104.59	Islam: 86.70% Christianity: 10.72% Hinduism: 1.74% Other: <1%
	(World Bank	(World Bank Group, 2020b)	(World Bank	(IMF, 2020)	(Ministry of Religious Affairs of

Brunei Darussalam (Also Known: Brunei) (.)	Group, 2020b)		Group, 2020b)		the Republic of Indonesia, 2020)
	Lower middle income	428.962	Bandar Seri Begawan	3567.59	Islam (official): 80.85% Christianity: 7.07 % Buddhist: 7.07% Other: 5%
	(World Bank Group, 2020a)	(World Bank Group, 2020a)	(World Bank Group, 2020a)	(Brunei Ministry of Finance and Economy, 2020)	(Department of Economic Planning and Statistics/ Brunei Ministry of Finance and Economy, 2020)

- *Source:* Organized based on official statistics and reports.
- *Notes:* (.) refers to the sources.

4.2.1 Malaysia

4.2.1.1 Economic structure and Islamic finance location:

Malaysia is a hybrid between the developed and emerging worlds. Malaysia has developed itself as one of the wealthier nations in Southeast Asia, thanks to its modest oil resources and investments in high-tech sectors. The British ruled the Malay peninsula before WWII (World War 2), first as the Federated Malay States, then as the Unfederated Malay States and the Crown colonies of the Straits Settlements. The three regions were federated after WWII to create the Malayan Union, a single British colony, but widespread resistance from the multiracial community resulted in the formation of the Federation of Malaya. Malaya declared independence in 1957, and Malaysia was created on September 16, 1963, when the governments of Malaya, Singapore, and Sabah, and Sarawak in East Malaysia merged (as well known as North Borneo). On August 9, 1965, Singapore withdrew from the union (Bin, 2013).

Malaysia was formed from the merger of several states in Peninsular Malay, including Singapore, Sabah, and Sarawak. Singapore finally gained independence from Malaysia. Malaysia's prosperous economy includes large exports of petroleum, natural resources, engineering, services, and hospitality, with a community of over 27.5 million. Malaysia aims to become a high-income country by 2020 by drawing investments in Islamic finance, bioengineering, high-tech manufacturing, and service industries (Bin, 2013).

Even so, oil and gas exports, oil palm, electronics, and rubber oil continue to drive the economy, with Petronas, the state oil company, accounting for 40% of government income (Bin, 2013).

- ***Size and Nature:***

Malaysia's Islamic finance sector has been around for more than 30 years, according to the Central Bank of Malaysia. Following the enactment of the Financial Services Act in 1983, the country's first Islamic bank was established, and as Islamic finance became more liberalized, more Islamic banks were instituted in Malaysia (Bin, 2013). Malaysia has a \$444 billion initiative to construct infrastructure and power stations over the next ten years to be a major center for Islamic finance (Bin, 2013). To conform with the religion's prohibition on interest, securities must pay asset returns (Bin, 2013).

Besides that, according to Bloomberg reports, Malaysian firms have indeed sold 15 billion ringgit (\$4.7 billion) in Islamic securities "Sukuk" (bonds) in 2012, an increase of 8% over the same time in 2011 (Bin, 2013).

- ***Strong domestic market:***

Malaysia's 30-year long history of developing a stable domestic Islamic finance sector provides the country with a solid financial base - a financial backbone of sustainability that contributes to the finance industry's richness and diversity (Bin, 2013).

Malaysia's Islamic banking reserves have now crossed USD 65.6 billion, with such an average annual growth of 18-20%. (Bin, 2013). Malaysia is now one of the most well-established Islamic financial centers in the country. Malaysia had incorporated and pioneered the growth of modern Islamic finance well before it became a mainstream and viable alternative to conventional financing (Bin, 2013).

- ***Effective legal and regulatory framework:***

The progress of Islamic finance in Malaysia has been aided by Bank Negara's performance. Malaysia has established Islamic finance in a systematic and organized way. While there is presently no international final authority for the Islamic finance sector, Malaysia

has been working on the standardization of Shariah law for some period (Ali and Kamal, 2009; Bin, 2013).

The Malaysian Central Bank's Shariah Advisory Council is Malaysia's ultimate authority on the Shariah committee relating to Islamic finance, and it serves as a frame of reference for courts and arbitrators in cases involving Shariah problems in Islamic banking situations. Arbitrators must abide by the Council's resolutions, which must be "taken into account" by the judge (Ali and Kamal, 2009; Bin, 2013).

The Islamic Financial Act of 1983 is the legislative basis for the development of the Malaysian Islamic Banking Act (IBA). In addition to traditional banks and financial institutions, Bank Negara Malaysia (BNM: Malaysian central bank) has been tasked with the task of controlling Islamic banks in Malaysia. This Act, which mandates Islamic banks in Malaysia to create a Shariah Advisory Body to advise on Shariah matters, helps to sustain the high standard of the Islamic financial industry. Such provisions must also be used in the Memorandum of Association of Islamic financial institutions (Bin, 2013).

Conventional banks, which are regulated by the Banking and Financial Institutions Act (BAFIA), have been permitted to partake in Islamic financial systems and are subject to the same supervision and monitoring. The conventional banks under the governance and supervision of the Banking and Financial Institutions Act (BAFIA) have been authorized to possess out Islamic banking business in addition to their existing licensed business, thanks to a 1996 amendment to the Act (M. F. Khan, 2007; Bin, 2013).

These traditional banks must follow any written instructions provided by the BAFIA from time - to - time relating to the Islamic finance industry. The BNM issues the guidelines after consulting with its Central Shariah Advisory Council. Any conventional bank approved under the BAFIA that conducts Islamic banking system in addition to its conventional licensed practice may ask guidance from the BNM's Central Shariah Advisory Council from time to time to make sure that its Islamic operational activities do not include any elements that are not Shariah-compliant. Since Islamic banks are regulated by a different IBA, which allows Islamic banks to have their own Shariah advisory committee to counsel them on their financial activities, the BAFIA's rules relating to the Islamic banking system do not extend to them (Bin, 2013; M. F. Khan, 2007).

While Malaysia's legal and regulatory system for Islamic finance is very robust, there is still much room for development. Venardos (2012) observed the following three concerns notwithstanding Malaysia's attempts to improve its legal and regulatory framework (Bin, 2013):

1. Islamic finance legislation (IBA and a portion of BAFIA) is very short and regulatory in design, with no specific rule.

2. The question of dual taxation as a refund from the taxable sum only affects individual Muslims who paid zakat; no such rebate is granted to a zakat-paying 'Islamic' business or organization.

3. It is unclear to what degree the terms of the IBA and BAFIA supersede other legal standards.

- ***A wide pool of expertise, abilities, and workforce:***

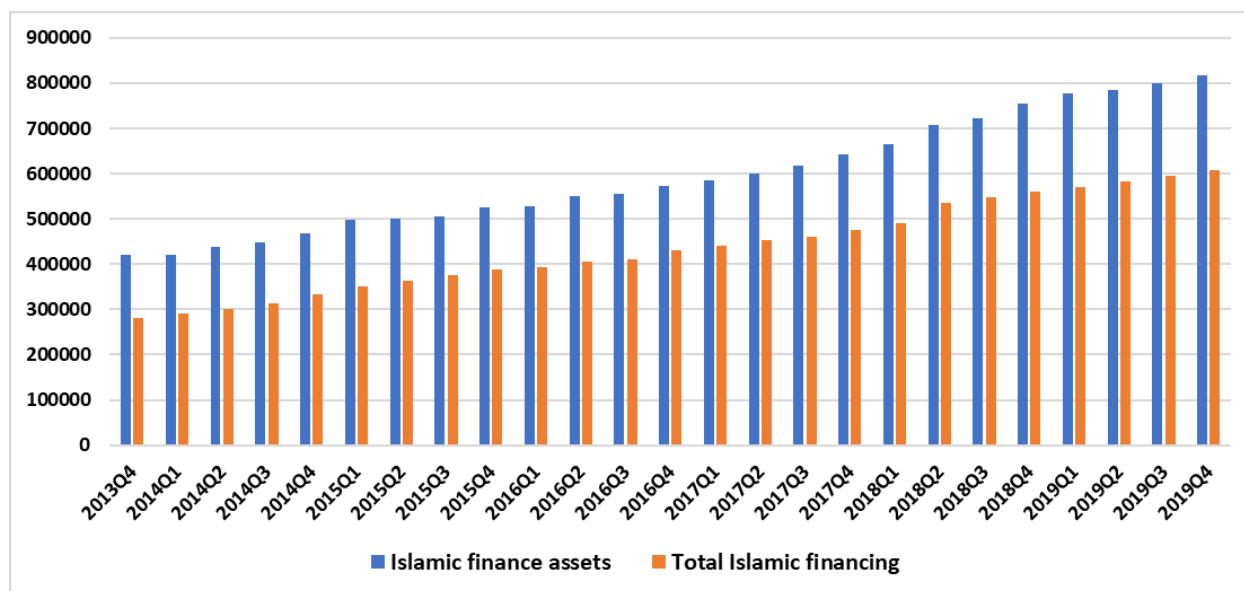
Malaysia's Islamic finance sector is currently expanding rapidly, owing to a favorable climate that is known for constant product growth and enhancement, a diverse number of international financial institutions, a wide range of creative Islamic financial products, a well-developed financial system, and the adoption of global legal and regulatory quality standards (Bin, 2013).

Besides that, Malaysia has placed a heavy focus on human resource growth in tandem with the growth of the Islamic financial sector in order to ensure that Islamic finance expertise is accessible and available (Bin, 2013).

4.2.1.2 *Islamic finance development:*

Malaysia is witnessing a notable growth of Islamic finance, which has started to show promising signs (Figure 4). Malaysia has the world's second-largest number of Islamic banks in terms of net deposits (DinarStandard, 2020a). According to Bank Negara Malaysia's (2021) survey, Malaysia has 16 fully-fledged Islamic banks. Islamic financial reserves accounted for about 23.27 percent of the world's overall banking sector at US\$125.5 billion at the end of 2016 (22.36 percent in 2015), according to the latest figures from BNM, and the country plans to almost double it to 40 percent by 2020 (REDmoney, 2016).

Figure 4: Total Islamic financing growth and Islamic finance development through total assets in Malaysia (RM Million)



Sources: Prepared chart by authors based on the extracted data from the Islamic Financial Services Board (IFSB) (2020).

In the last decade, Malaysia's Islamic finance industry has expanded dramatically. Growth in deposits and savings in Shariah-compliant banking showed positive results. In 2017, Malaysia accounted for 11.7 percent of the total. According to a survey by Bank Negara Malaysia, Malaysian Islamic finance is now able to master 34.9 percent of the banking industry in Malaysia, up from 5.3 percent in 2000 (L. N. Rani, Sukmaningrum, and Mohd, 2020).

Malaysia has one of the most advanced and robust Islamic finance industry regulatory frameworks in the globe, according to REDmoney's (2016)'s annual report, the country keeps improving its legal system. Several similar rules, including the Tawarruq and Kafalah reporting templates, the capital adequacy system, and retirement investments, were amended by Bank Negara Malaysia (BNM) in 2016. This year, the Securities Commission Malaysia (SC) is set to announce new Islamic wealth management guidance. The Islamic Financial Services Act (IFSA) 2013 regulates the Islamic financial sector.

4.2.2 Indonesia*4.2.2.1 Economic structure and Islamic finance location:*

Indonesia is a peculiar situation when it comes to Islamic finance. While Indonesia has the world's largest Muslim community, there are reasons to expect that Islamic finance will ultimately enter the Indonesian economy. The government's recent funding, along with the green light, can not be overlooked. During the financial crisis in 2009, Indonesian Presidency called on the Banking sector to take a leadership role in the global economy. Through the trust that the Islamic finance industry had not been as badly affected as their western counterparts because Islamic banks did not invest in risky assets (Bin, 2013).

- *Size and nature:*

According to Bin (2013), Indonesia's Islamic finance assets increased by 47 percent in 2010 to Rp 100.26 trillion (US\$11.14 billion), and another 45 percent rise is expected this year. Despite having 12 times the number of Muslims, Indonesian Islamic banks' reserves equal Rp 147.9 trillion (\$15.7 billion), behind Malaysia's 355 billion Ringgit (\$114 billion), according to central bank reports. Over the last five years, Shariah (Islamic) lending in Indonesia has risen by an average of 38 percent per year, opposed to 21 percent in Malaysia (Bin, 2013).

Indonesia has one of the largest domestic Islamic finance industries in the world. Mostly during third-world Islamic Banking Conference Asia, Bank Indonesia's Executive Director of Islamic Banking reported that Islamic finance has grown by about 50% over the last two years starting from 2010, and the number of full-fledged Islamic banks has grown from three to eleven over the last five or six years starting in 2005 (Bin, 2013). Currently, based on Islamic Financial Services Board (IFSB) (2021) Indonesia contains 14 full-fledged Islamic banks.

- *Upgraded legal and regulatory framework:*

Indonesia's legal and administrative system is being updated. Indonesia reported in 2012 that Shariah-compliant banks would be able to protect against exchange rate fluctuations to stimulate growth in Islamic financial assets and close the seven-fold gap with Malaysia's sector. The instruments, which have been accessible in Malaysia since 2006, have been authorized by

Bank Indonesia, the National Shariah Board, and the Indonesia Institute of Accountants (Bin, 2013).

- ***Strong Institutional support:***

The assistance of the Islamic finance industry in Indonesia are Bank Sentral Republik Indonesia which constructs and issues Islamic regulations and laws), Dewan Syariah Nasional which issues guidance (Fatwa) as fundamental principles for suggested Islamic laws and regulations to be published by Bank Indonesia), and Dewan Pengawas Syariah which supervises the enforcement of Islamic laws and regulations. Indonesia's central bank, Bank Sentral Republik Indonesia, governs the country's banking and financial sectors as well as the issuing of Indonesian currency (Bin, 2013).

The Administration's Department of Keuangan Republik Indonesia is in charge of handling the country's finances. Badan Arbitrase Syariah Nasional was founded by Majelis Ulama Indonesia (Indonesian Islamic Scholar Assembly) (Bin, 2013). While the Indonesian capital markets are controlled by the Badan Pengawas Pasar Modal – Bapepam (Capital Market Supervisory Agency) (Bin, 2013).

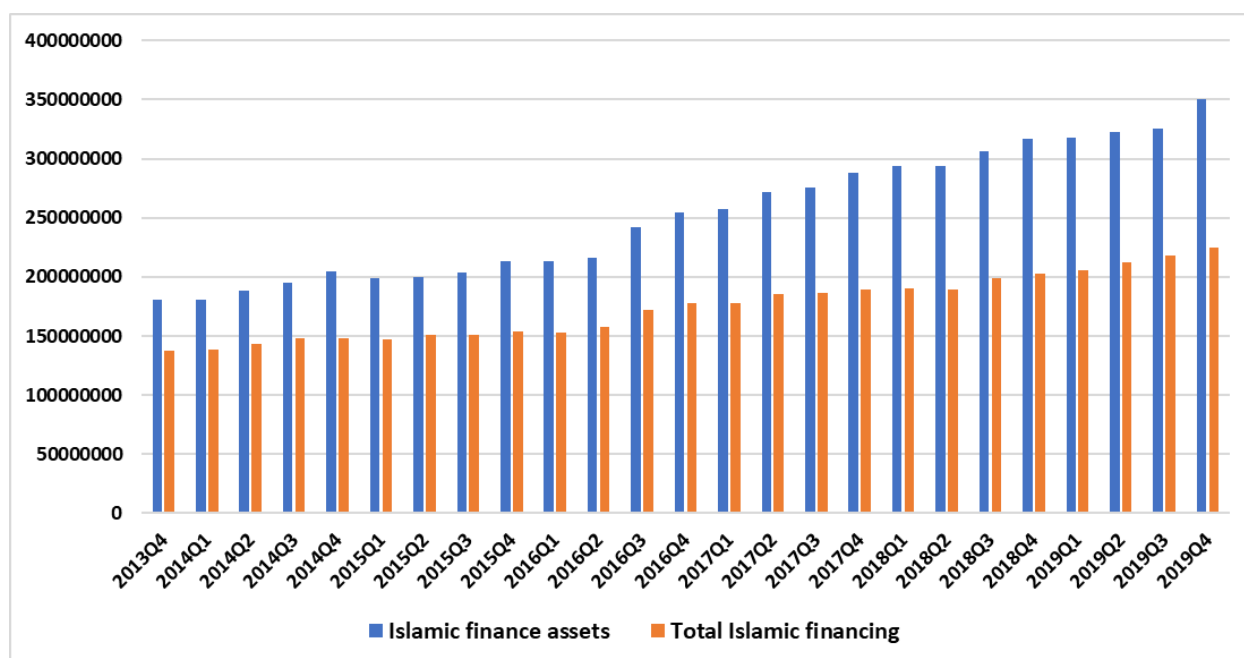
Officially, Bank Indonesia has been a part of a range of project managers, including the creation of many Islamic regulatory authorities, such as the Islamic Financial Services Board and the International Islamic Financial Market, and has been instrumental in assigning its experts to the organizations in charge of establishing a range of regulatory standards (Bin, 2013). It is hoped that as a result of these collaborative initiatives, the sector would be able to use the same regulatory mechanism while still gaining significant international exposure. While cross-border cooperation and interconnectivity are vital for furthering Islamic finance development, it is important to recognize that certain inequalities can still exist (Bin, 2013).

4.2.2.2 *Islamic finance development:*

According to Islamic Financial Services Board (IFSB) (2020), the Islamic finance industry in Indonesia has continued to expand in terms of assets, funding, and third-party funds. The efficiency metrics for the entire Islamic banking sector improved (Figure 5) (L. N. Rani et al., 2020). In 2017, Indonesian Islamic financial assets totaled Rp 18.97 trillion, up 435.02% from the previous year. In 2017, overall funding harnessed into Islamic banking totaled Rp

291.18 trillion, up 15.23% from the previous year. In the meantime, the Islamic banking industry's overall third-party assets reached Rp 341.70 trillion, up 19.83 percent (L. N. Rani et al., 2020).

Figure 5: Total Islamic financing growth and Islamic finance development through total assets in Indonesia (Rp Billion)



Sources: Prepared chart by authors based on the extracted data from the Islamic Financial Services Board (IFSB) (2020).

Indonesia has made significant efforts to strengthen its Islamic financial system, according to the annual report of REDmoney (2016), with numerous legislation already adopted. Regulations covering Islamic liquidity transactions and regulations related to the Islamic stock market are amongst the new rules released in the 2015-16 timeframe. These reforms were implemented by the Indonesia Financial Services Authority (IFSA), which assumed over financial sector oversight and growth from the central bank in 2013.

The regulator's five-year strategy, released in 2014, and the 'I Love Shariah Finance' initiative, launched in 2015, both call for improving the regulatory atmosphere for the Islamic finance industry (REDmoney, 2016).

Throughout 2016, the government announced a 10-year strategic plan to improve Indonesia's Islamic finance sector, which includes the exclusion of income tax on Sukuk and

bonds. This comes after the state and the Islamic Development Bank (IDB) agreed with a Member Country Partnership Strategy for 2016-20 (*REDmoney, 2016; Abdel-Razzaq, 2018*).

According to the annual report of *REDmoney (2016)*, there are 12 full-fledged Islamic Banking institutions and 22 Islamic finance windows in the region, with a fruitful growth strategy as newcomers vie for market share. According to statistics, Islamic financial assets account for 5% of the country's overall banking assets, a number that supervisors hope to triple by 2023. (*REDmoney, 2016*), indeed, now, Indonesia has 14 full-working Islamic banks (*Islamic Financial Services Board (IFSB), (2021)*)

Despite encouraging signs of growth in the number of Islamic financial services providers, it has been discovered that Islamic banking licenses are being discontinued at an alarming frequency: nearly 140 rural banking licenses have been withdrawn as of 2016 (dropping the Islamic rural banks' number from over 200 to around 160) (*REDmoney, 2016*).

Even so, there is reason to be positive about the Islamic financial system in the region, particularly as ties amongst Indonesia and Malaysia improve: the two countries have signed a strategic partnership under the Association of Southeast Asian Nations (ASEAN) Financial Cooperation Mechanism (*REDmoney, 2016*).

The program enables Indonesian and Malaysian banks to compete on an equal footing with local banks in the other's markets, enabling banks, particularly smaller ones, to extend their presence at a lower price and with relative accuracy (*REDmoney, 2016*).

4.2.3 Brunei Darussalam

4.2.3.1 Economic structure and Islamic finance location:

Brunei Darussalam is an independent state in Southeast Asia, situated on the northern coastline of Borneo. Brunei Darussalam's economy is almost entirely reliant on oil and gas revenues (reserves which some believe will be depleted by 2025), however, since the 1980s, numerous attempts have been made to expand and develop the country's agriculture and manufacturing industries (Church, 2017). Strong cost of labor, a lack of skilled workers, a limited domestic sector, and a strong bureaucracy among the small entrepreneurial community are all great obstacles in Brunei Darussalam (Church, 2017).

Brunei Darussalam is a developing country with the second-highest Human Development Index amongst Southeast Asian countries, behind Singapore (Bin, 2013). Brunei Darussalam is also ranked 5th in the world by gross domestic product per capita at purchasing power parity, based on the International Monetary Fund (IMF) (Bin, 2013). Brunei Darussalam is also the fifth-richest country in the world, out of 182, according to Forbes, thanks to its vast petroleum and natural gas areas (Bin, 2013; Too and Begawan, 2012).

- ***Size and nature:***

Following the introduction of Islamic finance more than two decades ago, Shariah-compliant finance currently accounts for about 40% of the local economy, with some analysts predicting a 60% share by 2017 (Bin, 2013). Brunei Darussalam first entered the Islamic finance market in 1993. The Islamic finance industry contributes to 40% of the country's overall banking industry. Islamic financial services now play a significant role in the national economy, with Shariah-compliant banking accounting for roughly half of the share of the market (40%) and a cumulative market share projection of between 55 and 60 percent in the next five years starting from 2013 (Bin, 2013).

Brunei Darussalam's Islamic banks fare well in comparison to those of its neighbors. In Malaysia, for example, the sector has a 20% market share and is generally regarded as a world pioneer in Islamic finance, despite accounting for just 2% of financial services in Indonesia. Despite having a strong Muslim population (approximately 67 percent), this oil-rich country did not see much growth in the field of Islamic finance until 2006, when its finance ministry implemented the Financial services Orders, developed the Brunei International Financial Center, issued the first Sukuk, and founded the Shariah Financial Supervisory Board at a nationally (Bin, 2013).

- ***Domestic market:***

Brunei Darussalam's state religion is Islam, and 64 percent of people are Muslim, mainly Sunnis of Malay ancestry who practice the Shafi school of Islamic rule, which is close to that of Malaysia. Brunei Darussalam Sultans have used increasing oil revenues to fund a comprehensive social welfare program and spread Islam that since the 1930s, like subsidies the Hajj, constructing mosques, and extending the Division of Religious Affairs (Bin, 2013).

- *Legal and regulatory framework*

Brunei Darussalam's Ministry of Finance issued the 'Islamic Banking Order 2008' in 2008, intending to widen the Islamic financial sector while also growing competition among participants by providing fair competition and improving Islamic banking governance and oversight (Bin, 2013).

This law further seeks to encourage international investors to develop the sector as a whole and to foster local experience and skills. In September 2008, the 'Takaful Order 2008' was also implemented. The Order is a major substantive piece of legislation that regulates the domestic takaful industry and establishes a regulatory framework for traditional insurers and takaful operators to compete in a global field (Bin, 2013).

- *Stronger Institutional Support:*

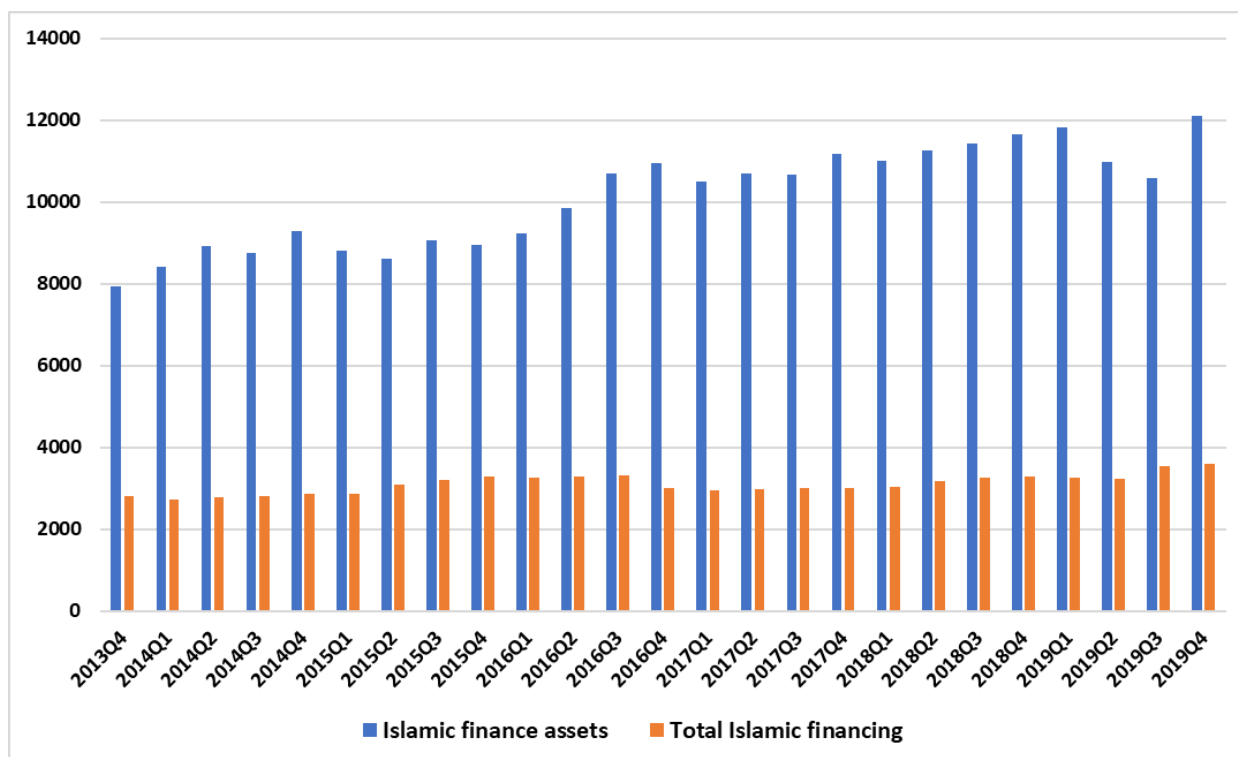
A fully integrated monetary authority was created in January 2011. The Ministry of Finance, the Brunei Darussalam Currency and Monetary Board, the Financial Institutions Divisions, the Revenue International Research Divisions, the Brunei Investment Agency, and the Brunei International Financial Centre (BIFC) were the governing agencies before the establishment of the Autoriti Monetari Brunei Darussalam (AMBD) in 2011. Brunei's central bank is the AMBD, which is a legislative body. Its primary responsibilities include the development and execution of Brunei's monetary policies, financial sector regulation, and currency administration (Bin, 2013).

4.2.3.2 *Islamic finance development:*

According to Islamic Financial Services Board (IFSB) (2020), Islamic finance in Brunei is witnessing notable growth in the accumulated assets and financing (Figure 6). As well, the Autoriti Monetari Brunei Darussalam's survey, the Brunei Darussalam Islamic finance saw negative patterns in 2017, with a 2.6 percent reduction in total reserves, a 1.6 percent fall in third-party funds, and a 7.8 percent decline in private sector finance (L. N. Rani et al., 2020). Despite this, Brunei Darussalam's largest financial entity, Bank Islam Brunei Darussalam (BIBD), reached the largest profits in its history in 2017, totalling \$169 million. After

experiencing a downward trend for four years in a row, Bank Islam Brunei Darussalam (BIBD) achieved its highest earnings (L. N. Rani et al., 2020).

Figure 6: Total Islamic financing growth and Islamic finance development through total assets in Brunei Darussalam (B\$ Million)



Sources: Prepared chart by authors based on the extracted data from the Islamic Financial Services Board (IFSB) (2020).

According to the annual report of IFN (2016), the legal structure in Brunei Darussalam is built on English common law, but the nation has a deep Islamic heritage that is reflected in numerous regulations enacted over time, such as Takaful, banking, and accounting. Brunei Darussalam enacted the Shariah Penal Code in May 2014, which applied in three stages.

Brunei Darussalam has only two completely Islamic banks, Bank Islam Brunei Darussalam (BIBD), which was established in 2005 by the combination of the Islamic Development Bank of Brunei (previously known as the Development Bank of Brunei) (REDmoney, 2016), and the Island Bank of Brunei, while the second Islamic bank is Perbadanan Tabung Amanah Islam Brunei (Islamic Financial Services Board (IFSB), 2021). Shariah-compliant banking services, on the other hand, have been applicable since 1991 via Perbadanan Tabung Amanah Islam Brunei (TAIB), a savings account (REDmoney, 2016). Even though there

are only a few Islamic banking participants in the region, the Islamic financial sector is growing rapidly (*REDmoney, 2016*).

In 2015, Shariah's banking reserves made up the bulk of local banking assets. The drop in global oil prices, on the other hand, has affected the oil-dependent public economy and capacity to help BIBD - S&P changed the prospects on the bank's "A-/A-2" rates from positive to negative in February 2016, citing the tough macroeconomic climate. Nevertheless, Brunei Darussalam's Islamic financial potential is enormous: many international banks, including Standard Chartered Bank Brunei, have previously expressed interest in establishing an Islamic financial arm in the country (*REDmoney, 2016*).

4.3 Synchronization of Islamic Finance Performance with Economic Growth (Analysis) in the Southeast of Asia

Southeast Asia is host to a slew of developing markets and economic behemoths, but none have been spared the devastation of the financial crises and global recessions. Southeast Asian countries devalued as a result of the Asian financial crisis in 1997 (Hollingsworth, 2007).

August 2007 marked the start of the worst international financial crisis and recession since World War II ended, according to many experts. Although the effects were felt all over the world, the repercussions for developed countries were especially serious. This recession has dramatically delayed Southeast Asia's economic growth, raised unemployment to previously unheard-of rates, caused oil and food shortages, and forced enormous fiscal costs by unsustainable government bailouts (Dowling and Rana, 2010).

Financial instability peaked in the second half of 2008, surpassing the levels seen during the Global currency crisis of 1997-1998, with 70 percent of financial stress in developed markets transferring to developing economies in just one to two months (Dowling and Rana, 2010).

This resulted in a string of financial crises that spread to other Southeast Asian countries, though they eventually emerged unscathed from the Asian financial crisis, but with significant losses (Dowling and Rana, 2010).

Any Southeast Asian country has made impressive progress. Although many Asian countries were impoverished in the 1960s, their main education systems were strong, birth rates

were low, life expectancies were high, and property and income equity was increasing (Hollingsworth, 2007).

Asia, the world's biggest and most populated continent, has become wealthier at a rapid rate than any other country since 1960. In terms of GDP, Indonesia, Thailand, and Malaysia experienced annual growth rates of 3 to 5%. Hong Kong and Singapore had much faster growth rates, averaging more than 6% per year (Hollingsworth, 2007).

Indonesia, Malaysia, and Brunei Darussalam, all members of the Association of Southeast Asian Nations (ASEAN), have seen fast growth in Islamic finance. The contrast of the three nations, as well as institutional factors and State organization considerations, are essential. This development has synchronized high economic growth levels. Since the Return on assets (ROA), Return on equities (ROE), net profit margin (NPM) are the main Islamic finance performance indicators. A comparison of the association between Islamic finance performance and economic growth between these countries would be helpful to identify the successes of the Islamic finance industry in Southeast Asia.

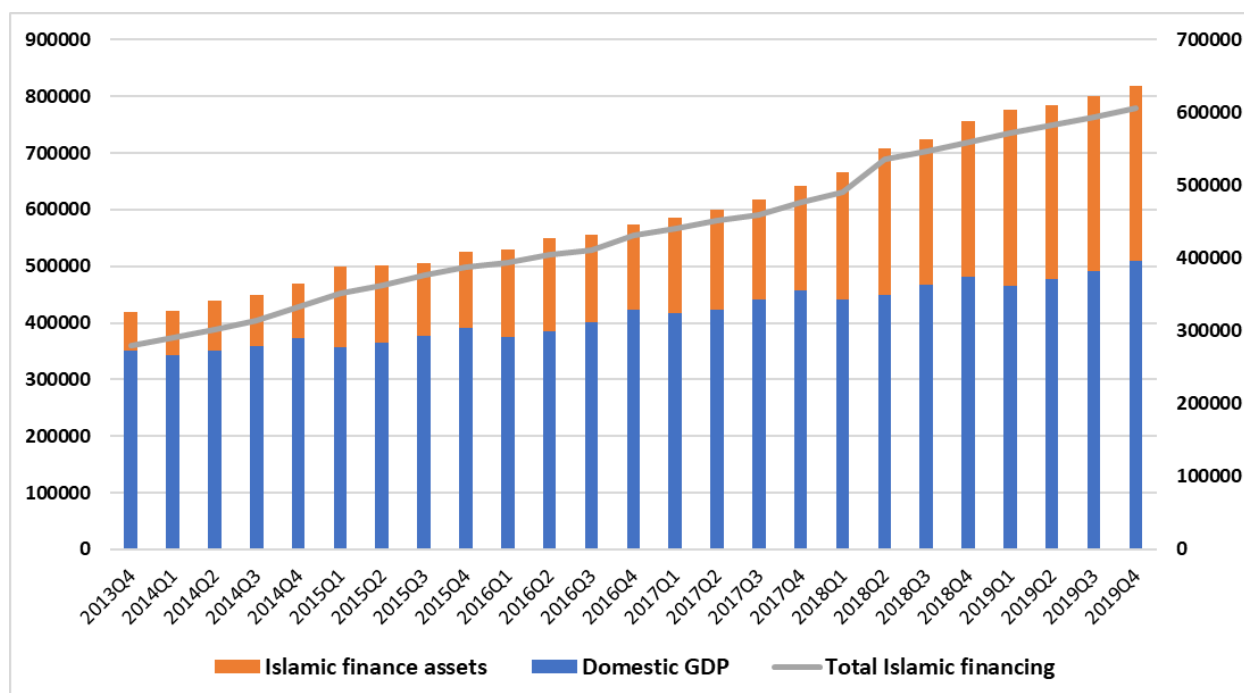
Islamic finance became one of the main topics among scholars due to the global expansion of the Islamic finance industry in the Muslim and non-Muslim countries, and what most attracts the scholars' attention is the matter of the contribution of Islamic finance performance to economic growth (Tabash, 2019). Over the last few years, the Islamic finance sector in Southeast Asia has witnessed a notable growth synchronizing a high level of economic growth in all of Malaysia, Indonesia, and Brunei Darussalam starting from 2013's fourth quarter (2013Q4) until 2019' fourth quarter (2019Q4). Therefore, this matter brings attraction to investigate the link between Islamic finance performance and economic growth in Southeast Asia.

4.3.1 Malaysia

By focusing on the previous year, Islamic finance in Malaysia witnessed a notable growth with an increase in its assets from RM 755577.9598 million in 2018' fourth quarter (2018Q4) to RM 818329.788 million in 2019' fourth quarter (2019Q4) (Islamic Financial Services Board (IFSB), 2020), this expansion has synchronized a remarkable economic growth when the gross domestic product (GDP) increased from RM 361968 million in 2018' fourth

quarter (2018Q4) to RM 395823 million in 2019' fourth quarter (2019Q4) (Bank Negara Malaysia, 2020) (Figure 7). As well, total Islamic financing increased from RM 559265.608 Million in 2018' fourth quarter (2018Q4) to RM 606728.739 million in 2019' fourth quarter (2019Q4) (Islamic Financial Services Board (IFSB), 2020), which indicates that Islamic finance in Malaysia made a significant development that synchronizes high level of economic growth (Figure 7).

Figure 7: The synchronized growth of Islamic finance assets, Total Islamic financing, and the gross domestic product (GDP) in Malaysia (RM Million)



Sources: Prepared chart by authors based on the extracted data from the Islamic Financial Services Board (IFSB) (2020), IMF (2020), and Bank Negara Malaysia (2020).

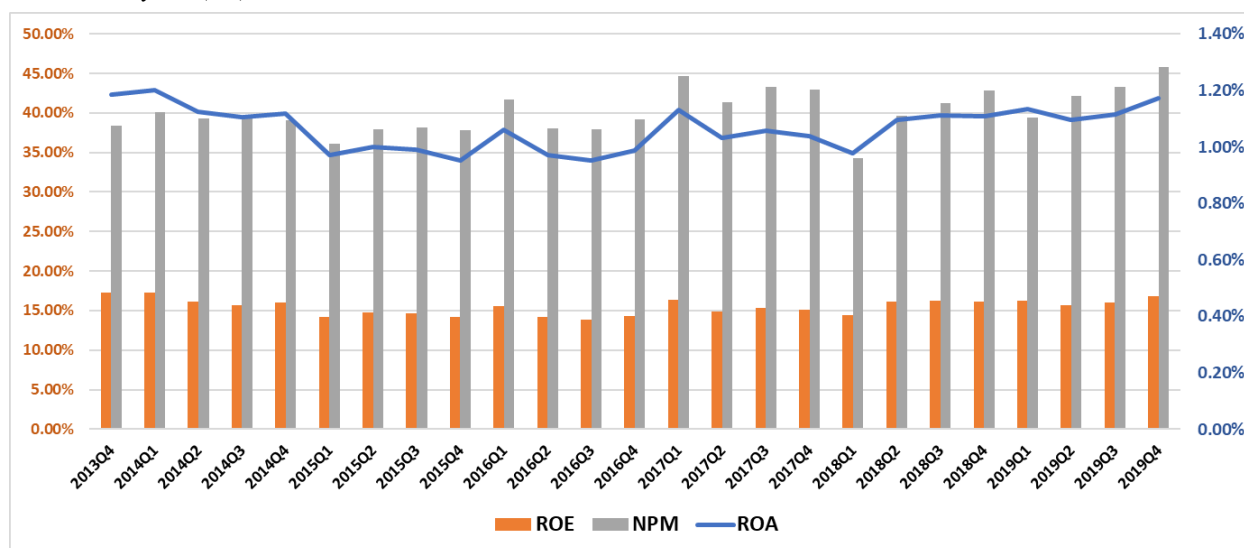
In addition, by focusing on the Islamic finance performance, return on assets (ROA) in Malaysia witnessed a notable growth with an increase from 1.10% in 2018' fourth quarter (2018Q4) to 1.17% in 2019' fourth quarter (2019Q4) (Islamic Financial Services Board (IFSB), 2020), while the return on equities (ROE) in Malaysia witnessed a notable growth with an increase from 16.09% in 2018' fourth quarter (2018Q4) to 16.79% in 2019' fourth quarter (2019Q4) (Islamic Financial Services Board (IFSB), 2020). Above and beyond, the net profit margin (NPM) of Malaysian Islamic finance made a significant expansion from 42.82% in 2018' fourth quarter (2018Q4) to 45.77% in 2019' fourth quarter (2019Q4) (Islamic Financial

Chapter 4

Developments and Trends of Islamic Finance Performance Alongside Economic Growth in the Southeast of Asia

Services Board (IFSB), 2020), that notable growth in the performance of Islamic finance synchronize also high economic growth levels (Figure 8).

Figure 8: The synchronized growth of Islamic finance performance factors (ROA, ROE, NPM) in Malaysia (%)

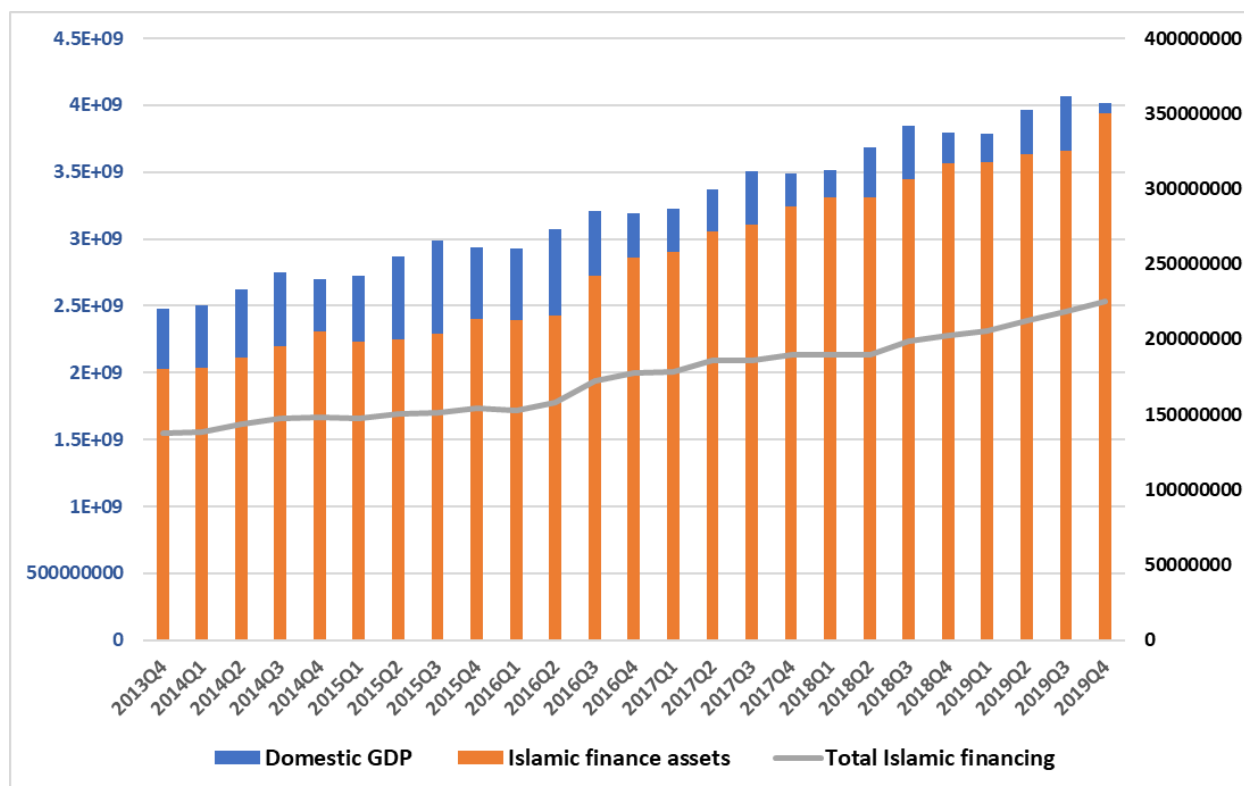


Sources: Prepared chart by authors based on the extracted data from the Islamic Financial Services Board (IFSB) (2020).

4.3.2 Indonesia

Similar to the Islamic finance in Malaysia, Indonesia also witnessed a remarkable development in the Islamic finance industry when it achieved outstanding growth in its assets from Rp 316691.3167 billion in 2018' fourth quarter (2018Q4) to Rp 350363.5446 billion in 2019' fourth quarter (2019Q4) (Islamic Financial Services Board (IFSB), 2020), this expansion has synchronized a noteworthy economic growth when the gross domestic product (GDP) increased from Rp 3799132.1 billion in 2018' fourth quarter (2018Q4) to Rp 4018844.4 billion in 2019' fourth quarter (2019Q4) (IMF, 2020) (Figure 9). As well, total Islamic financing increased from Rp 202298.335 Billion in 2018' fourth quarter (2018Q4) to Rp 225145.749 Billion in 2019' fourth quarter (2019Q4) (Islamic Financial Services Board (IFSB), 2020), which indicates that Islamic finance in Malaysia made a significant development that synchronizes high level of economic growth (Figure 9).

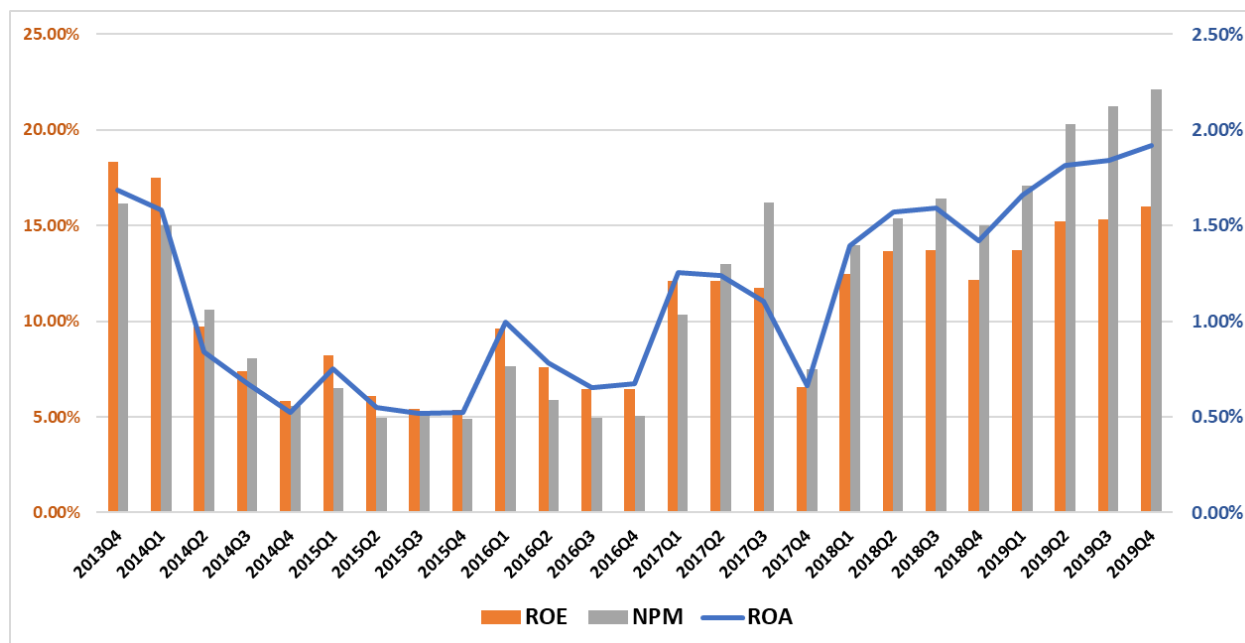
Figure 9: The synchronized growth of Islamic finance assets, total Islamic financing, and the gross domestic product (GDP) in Indonesia (Rp Million)



Sources: Prepared chart by authors based on the extracted data from the Islamic Financial Services Board (IFSB) (2020) and IMF (2020).

In addition, by focusing on the Islamic finance performance, return on assets (ROA) in Indonesia witnessed a notable growth with an increase from 1.42% in 2018' fourth quarter (2018Q4) to 1.92% in 2019' fourth quarter (2019Q4) (Islamic Financial Services Board (IFSB), 2020), while the return on equities (ROE) in Indonesia witnessed a notable growth with an increase from 12.17% in 2018' fourth quarter (2018Q4) to 16.00% in 2019' fourth quarter (2019Q4) (Islamic Financial Services Board (IFSB), 2020). Above and beyond, the net profit margin (NPM) of the Indonesian Islamic finance made a significant expansion from 15.03% in 2018' fourth quarter (2018Q4) to 22.10% in 2019' fourth quarter (2019Q4) (Islamic Financial Services Board (IFSB), 2020). This notable growth in the performance of Islamic finance in Indonesia synchronize also high economic growth levels (Figure 10).

Figure 10: The synchronized growth of Islamic finance performance factors (ROA, ROE, NPM) in Indonesia (%)

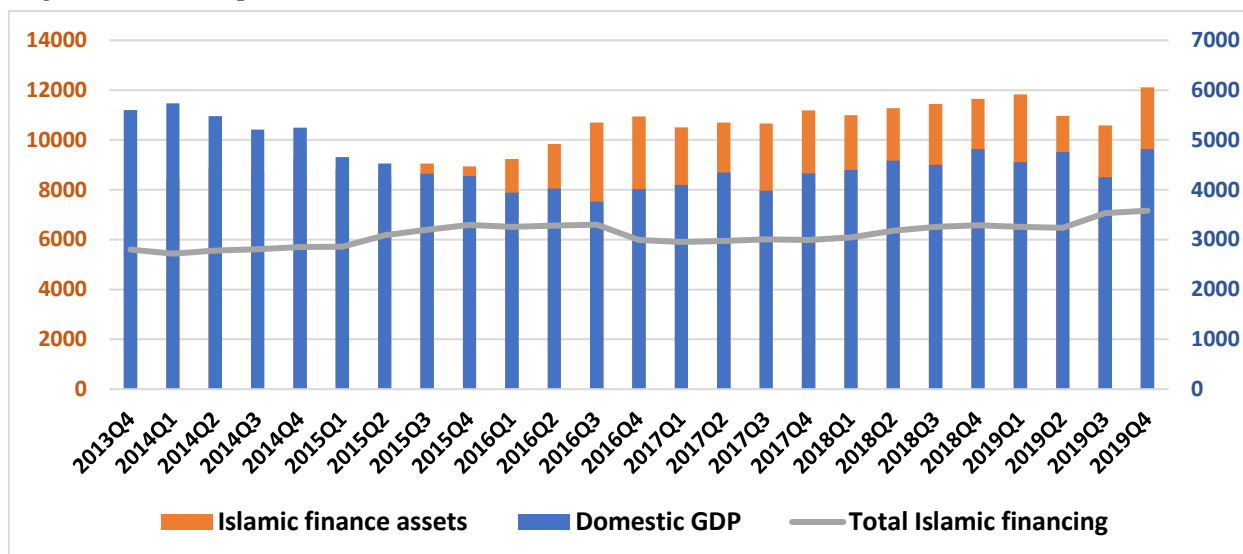


Sources: Prepared chart by authors based on the extracted data from the Islamic Financial Services Board (IFSB) (2020).

4.3.3 Brunei Darussalam

Following the path of the developed Islamic finance industry in Malaysia and Indonesia, Brunei Darussalam is an astonishing underground for Islamic finance due to the notable rise in its assets from B\$ 11645.15095 million in 2018' fourth quarter (2018Q4) to B\$ 12110.52462 million in 2019' fourth quarter (2019Q4) (Islamic Financial Services Board (IFSB), 2020), this expansion synchronized a significant economic growth when the gross domestic product (GDP) increased from B\$ 4813.10631 million in 2018' fourth quarter (2018Q4) to B\$ 4815.5312 million in 2019' fourth quarter (2019Q4) (Brunei Ministry of Finance and Economy, 2020) (Figure 11). As well, total Islamic financing increased from B\$ 3290.646332 Million in 2018' fourth quarter (2018Q4) to B\$ 3580.712607 million in 2019' fourth quarter (2019Q4) (Islamic Financial Services Board (IFSB), 2020), which indicates that Islamic finance in Malaysia made a significant development that synchronizes high level of economic growth (Figure 11).

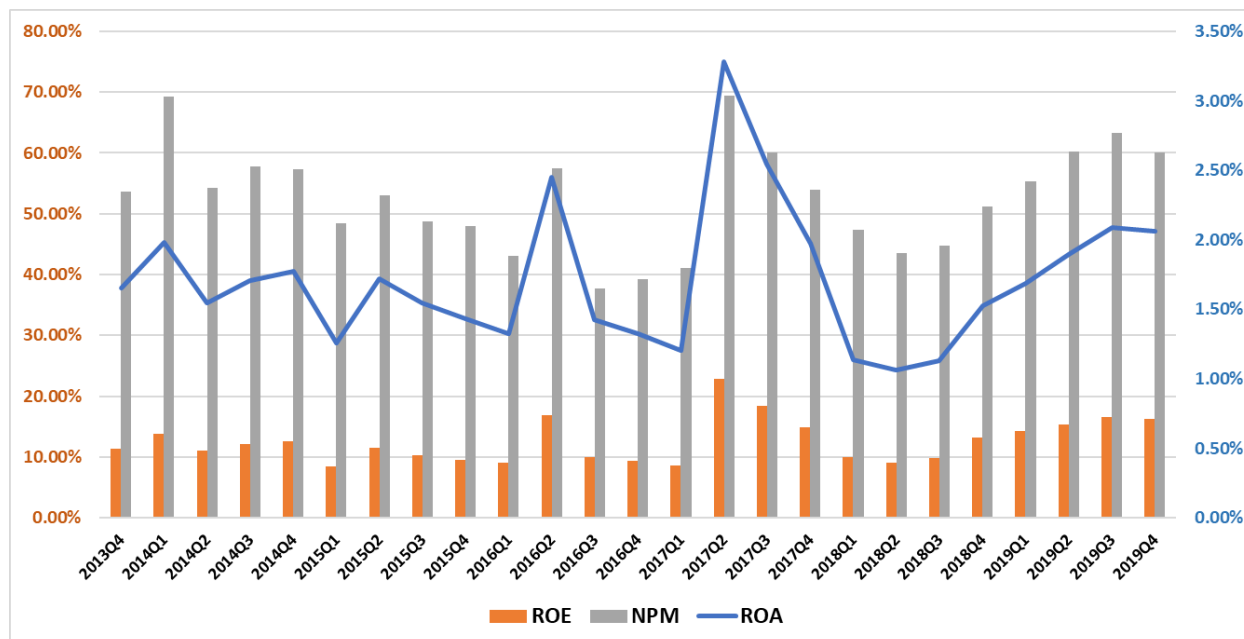
Figure 11: The synchronized growth of Islamic finance assets, total Islamic financing, and the gross domestic product (GDP) in Brunei (B\$ Million)



Sources: Prepared chart by authors based on the extracted data from the Islamic Financial Services Board (IFSB) (2020) and Brunei Ministry of Finance and Economy (2020).

In addition, by focusing on the Islamic finance performance, return on assets (ROA) in Brunei Darussalam witnessed a notable growth with an increase from 1.53% million in 2018’ fourth quarter (2018Q4) to 2.06% in 2019’ fourth quarter (2019Q4) (Islamic Financial Services Board (IFSB), 2020), while the return on equities (ROE) in Brunei Darussalam witnessed a notable growth with an increase from 13.23% in 2018’ fourth quarter (2018Q4) to 16.25% in 2019’ fourth quarter (2019Q4) (Islamic Financial Services Board (IFSB), 2020). Above and beyond, the net profit margin (NPM) of Brunei’s Islamic finance made a significant expansion from 51.16% in 2018’ fourth quarter (2018Q4) to 60.13% in 2019’ fourth quarter (2019Q4) (Islamic Financial Services Board (IFSB), 2020). This notable growth in the performance of Islamic finance in Indonesia synchronize also high economic growth levels (Figure 12).

Figure 12: The synchronized growth of Islamic finance performance factors (ROA, ROE, NPM) in Brunei Darussalam (%)



Sources: Prepared chart by authors based on the extracted data from the Islamic Financial Services Board (IFSB) (2020).

4.4 Summary

This chapter examined the growth and developments of Islamic finance in Southeast Asia in terms of financial performance and economic growth, as well as analyses of competition and the economy's prospects in Malaysia, Indonesia, and Brunei Darussalam. The methodology and modeling of the research, as well as the data collecting and data analysis techniques, as well as the study's empirical results, are discussed in the next chapter.

Chapter 5: Research Methodology and Modelling

Chapter 5: Research Methodology and Modelling

5.1 Introduction

The fifth chapter attempts to explain the study's theoretical methodology context, as well as the techniques used to address the research questions. Following the identification of the research philosophy and technique, the research design is explained, including the research intent, policy, and procedures, the study length, population and sampling, and also data collection and sources. The techniques of data processing are explained and justified in this section. Then, this chapter demonstrated the best empirical model for the investigation of the nexus between Islamic finance performance and economic growth

The study's theoretical methodology context, as well as the approaches used to address the research questions, are clarified in Chapter 5. It describes the research nature, such as the research purpose, technique, and methodology, the study period, population, and sampling, as well as collection of data and sources, after describing the research theory and approach. In addition, this chapter explains and justifies the methods of data analysis. Finally, this chapter discusses the empirical findings and tests the research hypothesis.

5.1.1 Research Methodology

According to Saunders et al. (2009), there are four major research philosophies for social science, namely business research (Pragmatism - Positivism - Realism - Interpretivism). However, recent advances in the practice of social science analysis have shown that pragmatism and realism approaches are becoming more common (Saunders et al., 2009).

A quick comparison of the four research philosophies of corporate and management research is seen in Table 3 below. The presence of theory at the start of the study poses a fundamental doubt about the research project's nature (Saunders et al., 2009). In the deductive method, for example, the investigator develops a theory and hypothesis (or hypotheses) before designing a testing technique to test the hypothesis. The researcher gathers evidence and constructs a hypothesis as a consequence of data interpretation in the inductive method (Saunders et al., 2009).

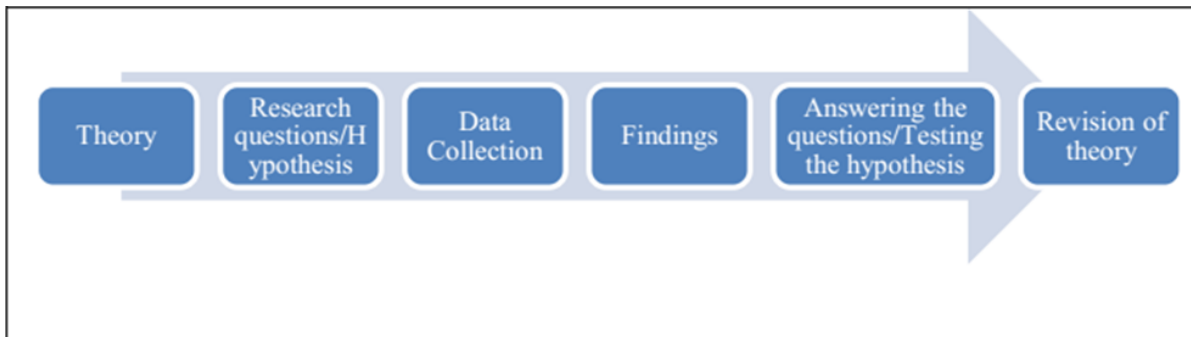
Table 3: A quick comparison of four economic and management research philosophies

	<i>Pragmatism</i>	<i>Positivism</i>	<i>Realism</i>	<i>Interpretivism</i>
<i>The most widely used data collection techniques</i>	Quantitative and qualitative analysis, mixed or multiple approach designs.	Highly structured and organized, samples are very large, measurement, quantitative, but qualitative information can also be used.	Quantitative or qualitative methods must be appropriate for the topic.	Qualitative study, small samples, and in-depth investigations

Sources: Extracted from Saunders et al. (2009).

The series of deductive and inductive approaches can be seen in the diagrams below (Figure 13).

Figure 13: The process of deductive research



Sources: Developed by authors from Saunders et al. (2009), p. 124.

In the inductive approach, a small sample of topics may be sufficient to understand how events occur, while in the deductive approach, a large sample is required. As a result, picking the right solution will have an impact on the quality of the data required as well as the approaches used to gather it to create diverse perspectives on phenomena (Easterby-Smith, Thorpe, Jackson, and Lowe, 2008). Table 4 below summarizes the main discrepancies between deductive and inductive analysis methods.

Table 4: Main differences between inductive and deductive approaches to research:

APPROACHES	DEDUCTIVE APPROACH PREFERRED	INDUCTIVE APPROACH PREFERRED
LITERATURE WEALTH	Sources are plentiful	Shortage of sources
TIME AVAILABILITY	There is a limited amount of time to complete the analysis	There is plenty of time to finish the research
RISK	To evade risk	Acceptance of risk, no theory can arise at all

Sources: Extracted by authors from Saunders et al. (2009), p. 124.

According to Easterby-Smith et al. (2008), three factors go into agreeing on a study plan. First, it assists the researcher in being more knowledgeable about study design, which is an overall method for integrating various aspects of the research (data collection methodology, data analysis, and explanation) consistently and comprehensively, so that the research challenge is effectively solved. Second, it allows the researcher to have a better understanding of the analysis methods' applicability. Lastly, Easterby-Smith et al. (2008) argue that the researcher's knowledge of the different research practices can help in avoiding the limitations of the research design. Finally, Easterby-Smith et al. (2008) conclude that a researcher's understanding of various scientific methods will aid in avoiding research design limitations. The deduction technique is used for certain purposes due to the design and type of this research sample. For starters, there is a wide range of literature on which the researcher may develop a theoretical background, and a hypothesis is easier to deduce. Second, deductive testing can be completed more quickly, but it requires time to set up the sample before data collection and interpretation. The collection of data is frequently dependent on a 'one take'. It is typically possible to reliably estimate time schedules. Finally, the deduction may be a lower-risk approach.

5.1.2 Research Design

The study architecture, as previously mentioned, serves as a model for data collection, calculation, and interpretation, as well as any limitations (Saunders et al., 2009). This study

design aims to ensure that the data collected will logically and explicitly solve the research problem.

Obtaining information applicable to the study issue in social sciences research involves determining the kind of proof required to validate a hypothesis, analyze a program, or reliably explain and measure the value of an observable phenomenon (Saunders et al., 2009). The parts that follow were dedicated to explaining six major components of the thesis analysis design, and also their implications (Purpose; Strategy; Methods; Study Period; Sample; Data Sources).

5.1.3 Research Purpose

Three categories of investigations are commonly used in the literature of business research methodology to classify the research purpose: exploratory, descriptive, and explanatory (Robson, 2002; Saunders et al., 2009). The research objective of this thesis can be categorized as exploratory and explanatory since it aims to investigate the determinants of Islamic finance performance, and then examine and explain this performance's impact on economic growth (Robson, 2002; Saunders et al., 2009). To remain within the scope of the research, this thesis employs a variety of research techniques. The research, for instance, used a comprehensive literature review to classify the determinants of Islamic finance performance, as well as the most widely known financial performance explanations. Various econometric models were used to establish possible associations between the assumed variables in the study.

5.1.4 Research Strategy

The scope of the research question(s) and goals, the degree of existing knowledge, the accessibility of time and resources, and also the study's philosophical underpinnings, all influence the research strategy. According to Saunders et al. (2009), diverse research strategies (e.g. survey; experiment; ethnography; action research; case study; grounded theory; archival research) may be adopted for diverse research purposes (e.g. exploratory, descriptive, and explanatory).

As the primary goal of this research is to recognize and explore the Islamic finance performance determinants and explain their impact on economic growth, the thesis used the archival data strategy.

Organizational records and archives are the primary sources of data for archival research. Despite its historical connotations, the term archival may refer to both current and historical records (Saunders et al., 2009). Because of the archival data technique used in this research, the data collected had to be retrieved from a variety of secondary sources.

The advantage of using an archival research strategy in this thesis is that it seeks to explain the impact of Islamic finance performance and explain this impact on economic growth (Saunders et al., 2009).

5.1.5 Research Methods

The researcher who uses quantitative approaches, according to Saunders et al. (2009), is searching for the assertion, prediction, and generalization of conclusions. According to Saunders et al. (2009), methodological approaches cover the impartial and spontaneous selection of subjects from the study population. According to Saunders et al. (2009), the researcher is deemed external to the original study of quantitative research, and the findings are assumed to be replicable regardless of who performs the investigation. Another advantage of quantitative methods is that their approaches provide quantifiable and accurate statistics that can be extrapolated to bigger populations. Consistent with Saunders et al. (2009), the quantitative research approach employs scientific methods for determining research questions and sampling procedures, as well as a strong theoretical model.

Hypotheses are evaluated using estimation models to answer the research questions. The researcher will address the study questions by analyzing the estimation models using mathematical equations, statistical examination, and econometric analysis. Since the primary goal of this research is to recognize and explore the Islamic finance performance determinants and explain their impact on economic growth. As a result, the research is framed using the quantitative research method, which allows for the creation of causal relationships between study variables, improves the ability to draw inferences and predictions, allows for generalization and validation of findings, and improves the validity and originality of research. Furthermore, the data were gathered using publicly accessible secondary sources, reducing the amount of time and effort.

5.2 Study Period, Sample, and Data Sources

The specification of the study period, which is typically either a “snapshot” captured at a specific time (e.g. cross-sectional research), a diary, or a sequence of snapshots to be a representation of events over a specified timeframe, is an important feature of study design (e.g. Longitudinal research). The choice between these two time horizons is determined by the research objective and problem. It's worth noting that selecting one of these two-time horizons for research design has little to do with the research approach or process (Saunders et al., 2009).

The survey method is also used in the cross-sectional analysis (Saunders et al., 2009). They may be attempting to explain a phenomenon's occurrence. Cross-sectional analysis is distinct from time-series data, which shows the same small-scale or cumulative individual over time. Panel data (also known as longitudinal data) is a category of data that incorporates cross-sectional and time-series data concepts to examine how subjects (firms, individuals) evolve over time (Saunders et al., 2009).

Panel data varies from pooled cross-section data over time in that it involves observations of the same objects at various times, while the latter involves observations of different topics at various times. Panel analysis examines shifts in variables over time and variations in variables among subjects using panel data (Saunders et al., 2009).

To capture the influence of Islamic finance performance on economic growth over time for three countries, a wide panel dataset is constructed and analyzed. The ending panel dataset covers 25 quarters (2013Q4–2019Q4) of Islamic banks' financial performance ratios with other macroeconomic variables in three operating countries that spanning the Southeast of Asia.

After this thesis has described its research problem and structure as reported in the preceding parts, data collection can be classified into two parts: secondary and primary. The primary data is unique because it is obtained for the first time. Secondary data, on the other side, are those that have already been gathered by someone else and have gone via the statistical process (Saunders et al., 2009). It's critical to figure out which data are required to address the study's research question (thus collecting). Primary and secondary data collection approaches vary because primary data must be obtained first, while the secondary data collection function is basically compilation (Saunders et al., 2009).

This thesis used secondary data collection techniques due to the scope of the study and the nature of the research goals and objectives. Islamic finance performance data are obtained from the official database of the Islamic Financial Services Board (IFSB). IFSB is the most comprehensive, global database of financial statements across Islamic banks, rankings, and ratings. The “Islamic Financial Services Board” (IFSB), which is located in Kuala Lumpur, was founded on November 3, 2002, and began operations on March 10, 2003. It is an international standard-setting body comprised of legal and regulatory agencies with a stake in the robustness and stability of the Islamic financial services sector, which is narrowly established to include finance, capital markets, and insurance. To achieve this aim, the IFSB facilitates the growth of a prudent and open Islamic’ financial services industry by adopting new or modifying existing international norms that are Shari’ah-compliant and proposing their implementation (Basri, 2016; Islamic Financial Services Board (IFSB), 2021). The IFSB website integrates detailed financial statements with a variety of Islamic banking intelligence, such as ratings, an appraisal model, Islamic bank structures, news, and seasonal reports, as well as other Islamic banking documentation and research. It is the only source of information on Islamic banks. The IFSB database contains information on Islamic banks in over 24 countries and is the go-to resource for academics conducting financial investigations and analyses (Islamic Financial Services Board (IFSB), 2021).

Secondary data, particularly that which is legally necessary, such as quarterly reports, has social and regulatory validity and is extremely impartial. These characteristics make them less vulnerable to errors and more trustable (Saunders et al., 2009).

According to Lebdaoui and Wild (2016), Southeast Asia witnessed significant growth in the last decade or so, coming from steady and wise macroeconomic management, backed by a stable political administration that leads to significant improvements in the socio-economic conditions of Southeast Asia. In the same period, according to Rani, Rusydiana, and Widiastuti (2017), the Islamic finance industry grew significantly in the southeast of Asia (Malaysia, Indonesia, and Brunei Darussalam) in the same period starting from 2012. Although the theoretical and methodological contributions of finance to economic growth are well established in developing and developing economies, the impact of Islamic finance on Southeast Asia's economic growth has not been extensively studied in recent years. In addition, in the last decade,

the number of Islamic banks offering exclusive Islamic compliant products has expanded (Islamic Financial Services Board (IFSB), 2020). Thus, this study is investigating the contribution of Islamic finance performance to overall Southeast Asia' economic growth by taking a period starting from the expansion of the Islamic finance industry through the Islamic banks that synchronize the economic growth of Southeast Asia in 2013 (Figure. 1, 2, 3) till the pre-Covid-19 pandemic era, after the pandemic caused a lot of instability in the Islamic financial industry and slowed economic growth in the main Islamic finance countries (*State of the Global Islamic Economy 2020/21 Report*, 2020). Consequently, this study used a balanced panel data of all full-fledged Islamic banks working in Malaysia (16 Islamic Banks), Indonesia (14 Islamic Banks), and Brunei Darussalam (2 Islamic Banks) covering a period range from the fourth quarter of 2013 until the fourth quarter of 2019 (2013Q4 to 2019Q4) (Table. 5). The data of Islamic finance was drawn from quarterly datasets of the Islamic Financial Services Board (IFSB) database. Other data were collected from official authentic databases, the IMF database (IMF, 2020), the central bank of Malaysia (Bank Negara Malaysia, 2020), the Financial Services Authority (Otoritas Jasa Keuangan) under the Indonesian central bank (Otoritas Jasa Keuangan (OJK), 2021), and the Department of Economic Planning and Statistics under the Brunei Ministry of finance and economy (Brunei Ministry of Finance and Economy, 2020). Since all countries (Malaysia, Indonesia, and Brunei Darussalam) have different currencies, all the quarter financial values were converted in the US dollar using proper average exchange rates according to the International Monetary Fund (IMF) database for each quarter based on IMF (2021).

Table 5: The Islamic banks in Southeast Asia

Countries	Names of Islamic banks
Malaysia	1. <i>Affin Islamic Bank Berhad</i>
	2. <i>Al Rajhi Banking & Investment Corporation (Malaysia) Berhad</i>
	3. <i>Alliance Islamic Bank Berhad</i>
	4. <i>AmBank Islamic Berhad</i>
	5. <i>Bank Islam Malaysia Berhad</i>

	6. <i>Bank Muamalat Malaysia Berhad</i>
	7. <i>CIMB Islamic Bank Berhad</i>
	8. <i>HSBC Amanah Malaysia Berhad</i>
	9. <i>Hong Leong Islamic Bank Berhad</i>
	10. <i>Kuwait Finance House (Malaysia) Berhad</i>
	11. <i>MBSB Bank Berhad</i>
	12. <i>Maybank Islamic Berhad</i>
	13. <i>OCBC Al-Amin Bank Berhad</i>
	14. <i>Public Islamic Bank Berhad</i>
	15. <i>RHB Islamic Bank Berhad</i>
	16. <i>Standard Chartered Saadiq Berhad</i>
Indonesia	1. <i>Bank Aceh Syariah</i>
	2. <i>BPD Nusa Tenggara Barat Syariah</i>
	3. <i>Bank Muamalat Indonesia</i>
	4. <i>Bank Victoria Syariah</i>
	5. <i>Bank BRISyariah</i>
	6. <i>Bank Jabar Banten Syariah</i>
	7. <i>Bank BNI Syariah</i>
	8. <i>Bank Syariah Mandiri</i>
	9. <i>Bank Mega Syariah</i>
	10. <i>Bank Panin Dubai Syariah</i>
	11. <i>Bank Syariah Bukopin</i>
	12. <i>BCA Syariah</i>

	<i>13. Bank Tabungan Pensiunan Nasional Syariah</i>
	<i>14. Maybank Syariah Indonesia</i>
Brunei Darussalam	<i>1. Bank Islam Brunei Darussalam Berhad</i>
	<i>2. Perbadanan Tabung Amanah Islam Brunei</i>

Sources: (Bank Negara Malaysia, 2021; Islamic Financial Services Board (IFSB), 2021; Otoritas Jasa Keuangan (OJK), 2021)

5.3 Data Analysis Procedures: Identifying Variables and Process (Variables of study)

5.3.1 Islamic Finance Performance Analysis

According to the previous studies that investigated the link between Islamic finance performance and economic growth or explored the determinants of both Islamic finance and conventional finance performance, this research employed the major indicators of profitability (earnings) by using the profitability and earning indicators of ROA, ROE, and NPM as proxies for the Islamic finance performance, in which higher ratios of profitability designate better Islamic finance performance (Zarrouk et al., 2016).

Thus, return on assets (ROA), and return on equity (ROE) are employed to investigate the link between Islamic finance performance and economic growth in the southeast of Asia based on the literature (Adekola, 2016; Alharbi, 2017; Djalilov and Piesse, 2016; M. M. S. Khan et al., 2014; Olson and Zoubi, 2017; Rabaa and Younes, 2016; Setyawati et al., 2017; Tabash, 2019; Yazdani, 2011; Zarrouk et al., 2016), and the third employed indicator is the net profit margin (NPM) according to the studies of (Yazdani, 2011; Zarrouk et al., 2016; Alharbi, 2017; Olson and Zoubi, 2017; Tabash, 2019), in which net profit margin (NPM) explores the efficiency of bank investment choices with its liability situations and represents the effectiveness of the bank intermediation to funds (Zarrouk et al., 2016) (Table 6).

Table 6: Islamic finance performance factors

<i>ISLAMIC FINANCE PERFORMANCE VARIABLES</i>	<i>MEASUREMENT</i>	<i>LITERATURE</i>
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RETURN ON ASSETS (ROA)	$\text{ROA}(\%) = \frac{\text{Net income}}{\text{Total assets}}$	(Alqahtani et al., 2017; Dincer et al., 2011; Karim et al., 2018; Wanke et al., 2016; Ledhem and Mekidiche, 2020)
RETURN ON EQUITY (ROE)	$\text{ROE}(\%) = \frac{\text{Net income}}{\text{Equity}}$	(Altan et al., 2014; Dincer et al., 2011; Karim et al., 2018; Lahrech et al., 2014; Munir et al., 2017; Peltonen et al., 2015, Ledhem and Mekidiche, 2020)
NET PROFIT MARGIN (NPM)	$\text{NPM}(\%) = \frac{\text{Net income}}{\text{Gross income}}$	(Altan et al., 2014; Karim et al., 2018; Wanke et al., 2016, Ledhem and Mekidiche, 2020)

- Sources: Based on the literature

5.3.2 Economic Growth Analysis

All reviews in this study have settled on the use of GDP as a proxy for economic growth when it is analyzed with the financial performance of Islamic finance, Thus, this empirical study has adopted the gross domestic product (GDP) as a proxy independent variable for economic growth.

Based on the new growth theory (D. Romer, 2011), it argues that gross domestic product (GDP) per person will perpetually increase because people pursued profits. Also, in most empirical studies that investigated the link between banking and finance and economic growth, the gross domestic product was the real proxy for economic growth.

Because the real GDP is measured based on constant prices and adjusted for inflation, the nominal gross domestic product is the most suitable for this empirical study when trailing

the total value of goods and services produced in an economy based on their real prices (Hall, 2020).

To explain more, since this study is examining the effect of Islamic finance performance (which is measured by profitability or earnings) on economic growth, the best proxy for economic growth is the nominal gross domestic product, because, in a notable study of Konchitchki and Patatoukas (2014) which examine the link between accounting earnings and gross domestic product, the nominal gross domestic product was employed because accounting earnings are not adjusted for inflation, by projecting this on the profitability factors of Islamic banks that determine the Islamic finance performance, the profitability factors are not also adjusted for inflation. In addition, by following all of Misztal (2010) who examined the effect of foreign direct investments on Romanian economic growth which was proxied by nominal gross domestic product, and Ledhem and Mekidiche (2021) when they employed nominal gross domestic product as a measure for economic growth in Southeast Asia for investigating the connection between Islamic finance and economic growth, this study found that the nominal gross domestic product is the most suitable for this empirical study when to track the total value of goods and services produced in an economy based on their real prices without any of the misleading effects of inflation (Hall, 2020), also because the real gross domestic product is tracked by economists to assess the pace that an economy is developing without the effects of inflation. Consequently, this study took into account the effect of inflation as a significant macroeconomic factor on economic growth, therefore, it controlled this substantial effect by adopting a proxy variable for inflation which is the consumer price index (CPI), similarly to the study of Ledhem and Mekidiche (2020) and Ledhem and Mekidiche (2021).

5.3.3 Macro-economic Factors Analysis

To avoid the issue of bias due to omitted variables, other variables are included in the model to display the potential effects of other growth determinants that will be employed based on the previous studies, gross fixed capital formation (GFCF) (Kassim, 2016; Ledhem and Mekidiche, 2020; Ledhem and Mekidiche, 2021), and consumer price index (CPI) as a proxy for inflation (Djalilov and Piesse, 2016; Kassim, 2016; Rabaa and Younes, 2016; Setyawati et al., 2017; Zarrouk et al., 2016; Ledhem and Mekidiche, 2020; Ledhem and Mekidiche, 2021), and trade openness (Trade) (Boukhatem and Moussa, 2018; Ledhem and Mekidiche, 2020;

Ledhem and Mekdiche, 2021), in which trade openness index (TRADE) is calculated as the following:

$$\text{TRADE} = (\text{Imports} + \text{Exports of goods and services})/\text{GDP} \quad (1)$$

5.3.4 Descriptive Statistics

Table 7: Descriptive statistics summary of Malaysia' experimental variables

Summary	GDP (USD Million)	ROA	ROE	NPM	TRADE	GFCF (USD Million)	CPI
Mean	81584.82	0.010676	0.154946	0.401604	1.320567	20226.55	116.3646
Median	82783.40	0.010968	0.157034	0.395605	1.326799	20349.58	116.4806
Max	96719.12	0.012014	0.172921	0.457750	1.423246	23611.90	122.1130
Min	65846.81	0.009508	0.138149	0.342367	1.202234	16954.00	108.5819
Std. Dev	7777.862	0.000762	0.010054	0.027149	0.060134	1538.339	4.539650
Jarque-Bera	0.910438	1.493412	1.070358	0.157335	1.138100	0.193661	2.468684
Probability	0.634309	0.473925	0.585564	0.924347	0.566063	0.907710	0.291026
Observations	25	25	25	25	25	25	25

- Sources: Prepared by authors using Eviews10.

Table 8: Descriptive statistics summary of Indonesia' experimental variables

Summary	GDP (USD Million)	ROA	ROE	NPM	TRADE	GFCF (USD Million)	CPI
Mean	241113.9	0.011292	0.107531	0.115547	0.416838	78232.39	138.2078
Median	242337.1	0.011021	0.117452	0.105941	0.408562	78575.94	138.6054
Max	289104.6	0.019168	0.183239	0.220980	0.539047	97731.01	152.3715
Min	203224.0	0.005192	0.053807	0.048724	0.345605	65571.62	120.2287
Std. Dev	25895.86	0.004852	0.040647	0.057093	0.048156	8409.700	9.814073
Jarque-Bera	1.331570	2.429579	1.697251	1.956636	2.644779	1.202976	1.421329
Probability	0.513870	0.296772	0.428003	0.375943	0.266498	0.547995	0.491318
Observations	25	25	25	25	25	25	25

- Sources: Prepared by authors using Eviews10.

Table 9: Descriptive statistics summary of Brunei Darussalam' experimental variables

Summary	GDP (USD Million)	ROA	ROE	NPM	TRADE	GFCF (USD Million)	CPI
Mean	3397.420	0.017082	0.126154	0.527202	0.940799	1184.395	99.54021
Median	3353.389	0.016553	0.114592	0.535710	0.876544	1072.510	99.59837
Max	4551.527	0.032785	0.227729	0.694621	1.426386	1809.935	100.9713
Min	2756.005	0.010601	0.084925	0.377562	0.777485	762.7048	98.25291
Std. Dev	513.1245	0.005099	0.036062	0.085924	0.137759	302.7902	0.727663
Jarque-Bera	3.806140	10.06587	4.500428	0.494400	31.36668	1.697613	0.373645
Probability	0.149110	0.006520	0.105377	0.780985	0.000000	0.427925	0.829591
Observations	25	25	25	25	25	25	25

- *Sources: Prepared by authors using Eviews10.*

Based on Table 7, Table 8, and Table 9, in all of Malaysia, Indonesia, and Brunei Darussalam, the results show that the variables are normally distributed according to Jarque-Bera probability except return on assets and trade openness of Brunei Darussalam (See Appendices). Concerning Malaysia, GDP has an average of USD 81584.82 Million with a maximum value of USD 96719.12 million and a standard deviation of 25895.86. The ROA has an average of 1,068% and a standard deviation of 0.000762 while the maximum value is equal to 1,2014%. Also, the ROE had an average of 15.49% and a standard deviation of 0.01 while the maximum value is equal to 17.29%. Moreover, the NPM had an average of 40.16% and a standard deviation of 0.027 while the maximum value is equal to 45.77%. Regarding macroeconomic variables, the trade openness index has a maximum value of 1.423 and a standard deviation of 0.0601. Additionally, the GFCF has a standard deviation of 1538.339 and a maximum of USD 23611.90 million, while CPI has a maximum value of 122.1130 and a standard deviation of 4.539.

Concerning Indonesia, GDP has an average of USD 241113.9 million with a maximum value of USD 289104.6 million and a standard deviation of 25895.86. Concerning the ROA, it has an average of 1.129% and a standard deviation of 0.0048 while the maximum value is equal to 1.916%. Also, the ROE had an average of 10.75% and a standard deviation of 0.0406 while the maximum value is equal to 18.32%. Moreover, the NPM had an average of 11.55% and a

standard deviation of 0.057 while the maximum value is equal to 22.09%. Regarding macroeconomic variables, the trade openness index has a maximum value of 0.5390 and a standard deviation of 0.048. Additionally, the GFCF has a standard deviation of 8409.7 and a maximum of USD 97731.01 million, while CPI has a maximum value of 152.3715 and a standard deviation of 9.814.

Regarding Brunei Darussalam, GDP has an average of USD 3397.42 million with a maximum value of USD 4551.527 million and a standard deviation of 513.1245. Concerning the ROA, it has an average of 1.708% and a standard deviation of 0.00509 while the maximum value is equal to 3.278%. Also, the ROE had an average of 12.615% and a standard deviation of 0.036 while the maximum value is equal to 22.77%. Moreover, the NPM had an average of 52.72% and a standard deviation of 0.085 while the maximum value is equal to 69.46%. Regarding macroeconomic variables, the trade openness index has a maximum value of 1.426 and a standard deviation of 0.1377. Additionally, the GFCF has a standard deviation of 302.7902 and a maximum of USD 1809.935 million, while CPI has a maximum value of 100.9713 and a standard deviation of 0.7276.

Since this study is using panel data for the empirical investigation, it is necessary to summarize descriptively the panel data in Table 10.

Table 10: Statistics summary of the experimental variables in the panel data

<i>Variable</i>		<i>Mean</i>	<i>Std. Dev</i>	<i>Min</i>	<i>Max</i>	<i>Obs</i>
GDP (USD Million)	Overall		100773.1	2756.005	289104.6	N = 75
	Between	108698.7	121155.5	3397.42	241113.9	n = 3
	Within		15401.17	70808.8	156689.4	T = 25
ROA	Overall		0.0049694	0.0051916	0.0327846	N = 75
	Between	0.0130167	0.0035345	0.010676	0.0170825	n = 3
	Within		0.0040317	0.0065355	0.0287189	T = 25
ROE	Overall		0.0370943	0.0538067	0.2277291	N = 75
	Between	0.1295432	0.0238886	0.1075305	0.1549456	n = 3
	Within		0.0314706	0.0758194	0.2311188	T = 25
NPM	Overall		0.1837584	0.0487244	0.6946212	N = 75
	Between	0.3481282	0.2109791	0.1155474	0.5272025	n = 3
	Within		0.0607565	0.1984878	0.515547	T = 25
TRADE	Overall		0.3836809	0.3456053	1.426386	N = 75
	Between		0.4537777	0.4168381	1.320567	n = 3

	Within	0.8927349	0.0898875	0.729421	1.378321	T = 25
GFCF (USD Million)	Overall		33346.45	762.7048	97731.01	N = 75
	Between	33214.45	40132.44	1184.395	78232.39	n = 3
	Within		4871.802	20553.68	52713.06	T = 25
CPI	Overall		17.09025	98.25291	152.3715	N = 75
	Between	118.0376	19.38802	99.54021	138.2078	n = 3
	Within		6.171967	100.0584	132.2012	T = 25

- *Note:* N (number of observations), n (panel numbers = 3 countries), and T (periods = 2013Q4-2019Q4)
- *Source:* Descriptive statistics summary prepared by authors

Table 10 showed that within panel data, Southeast Asia (Malaysia, Indonesia, and Brunei Darussalam) has a GDP with an average of 108698.7 with a maximum value of 156689.4 and a standard deviation of 15401.17. Concerning the ROA, it has an average of 1.30% and a standard deviation of 0.403% while the maximum value is equal to 2,871%. Also, the ROE had an average of 12.95% and a standard deviation of 3.147% while the maximum value is equal to 23.11%. Moreover, the NPM had an average of 34.81% and a standard deviation of 6.075% while the maximum value is equal to 51,5547%. Regarding macroeconomic variables, the trade openness index has a maximum value of 1.378321 and a standard deviation of 0.089. Additionally, the GFCF has a standard deviation of 4871.802 and a maximum of 52713.06, while CPI has a maximum value of 132.2012 and a standard deviation of 6.171967.

5.4 Methods of Data Analysis, Building Empirical Model, and Estimation Methods

The quantitative data analysis technique was used in this research. Any economic, corporate, or financial evaluation that uses mathematical statistics and equations, statistical modeling, and science to understand or forecast behavior or events is known as quantitative analysis. Quantitative analysis may be used for a variety of purposes, including financial tool assessment, performance estimation, and valuation (Saunders et al., 2009). Three econometric models are used to investigate the effect of Islamic finance performance on economic growth (Panel with fixed effects, Panel with random effects, and Dynamic panel One-Step System GMM). EViews10 was used only for testing unit roots and descriptive statistics while the majority of the empirical investigation was performed by Stata. Stata contains overall packages

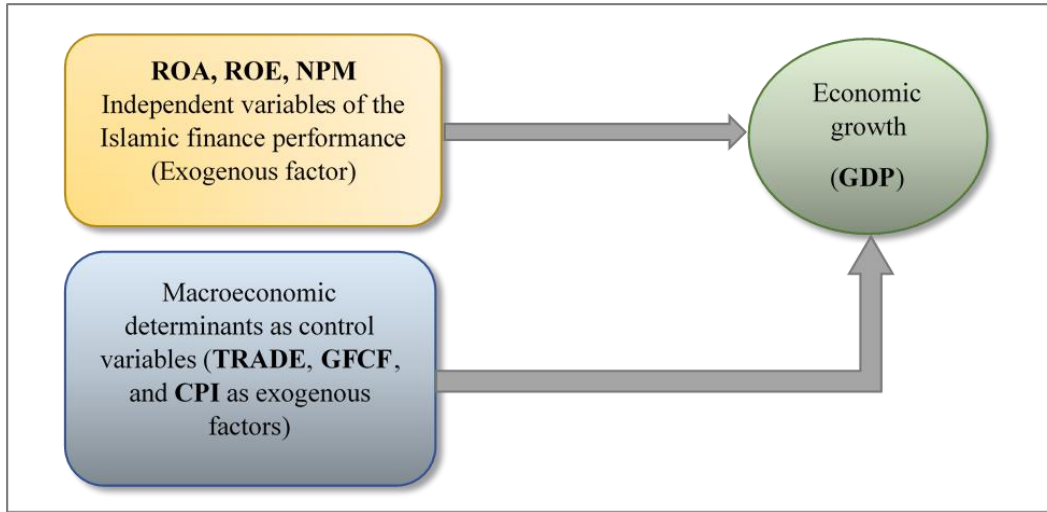
within statistical software used extensively by academics, especially in economics and business, political science, and sociology (Abdel-Razzaq, 2018). Data modeling, statistical analysis, visualization, simulations, regression, and custom programming are all capabilities of Stata (Abdel-Razzaq, 2018).

According to the literature review, most studies have settled to adopt panel regression models such as Panel GMM, Panel regression (fixed effects and random effects), thus, this study applied Dynamic Panel System GMM after checking the invalidity of Panel fixed effects (within regression), and random effects (GLS regression) estimation due to the panel heteroskedasticity problem and the existence of autocorrelation in panel data. Besides, according to Hayakawa (2007) and Soto (2009), the dynamic panel system GMM estimator is the best approach for finite and small samples. Therefore, because this study has a small sample (75 observations), it is suitable to perform the dynamic one-step panel system GMM for unbiased robust estimated results.

A basic problem in the empirical investigation of economic growth is which control variables must be contained within the model. This is the result of what Brock and Durlauf (2001) described as an ‘open-ended theory’ of the causal connection between a variable and economic growth, this theory indicates that the link between another variable and economic growth cannot be controlled out, that's what Durlauf and Quah (1999) confirmed before when they offered over 90 variables for possible economic growth variables.

However, the prime objective in this research is not to underwrite all theories of economic growth, but to examine whether and how the Islamic finance performance affects economic growth within endogenous growth. For this purpose, this study quantified the minimal model for economic growth. Therefore, following previous studies connected to the topic, this paper employed the potential macro-economic factors as control variables to avoid the issue of bias. Therefore, the general model to be estimated within the “Supply-leading Hypothesis” path of Schumpeter (1934) is (Figure 14):

Figure 14: Summary of the empirical investigation between Islamic finance and economic growth in the framework of “Supply-leading Hypothesis” of Schumpeter (1934)



- *Source: Prepared by authors*

Similar to the study of Tabash (2019), in which ROA, ROE, and NPM were adopted as variables of Islamic finance performance for investigating the effect of Islamic finance performance on economic growth, the empirical model in this research for investigating the effect of Islamic finance performance on economic growth in the southeast of Asia is as the following:

$$\text{GDP} = \text{ROA} + \text{ROE} + \text{NPM} + \text{TRADE} + \text{GFCF} + \text{CPI} \quad (2)$$

In which:

Dependent variable: GDP.

Independent Variables: ROA, ROE, NPM.

Control variables: TRADE, GFCF, CPI.

5.5 Sub-Hypotheses and Expected Results

According to the theoretical background above (see Chapter. 3), and based on the literature (see Chapter. 3), the main research hypothesis stipulates that Islamic finance performance is affecting positively economic growth in Southeast Asia. However, it is important

to highlight the expected association between economic growth and the Islamic finance performance factors in the investigated model. Therefore, Table 11 is summarizing this predicted association as sub-hypotheses that construct the exploration of the empirical results based on the literature. For the macro-economic variables, each used variable (TRADE, GFCF, CPI) associated with economic growth is explained in Table. 11 based on literature.

Table 11: The predicted relationship between the dependent variable and independent variables

<i>Variables</i>		<i>Description</i>	<i>Sub-Hypothesis / Expected sign</i>	<i>Literature</i>
Islamic finance performance	ROA	This metric expresses the viability of a banking society's overall operations. This index, also recognized as profit to assets or asset profitability, calculates the impact of management's ability to leverage an organization's financial and actual capital to achieve profit.	<i>Sub.H1: ROA has a positive effect on economic growth.</i> (+)	(Alkhazaleh, 2017; Rabaa and Younes, 2016; Tabash, 2019; Ledhem and Mekidiche, 2020)
	ROE	Return on Equity (ROE) is the most important benefit metric, as it calculates banking management in all of its aspects and provides an image of how to employ the capital provided by shareholders, as well as the impact of their retainer in the bank's operations.	<i>Sub.H2: ROE has a positive effect on economic growth.</i> (+)	(Adekola, 2016; Rabaa and Younes, 2016; Tabash, 2019; Ledhem and Mekidiche, 2020)
	NPM	Net profit margin (NPM) is a financial ratio used to compute the proportion of profit a corporation produces from its overall revenue.	<i>Sub.H3: NPM has a positive effect on economic growth.</i> (+)	(Tabash, 2019; Ledhem and Mekidiche, 2020)
Control macro-economic variables	TRADE	The trade openness index is tied to economic growth in a positive way. Furthermore, increased trade openness benefits	<i>TRADE has a positive effect on economic growth.</i>	(Boukhatem and Moussa, 2018; Hye, Wizarat, and Lau, 2016; Kassim, 2016;

		high-income regions' capital accumulation, economic growth, and financial progress.	(+)	Keho, 2017; Kim, 2011; Kim, Lin, and Suen, 2011; Tahir and Azid, 2015)
		They conclude that the trade openness index is negatively correlated to economic growth, especially in low-income countries.	(-)	(Hye and Lau, 2015; Kim, 2011; Kim et al., 2011; Vamvakidis, 2002; Ledhem and Mekidiche, 2021)
	GFCF	The gross fixed capital formation (GFCF) which is a measurement of investments and capital accumulation is affecting positively the economic growth leading to the fact that investments in Southeast Asia are boosting economic growth.	<i>GFCF has a positive effect on economic growth.</i> (+)	(Hussin and Saidin, 2012; Kassim, 2016; Zhang, 2001; Ledhem and Mekidiche, 2021)
	CPI	Inflation has a positive impact on economic growth, and it is a reflection of strong economic growth because of the high rate of investments that generate inflation with high living costs, high wages, and returns.	(+)	(Mallik and Chowdhury, 2001; Xiao, 2009; Ledhem and Mekidiche, 2021)
		Inflation harms economic growth, as it is not supportive but rather disruptive to the pace of economic growth.	<i>CPI has a positive effect on economic growth.</i> (-)	(Boukhatem and Moussa, 2018; Kassim, 2016; M. A. Khan and Khan, 2018; Lebdaoui and Wild, 2016; Nguyen, 2019; Rabaa and Younes, 2016)

- *Source: Performed by the author depending on literature review results*

5.6 Econometric Model Application, Testing Hypotheses, and Findings

5.6.1 Introduction (Empirical Process)

The empirical investigation is based on these processes:

1- *Testing Cross-sectional Independence in Panel data*

According to Baltagi (2005), it is recommended to know what kind of cross-sections in panel data before performing the panel unit roots tests, because there are tests that allow for independence, tests that assume cross-sectional independence, tests panel cointegration. Thus, it is recommended to run this test before testing panel stationarity (Table 12).

2- *Testing the panel stationarity*

Although Park (2011) has reported that modeling data panel analysis does not require unit-roots, only in the case of cointegration, unit-roots testing is needed for panel data modeling under the fixed/random effects. However, following Entorf (1997), to not fall out in the spurious fixed effects regression, this research performed the unit-roots tests for panel data. Thus, according to Baltagi (2005), panel unit root tests that allow for cross-sectional independence are the test of Levin, Lin & Chu (2002), and the test of LM, Pesaran, and Shin (2003). For this reason, this study performed those tests since the empirical model in this research is performing the panel regression with fixed effect and prove that the cross-sectional dependence exists in the panel data.

3- *Performing the Panel FEM and REM and choosing the optimal one.*

This research performed panel regression with fixed effects and random effects, then, the Hausman test was performed to choose the optimal one, in which the null hypothesis of the Hausman test designates that the panel regression with random effects is suitable.

4- *Testing the validity of the panel regression with fixed effects.*

To deliberate that the estimation model of panel regression with fixed effects is appropriate for the empirical investigation based on Wooldridge (2010), three tests were executed for checking the diagnostics, the cross-sectional dependence test of Pesaran (2015),

autocorrelation test of Wooldridge (2012), and the group-wise heteroskedasticity test of Baum (2001).

5- Performing the alternative regression solution (System GMM).

This research applied Dynamic Panel System GMM after checking the invalidity of Panel fixed effects (within regression), and random effects (GLS regression) estimation due to the panel heteroskedasticity problem and the existence of autocorrelation in panel data. Besides, according to Hayakawa (2007) and Soto (2009), the dynamic panel system GMM estimator is the best approach for finite and small samples. Therefore, because this study has a small sample (75 observations), it is suitable to perform the dynamic one-step panel system GMM for unbiased robust estimated results. As well, according to B. Baltagi (2005), Dynamic Panel System GMM is an optimal method for omitting the potential endogeneity problem by the inclusion of the lagged explanatory variable (Lagged GDP) of the dependent variable which can stem from the potential impact of economic growth (dependent variable) on Islamic finance performance (main explanatory factor), for instance, the literature on financing theories that higher economic growth would lead to a higher demand for financial services and, therefore, a growth in finance and banking, resulting in growth credits and client deposits could have a positive effect on margins for bank profitability such as return on assets (ROA) (Sufian and Chong, 2008; Sufian and Kamarudin, 2015).

6- Testing the validity of dynamic panel system GMM.

To check the one-step system GMM validity, this study performed the Arellano–Bond serial correlation test and Sargan test of over-identifying restrictions which was established by Arellano and Bond (1991) to test the GMM instruments validity. Additionally, Arellano and Bond (1991), and Blundell and Bond (1998) endorsed the Hansen test for checking the robustness which specifies that the estimated model is unbiased and robust. Consequently, this study performed the Hansen test. For the superlative results surrounding the one-step system GMM diagnostics, it is recommended to gain high insignificant p-values.

5.6.2 Research Estimation Methods (Dynamic Panel System GMM Model)

Generally, the estimation problem raised by the potential existence of unobserved individual effects, the endogeneity, and the correlation between regressors and lagged variables,

make fixed or random effects unsuitable for the estimation. Such methods generate bias and inaccurate results (B. H. Baltagi and Kao, 2001). Arellano and Bond (1991) estimated the specific model for the first difference, which can remove the overlooked individual effect, in which the estimation uses all existing lagged values of the dependent variable and lagged values of the exogenous regressors as an instrument.

Blundell and Bond (1998) indicated that when the dependent variable and the explanatory variables are determined across time, the lagged levels of these variables are weak instruments for the regression equation of differences. Later they developed a new method called the GMM system estimator that included lagged stages and lagged differences as instruments.

Roodman (2009) and Bond (2002) specified GMM as a system estimation that can resolve the problems correlated to endogeneity, invisible heterogeneity, heteroskedasticity, and autocorrelation. Therefore, in this study, the System GMM estimator was applied to perform the empirical investigation, and as an optimal method for the sample of this analysis (75 observations), the GMM estimator dynamic panel system is the most suitable for small and finite samples since it has a lower bias and greater reliability than all the other evaluated estimators according to Hayakawa (2007) and Soto (2009).

According to Roodman (2009), the GMM model is:

$$Y = \mathbf{x}'\alpha + \varepsilon \quad \forall \quad E(\varepsilon|\mathbf{s}) = 0 \quad (3)$$

In which:

α is a support vector of coefficients, y and ε are random variables, $\mathbf{x} = (\mathbf{x}_1, \dots, \mathbf{x}_k)'$ is a column vector of k regressors, $\mathbf{s} = (\mathbf{s}_1, \dots, \mathbf{s}_j)'$ is a column vector of j instruments, x and s can share elements and $\mathbf{j} \geq \mathbf{k}$.

This research employed \mathbf{X} , \mathbf{Y} , and \mathbf{S} to signify matrices of N observations for x , y , and s , and it stated $\mathbf{E} = \mathbf{Y} - \mathbf{X}\alpha$.

Given an estimation, $\hat{\alpha}$, the experimental residuals are $\hat{\mathbf{E}} = (\hat{e}_1, \dots, \hat{e}_N)' = \mathbf{Y} - \mathbf{X}\hat{\alpha}$

This research made no statement at this point about $\mathbf{E} (\mathbf{E}\mathbf{E}' | \mathbf{S}) = \mathbf{\Omega}$ excepting that it exists.

In the GMM, one states that magnitude through a generalized metric, based on a positive semidefinite quadratic form. Let \mathbf{A} be the matrix for such a quadratic form. Then the metric is:

$$\|\mathbf{E}_N(\mathbf{s}\mathbf{E})\|_A = \left\| \frac{1}{N} \mathbf{s}' \widehat{\mathbf{E}} \right\| \equiv N \left(\frac{1}{N} \mathbf{s}' \widehat{\mathbf{E}} \right)' \mathbf{A} \left(\frac{1}{N} \mathbf{s}' \widehat{\mathbf{E}} \right) = \frac{1}{N} \widehat{\mathbf{E}}' \mathbf{s}_A \mathbf{s}' \widehat{\mathbf{E}} \quad (4)$$

To derive the indicated GMM estimate, call it $\hat{\alpha}_A$, this research resolved the minimization problem:

$$\hat{\alpha}_A = \mathit{argmin}_{\hat{\alpha}} \|\mathbf{s}' \widehat{\mathbf{E}}\|_A \text{ whose solution is determined by } \mathbf{0} = d/(d\hat{\alpha}) \|\mathbf{s}' \widehat{\mathbf{E}}\|_A.$$

The extension of this derivative with chain law is:

$$0 = \frac{d}{d\hat{\alpha}} \|\mathbf{s}' \widehat{\mathbf{E}}\|_A = \frac{d}{d\widehat{\mathbf{E}}} \|\mathbf{s}' \widehat{\mathbf{E}}\|_A \frac{d\widehat{\mathbf{E}}}{d\hat{\alpha}} = \frac{d}{d\widehat{\mathbf{E}}} \left\{ \frac{1}{N} \widehat{\mathbf{E}}' (\mathbf{S}\mathbf{A}\mathbf{S}') \right\} \frac{d(\mathbf{Y}-\mathbf{X}\hat{\alpha})}{d\hat{\alpha}} = \frac{2}{N} \widehat{\mathbf{E}}' \mathbf{S}\mathbf{A}\mathbf{S}' (-\mathbf{X}) \quad (5)$$

The last step is to use identity matrix $d \frac{Ab}{db} = \mathbf{A}$ and $d \frac{(b'Ab)}{db} = 2\mathbf{b}'\mathbf{A}$, where \mathbf{b} is a column vector, and \mathbf{A} is a symmetric matrix. Dropping the factor of $-2/N$ and transposing,

$$\mathbf{0} = \widehat{\mathbf{E}}\mathbf{S}\mathbf{A}\mathbf{S}'\mathbf{X} = (\mathbf{Y} - \mathbf{X}\hat{\alpha}_A)' \mathbf{S}\mathbf{A}\mathbf{S}'\mathbf{X} = \mathbf{Y}'\mathbf{S}\mathbf{A}\mathbf{S}'\mathbf{X} - \hat{\alpha}'\mathbf{X}'\mathbf{S}\mathbf{A}\mathbf{S}'\mathbf{X}$$

$$\Rightarrow \mathbf{X}'\mathbf{S}\mathbf{A}\mathbf{S}'\mathbf{X}\hat{\alpha}_A = \mathbf{X}'\mathbf{S}\mathbf{A}\mathbf{S}'\mathbf{Y}$$

$$\Rightarrow \hat{\alpha}_A = (\mathbf{X}'\mathbf{S}\mathbf{A}\mathbf{S}'\mathbf{X})^{-1} \mathbf{X}'\mathbf{S}\mathbf{A}\mathbf{S}'\mathbf{Y} \quad (6)$$

This is the GMM estimator is well-defined by \mathbf{A} , it is linear in \mathbf{Y} , whereas \mathbf{A} weights moments (Roodman, 2009).

Therefore, the empirical model based on the panel regression is:

$$Y_{it} = \alpha_0 + \alpha_i P_{it} + \beta_i X_{it} + \xi_{it} \quad \forall \quad \xi_{it} = v_i + \mu_{it} \quad (7)$$

In which:

Y_{it} is the economic growth (GDP) measure for country i at time t . P_{it} are the Islamic finance performance variables (ROE, ROA, NPM) for country i at time t .

X_{it} are the variables of macroeconomics (TRADE, CPI, and GFCF) for country i at time t . α_0 is a constant term, α_i and β_i are coefficients.

ξ_{it} is an error term, with v_i is the unobserved Islamic finance performance effect and μ_{it} the individual error.

For instance, the literature on financing theories that higher economic growth would lead to a higher demand for financial services and, therefore, a growth in finance and banking, resulting in growth credits and client deposits could have a positive effect on margins for bank profitability such as return on assets (ROA) (Abdel-Razzaq, 2018; Sufian and Chong, 2008; Sufian and Kamarudin, 2015). Thus, by projecting this fact in this study, the problem of endogeneity could rise since economic growth can affect Islamic finance performance through return on assets (ROA) (Alharbi, 2017; M. M. S. Khan et al., 2014; Setyawati et al., 2017; Zarrouk et al., 2016). Therefore, according to Arellano (2003), B. Baltagi (2005), and Croissant and Millo (2019), the endogeneity problem is omitted by the inclusion of the dependent variable as a lagged explanatory variable (lagged GDP) in the empirical model. Hence, this study adopted a dynamic specification of the model by including a lagged dependent variable among the regressors (Arellano, 2003; Croissant and Millo, 2019), the regression of equation (1) augmented with lagged GDP has become based on the dynamic panel system GMM:

$$Y_{it} = \alpha_0 + \partial Y_{i,t-1} + \alpha_i P_{it} + \beta_i X_{it} + \xi_{it} \quad (8)$$

Where $Y_{i,t-1}$ is the one-quarter lagged GDP and ∂ is a coefficient.

Correspondingly, this study is following the empirical path of a notable study by Beck et al. (2000), when their study has evaluated the empirical link between the financial intermediary development and economic growth using the system dynamic-panel estimator to exclude biases created by endogeneity. Therefore, the dynamic panel system GMM is suitable for the empirical investigation of Islamic finance performance and economic growth nexus in Southeast Asia.

5.6.3 Testing the Cross-sectional Independence in Panel Data

Table 12: Cross-sectional dependence test of Pesaran (2015)

Null Hypothesis: No cross-sectional dependence in panel data	
Z- stat	P> z
-1.153	0.2489

- **Source:** Cross-sectional dependence test performed by authors using STATA16 software

Table 12 reported that the null hypothesis can not be rejected with an insignificant p-value ($0.2489 > 0.05$). Hence, there is no cross-sectional dependence in panel data which means that there is a presence of dependence between cross-section units.

5.6.4 Compatible Panel Unit Roots Tests with Cross-sectional Independence

Following Levin et al. (2002) in testing the panel stationarity, the test of Levin, Lin & Chu is used. As well, based on Im et al. (2003) in testing panel stationarity, for robust checking, the test of LM, Pesaran, and Shin is added.

Table 13: Panel unit root tests

Summary			Null Hypothesis: Panels contain unit roots Alternative Hypothesis: Panels are stationary					
			<i>No trend, no individual intercept</i>		<i>Including the individual intercept</i>		<i>Including trend and individual intercept</i>	
<i>Variables</i>	<i>Test</i>		<i>Statistic</i>	<i>Prob</i>	<i>Statistic</i>	<i>Prob</i>	<i>Statistic</i>	<i>Prob</i>
GDP	<i>Test of Levin, Lin & Chu</i>	Level	1.94927	0.9744	-0.48720	0.3131	0.08097	0.5323
		1 st difference	-5.93486	0.000**	-2.79339	0.0026**	-5.52068	0.0000**
	<i>LM, Pesaran and Shin W-stat</i>	Level	-	-	-0.49391	0.3107	0.87254	0.8085
		1 st difference	-	-	-3.53676	0.0002**	-6.84800	0.0000**
ROA	<i>Test of Levin, Lin & Chu</i>	Level	0.48829	0.6873	0.49974	0.6914	-4.11984	0.0000**
		1 st difference	-8.12972	0.000**	-5.80632	0.000**	-4.74192	0.0000**
	<i>LM, Pesaran and Shin W-stat</i>	Level	-	-	-0.87836	0.1899	-3.65021	0.0001**
		1 st difference	-	-	-6.11320	0.000**	-5.38226	0.0000**
ROE	<i>Test of Levin, Lin & Chu</i>	Level	0.21428	0.5848	0.30511	0.6199	-3.89691	0.0000**
		1 st difference	-8.54309	0.000**	-5.49407	0.000**	-0.89057	0.1866
		Level	-	-	-1.19921	0.1152	-4.18858	0.0000**

	<i>LM, Pesaran and Shin W-stat</i>	1 st difference	-	-	-6.25939	0.000**	-4.25151	0.0000**
NPM	<i>Test of Levin, Lin & Chu</i>	Level	0.26150	0.6031	-0.95632	0.1695	-2.81617	0.0024**
		1 st difference	-10.7637	0.000**	-9.16018	0.000**	-4.27829	0.000**
	<i>LM, Pesaran and Shin W-stat</i>	Level	-	-	-1.59647	0.05*	-2.12853	0.0166*
		1 st difference	-	-	-9.03810	0.000**	-5.87271	0.000**
TRADE	<i>Test of Levin, Lin & Chu</i>	Level	-1.34978	0.0885	-0.40310	0.3434	0.38952	0.6516
		1 st difference	-7.99324	0.000**	-6.19676	0.000**	-4.02966	0.0000**
	<i>LM, Pesaran and Shin W-stat</i>	Level	-	-	-0.37024	0.3556	0.75015	0.7734
		1 st difference	-	-	-5.98479	0.000**	-5.95309	0.0000**
GFCF	<i>Test of Levin, Lin & Chu</i>	Level	1.22461	0.8896	0.19578	0.5776	-1.07684	0.1408
		1 st difference	-7.73507	0.000**	-5.41354	0.0023**	-2.30357	0.0106*
	<i>LM, Pesaran and Shin W-stat</i>	Level	-	-	-0.08054	0.4679	-0.83807	0.2010
		1 st difference	-	-	-5.51529	0.000**	-3.72112	0.0001*
CPI	<i>Test of Levin, Lin & Chu</i>	Level	1.82283	0.9658	-2.44300	0.0073**	0.30423	0.6195
		1 st difference	-4.38734	0.000**	-6.56990	0.000**	-5.56507	0.000**
	<i>LM, Pesaran and Shin W-stat</i>	Level	-	-	-0.73696	0.2306	0.54277	0.7064
		1 st difference	-	-	-6.79070	0.000**	-6.25445	0.000**

- *Note: ** significant at the 0.01 level, * significant at the 0.05 level. LM, Pesaran, and Shin test does not test the case of the excluding of trend and intercept (see Appendices)*
- *Source: Performed by authors using Eviews10*

Based on the tests of test of Levin, Lin & Chu, and test of LM, Pesaran and Shin, the results in Table 13 showed that all of the Islamic finance performance variables (ROA, ROE, NPM) are statistically stationary in the level for the case of the including of trend and individual intercept at a significance level of 1% (Levin, Lin & Chu: p-value of ROA= 0.000 < 0.01, p-value of ROE = 0.000 < 0.01, and p-value of NPM = 0.0024 < 0.01; LM, Pesaran and Shin: p-value of ROA= 0.0001 < 0.01, p-value of ROE = 0.000 < 0.01, and p-value of NPM = 0.01 = 1%). While in the case of excluding the trend and individual intercept, all the Islamic finance variables are statistically stationary in the first difference. Concerning the gross domestic product (GDP) variable, the tests showed that GDP is stationary in the first difference, however, in the level, there is a unit root which leads to conclude that dynamic panel regression is also suitable since the GDP is the dependent variable (B. Baltagi, 2005). Regarding the macroeconomic control variables (TRADE, GFCF, CPI), all of them are stationary in the first difference at a significance level of 1% in the three cases of including of trend and individual intercept, individual intercept, and the excluding of both of them, however, the test of Levin,

Lin & Chu test showed that the CPI is strongly stationary in the level in the case of the including of the intercept in statistic level of 1% (Levin, Lin & Chu test: p-value of CPI = 0.0073 < 0.01). Consequently, settling on the fact that most variables are stationary in the level (ROA, ROE, and NPM), and all of them are stationary in the first difference, the empirical results could not be misleading due to the spurious regression outcomes (Entorf, 1997).

However, as reported by Baltagi (2005), in the case of non-stationary panels with T (time-series length) > N (number of countries) as in the case of this research (Some unit-roots exist in the level for some variables, and T = 25 > N = 3), dynamic panel data analysis is suitable for the empirical investigation and does not require stationarity.

5.6.5 Performing Panel Regression with Fixed/ Random Effects, and Choosing the Optimal One

Table 14: Outputs of panel regression with fixed effects

<i>Dependent Variable: GDP</i>				<i>Obs per group: min = 25</i>	
<i>Number of obs = 75</i>				<i>Number of groups = 3</i>	
<i>Avg = 25.0</i>				<i>Max = 25</i>	
<i>Model</i>	<i>Fixed effects (within regression)</i>			<i>R-squared:</i>	
	<i>F (6,66) = 131.87</i>			<i>Within = 0.9230</i>	
	<i>Prob > F = 0.0000</i>			<i>Between = 0.9990</i>	
	<i>Rho = 0.94252387</i>			<i>Overall = 0.9966</i>	
<i>Var</i>	<i>Coefficient</i>	<i>Std. Err</i>	<i>t - stat</i>	<i>P> t </i>	
<i>ROA</i>	-1205776	528544	-2.28	0.026*	
<i>ROE</i>	183107.8	62235.32	2.94	0.004	
<i>NPM</i>	12414.32	17889.87	0.69	0.490	
<i>TRADE</i>	-13423.77	7011.282	-1.91	0.060	
<i>GFCF</i>	2.151933	.1832612	11.74	0.000	
<i>CPI</i>	769.9854	152.9247	5.04	0.000	
<i>Constant</i>	-54026.74	16396.3	-3.30	0.002	

- *Note:* * significant at the 0.05 level, ** significant at the 0.01 level.
- *Source:* Panel regression with fixed effects performed by authors using STATA16 software

Table 15: Panel regression with random effects

<i>Dependent Variable: GDP</i>		<i>Obs per group: min = 25</i>		
<i>Number of obs = 75</i>		<i>Number of groups = 3</i>		
<i>Avg = 25.0</i>		<i>Max = 25</i>		
<i>Model</i>	<i>Random effects (GLS regression)</i>			<i>R-squared:</i>
	<i>Wald chi2(6) = 32801.83</i>			<i>Within = 0.9157</i>
	<i>Prob > chi2 = 0.0000</i>			<i>Between = 1.0000</i>
	<i>Rho = 0</i>			<i>Overall = 0.9979</i>
<i>Var</i>	<i>Coefficient</i>	<i>Std. Err</i>	<i>z</i>	<i>P> z </i>
<i>ROA</i>	-1959321	446810.4	-4.39	0.000**
<i>ROE</i>	295151.8	43624.7	6.77	0.000**
<i>NPM</i>	-9564.765	17317.87	-0.55	0.581
<i>TRADE</i>	-12416.25	6217.169	-2.00	0.046*
<i>GFCF</i>	2.48532	.1120042	22.19	0.000**
<i>CPI</i>	762.5909	124.0933	6.15	0.000**
<i>Constant</i>	-62180.93	11428.44	-5.44	0.000**

- *Note:* * significant at the 0.05 level, ** significant at the 0.01 level.
- *Source:* Panel regression with random effects performed by authors using STATA16 software

Table. 14 and Table. 15 reported the panel regression estimation outputs with fixed effects and random effects. To choose the optimal estimation model for the empirical investigation, this paper performed the Hausman test (B. H. Baltagi, Bresson, and Pirotte, 2003).

Table 16: Hausman test to choose the optimal panel regression between fixed effects and random effects

Null Hypothesis: Difference in coefficients not systematic (Panel regression with random effects is suitable)	
Chi2	Prob> Chi2
8.89	0.0117

- *Note:* * significant at the 0.05 level.
- *Source:* Hausman test performed by authors using STATA16 software

Table 16 reported that the null hypothesis is accepted since the p-value (0. 0117) is bigger than 0.05. Therefore, according to the Hausman test, the best panel regression model for estimation is the panel with fixed effects (B. H. Baltagi et al., 2003).

5.6.6 Testing the Validity of Panel Regression with Fixed Effects

To consider that the estimation model of panel regression with fixed effects is suitable for the empirical investigation according to Wooldridge (2010), three tests were performed for checking the diagnostics, the cross-sectional dependence test of Pesaran (2015) (Table 12), autocorrelation test of Wooldridge (2012) (Table 17), and the group-wise heteroskedasticity test of Baum (2001) (Table 18). Thus, it is recommended to gain high insignificant p-values. As well, following Meintanis (2011), the Jarque-Berra test was performed for testing panel data normality (Table 19).

In addition, based on Table 12 above, the null hypothesis can not be rejected with an insignificant p-value ($0.2489 > 0.05$). Hence, there is no cross-sectional dependence in panel data which means that there is a presence of dependence between cross-section units.

Table 17: Wooldridge test for autocorrelation in panel data

Null Hypothesis: No first-order autocorrelation	
F (1,2)	Prob> F
881.103	0.0011**

- *Note:* ** significant at the 0.01 level.
- *Source:* Wooldridge test for autocorrelation performed by authors using STATA16 software.

Table. 17 reported that the null hypothesis is rejected with a high significant p-value ($0.0011 < 0.01$). Thus, there is an autocorrelation problem in the panel with fixed effects regression.

Table 18: Wald test for group-wise heteroskedasticity in the fixed effects regression

Null Hypothesis: No Group-Wise Heteroskedasticity	
Chi2 (3)	Prob> Chi2
249.16	0.0000*

- *Note:* ** significant at the 0.01 level.
- *Source:* Group-Wise heteroskedasticity test performed by authors using STATA16 software.

Table. 18 reported that the null hypothesis is rejected with a high significant p-value ($0.0000 < 0.01$). Consequently, there is a heteroskedasticity problem in the panel with fixed effects.

Table 19: Jarque-Bera test for panel data normality

Null Hypothesis: Normality	
Chi2	Prob> Chi2
0.185548	0.911399*

- *Source: Jarque-Bera test performed by authors using EViews10 software.*

Table 19 reported that the null hypothesis of normality can not be rejected with an insignificant p-value ($0.911399 > 0.05$). Thus, the residuals are distributed normally in panel data.

Since the panel regression with fixed effects is not acceptable due to the presence of autocorrelation and heteroskedasticity, this paper used the dynamic panel one-step system GMM method as a solution method for estimation due to its advantages in avoiding the issue of autocorrelation and heteroskedasticity in fixed-effects since the errors are supposed to be homoscedastic in the GMM estimation (Blundell and Bond, 1998; Bond, 2002; Roodman, 2009) (Table 20). Besides, the dynamic panel one-step system GMM is the most proper model for small and finite samples because it has a lower bias and higher efficiency than all the other estimators analyzed according to Hayakawa (2007) and Soto (2009).

5.6.7 Performing the Alternative Regression Solution (Dynamic Panel One-Step System GMM)

Table 20: Dynamic panel one-step system GMM outputs

<i>Number of observations = 72</i>		<i>Number of groups = 3</i>		
<i>Wald chi2(7) = 109.48</i>		<i>Prob > chi2 = 0.000</i>		
<i>Number of instruments = 26</i>		<i>Observations per group: min = 24</i>		
<i>Max = 24</i>		<i>Avg = 24.6700</i>		
VARIABLES	Coefficients	Robust Standard Error	z	P> z/
Lagged GDP	.2713367	.0357653	7.59	0.000**
ROA	-2704402	1577615	-1.71	0.086
ROE	355406.7	144012.5	2.47	0.014*
NPM	45854.23	9565.756	4.79	0.000**
TRADE	-62509.48	23330.98	-2.68	0.007**
GFCF	1.749821	.2320646	7.54	0.000**
CPI	258.784	184.2118	1.40	0.160
Constant	19860.71	42841.58	0.46	0.643

- *Note: * significant at the 0.05 level, ** significant at the 0.01 level.*
- *Source: Dynamic panel one-step system GMM performed by authors using STATA16 software*

Table 20 showed that the effect of Islamic finance performance on economic growth (GDP) is significantly positive through return on equity (ROE) and net profit margin (NPM), whereas the factor of return on assets (ROA) was not statistically significant to the economic growth in a significance level of 5% which leads to rejecting the first sub-hypotheses (*Sub.H1*) concerning the positive effect of return on assets (ROA) on the economic growth of Southeast Asia, while return on equity (ROE) was statistically positive on a significance level of 5% (p-value of ROE= 0.014 < 0.05), and net profit margin (NPM) was also statistically positive on a significance level of 1% (p-value of NPM= 0.000 < 0.01). As well, Table 20 outputs showed that if there is an increase of 1% in return on equities (ROE) of Islamic finance in Southeast Asia then the economic growth value (GDP) will increase by 3554.067 million USD. As well, if there is an increase in 1% in net profit margin (NPM) of Islamic finance in Southeast Asia then the gross domestic product (GDP) will increase by 458.5423 million USD which indicates that Islamic finance performance is promoting economic growth in Southeast Asia with a positive pace. Thus, this finding confirmed the validity of the general hypothesis that Islamic finance performance is affecting positively economic growth in Southeast Asia.

Regarding the effect of lagged GDP on economic growth (GDP), it is statistically significant and strongly positive on a significance level of 1% (p-value of the lagged GDP = 0.000 < 0.01) which means that economic growth in Southeast Asia is adjusted to equilibrium with a speed of 27.13%.

Regarding the effect of macro-economic control variables on economic growth, the gross fixed capital formation (GFCF) which is a measurement of investments is affecting the economic growth positively on a significance level of 1% (p-value of GFCF= 0.000 < 0.01), which leads to conclude that investments are enhancing economic growth in Southeast Asia reliable with the findings of Ledhem and Mekidiche (2021). While the consumer price index (CPI) which is a proxy variable for inflation was not significant at a significance level of 5% (p-value of CPI= 0.160 > 0.05), however, the consumer price index (CPI) which is a proxy variable for inflation is insignificant and does not affect economic growth in Southeast Asia (p-value of CPI= 0.16 > 0.05). While trade openness (Trade) is affecting the economic growth negatively on a significance level of 1% (p-value of TRADE = 0.007 < 0.01) reliable with the findings of a study on the connection between Islamic finance and economic growth by Ledhem and Mekidiche (2021) when they found that trade openness has a negative impact on economic

growth in the Southeast of Asia. Concerning the constant coefficient, it is insignificant, which means that economic growth in this model is not affected by other omitted variables.

5.6.8 Testing the Validity of Dynamic Panel One-Step System GMM

Regarding the one-step system GMM diagnostics, this empirical investigation performed the Arellano–Bond serial correlation test and Sargan test of over-identifying restrictions which was established by Arellano and Bond (1991) to test the GMM instruments validity as is shown in Table 21. As well, Arellano and Bond (1991), and Blundell and Bond (1998) recommended the Hansen test for checking the robustness which indicates that the estimated model is unbiased and robust. Consequently, this paper performed the Hansen test as is shown in Table 21. For the best results surrounding the one-step system GMM diagnostics, it is recommended to obtain high insignificant p-values.

Table 21: Diagnostics of dynamic panel one-step system GMM

<i>Serial correlation tests</i>		
<i>Arellano – Bond test for AR (1) in first differences</i>	$Z = -1.61$	$Pr > Z = 0.108$
<i>Arellano – Bond test for AR (2) in first differences</i>	$Z = -1.57$	$Pr > Z = 0.117$
<i>Instruments overall validity test</i>		
<i>Sargan test of over-identifying restrictions</i>	$Chi2(18) = 15.84$	$Prob > chi2 = 0.604$
<i>Robustness test</i>		
<i>Hansen test of robustness</i>	$Chi2(18) = 0.00$	$Prob > chi2 = 1.000$

- *Source: Dynamic panel one-step system GMM diagnostics performed by authors using STATA 16 software.*

According to the Sargan test outputs of over-identifying restrictions in Table 21, the p-value is insignificant ($Prob > chi2 = 0.604$), so the overall validity of instruments is significant and all instruments as a group are exogenous.

Based on the outputs of Arellano- Bond test for the panel serial correlation, the error term of the differenced equation is insignificant because it is not serially correlated at both the first-order AR (1) ($Pr > Z = 0.108$) and second-order AR (2) ($Pr > Z = 0.117$) (Table 21).

Referring to the Hansen test outputs of robustness in Table 21, the p-value is highly insignificant ($\text{Prob} > \chi^2 = 1.000$) which means that the overall validity of instruments is significantly robust. According to Roodman (2007), when the Hansen test returns a perfect p-value of 1.000, it indicates that the estimated model of the one-step system GMM is perfectly robust and unbiased.

According to Roodman (2009), the dynamic panel one-step system GMM method is the optimal alternative method for panel regression with the heteroskedasticity problem because the errors in the GMM estimation are homoscedastic. As well, since the dynamic panel one-step system GMM in this paper is unbiased and free from the problem of panel serial correlation and the overall instruments in the GMM estimation are robust and valid, the empirical results are accurate and precise. Therefore, the empirical investigation in this paper is robustly truthful to work with its outcomes.

5.7 Discussion of Empirical Findings, and Testing Hypothesis

This study investigated empirically the effect of Islamic finance performance on economic growth using a robust method of dynamic panel one-step system GMM. The findings in Table 20 showed that the effect of Islamic finance performance on economic growth (GDP) is significantly positive through return on equity (ROE) and net profit margin (NPM), whereas the factor of return on assets (ROA) was not statistically significant to the economic growth in a significance level of 5% which leads to rejecting the first sub-hypotheses (*Sub.H1: ROA has a positive effect on economic growth*).

Based on the estimated outputs in Table 20, ROA has no significant positive effect on economic growth, this is reflecting that the produced returns from the growth of Islamic banks assets are not enough to generate a significant promoting investment to economic growth in Southeast Asia. This finding is reliable with the findings of Ledhem and Mekidiche (2020) when they found that Islamic finance performance does not affect economic growth through return on assets (ROA), that's what Alkassim (2005) and Flamini et al., (2009) have determined that return on assets (ROA) is bias due to omitted off-balance-sheet activities, therefore, as stated in Bashir (1999), Samad and Hassan (2000), Samad (2004), Alkassim (2005), and Athanasoglou, et al., (2005b), ROA is not reflecting the real competence of Islamic banks over the produced

investments, ROA can only reflect the capability and effectiveness of management in allocating asset to produce a net profit in Islamic banks, it is a measure of management competence more than investments competence, thus, ROA reflects the internal management efficiency of Islamic banks in which management is not refreshing investments like ROE. That's what Bashir (2003) also states that ROA is commonly utilized by regulators since it is certain that ROA is a preferable indicator of a bank's financial performance and management efficiency. Consequently, since ROA can not be an indicator for the real competence of Islamic banks' investments, it can not translate the contribution of Islamic finance on economic growth.

Concerning the effect of return on equity (ROE) on the economic growth of Southeast Asia, the return on equity (ROE) was statistically positive on a significance level of 5% (p-value of ROE= 0.014 < 0.05), which leads to accepting the second sub-hypotheses (*Sub.H2*):

Sub.H2: ROE has a positive effect on economic growth, is accepted.

As well, Table 20 outputs showed that if there is an increase of 1% in return on equities (ROE) of Islamic finance in Southeast Asia then the economic growth value (GDP) will increase by 3554.067 million USD. As well, this finding surrounding the positive effect of Islamic finance performance over the profitability factors of return on equity (ROE) is consistent with both findings of Ledhem and Mekidiche (2020), Tabash (2019), and Rabaa and Younes (2016) confirmed the same significant positive link between ROE and GDP.

Whereas the net profit margin (NPM) was also statistically positive on a significance level of 1% (p-value of NPM= 0.000 < 0.01), which leads to accepting the third sub-hypotheses (*Sub.H3*):

Sub.H3: NPM has a positive effect on economic growth, is accepted.

Additionally, if there is an increase of 1% in net profit margin (NPM) of Islamic finance in Southeast Asia then the gross domestic product (GDP) will increase by 458.5423 million USD which indicates that Islamic finance performance is promoting economic growth in Southeast Asia with a positive pace.

Thus, this finding confirmed the validity of the general hypothesis that Islamic finance performance is affecting positively economic growth in Southeast Asia through return on equity (ROE) and the net profit margin (NPM). As well, this finding surrounding the positive effect of

Islamic finance performance over the profitability factor of net profit margin (NPM) is consistent with the findings of Tabash (2019) confirmed the same significant positive link between NPM and GDP. In conclusion, the main hypothesis (*H1*) of this study is accepted:

H1: Islamic finance performance has a positive effect on economic growth, is accepted.

Since the main hypothesis is derived from the Schumpeterian theory of ‘Supply-leading theory’, this study found that Islamic finance performance is leading to economic growth in southeast Asia is consistent with the hypothesis of Schumpeter (1934) in which financial development is leading to economic growth. Above and beyond, the positive effect of Islamic finance performance over the profitability factors of return on equity (ROE) and net profit margin (NPM) is consistent with what Bourke (1989) had established, that banks with high profitability remain well-capitalized which leads to increase the capital stock due to the banking profitability, then it leads to economic growth, therefore, the endogenous growth theory of Romer (2011) is confirmed in this path. Consequently, by projecting the endogenous growth model of Romer (2011), this study also concluded that Islamic finance performance factors of profitability (ROE, NPM) are exogenous factors within the endogenous growth model of Southeast Asia over Malaysia, Indonesia, and Brunei Darussalam.

Regarding the effect of lagged GDP on economic growth (GDP), it is statistically significant and strongly positive on a significance level of 1% (p-value of lagged GDP = 0.000 < 0.01) which means that economic growth in Southeast Asia is adjusted to equilibrium with a speed of 27.13%. This finding is reliable with Canlas (2020) when he resolute that countries in Southeast Asia are witnessing noteworthy economic growth which leads to accomplishing that Southeast Asia has a remarkable economic convergence in all of Malaysia, Indonesia, and Brunei Darussalam due to the homogeneity of Islamic finance in Southeast Asia.

Regarding the effect of macro-economic control variables on economic growth, the gross fixed capital formation (GFCF) which is a measurement of investments is affecting the economic growth positively on a significance level of 1% (p-value of GFCF= 0.000 < 0.01), which leads to conclude that investments are enhancing economic growth in Southeast Asia consistent with the results of Zhang (2001) when he indicated that investments enhanced economic growth in East Asia, similarly reliable with the findings of Hussin and Saidin (2012) when they conclude that investments in the ASEAN region enhanced economic growth in four

countries across the ASEAN region (Malaysia, Indonesia, the Philippines, and Thailand). While the consumer price index (CPI) which is a proxy variable for inflation is insignificant and does not affect economic growth in Southeast Asia (p-value of CPI= 0.16 > 0.05). Whereas trade openness (Trade) is affecting the economic growth negatively on a significance level of 1% (p-value of TRADE = 0.007 < 0.01) which designates that Trade openness in this situation is harmful to economic growth consistent with the findings of (Hye and Lau, 2015; Kim, 2011; Kim et al., 2011; Vamvakidis, 2002). Concerning the constant coefficient, it is insignificant, which means that economic growth in this model is not affected by other omitted variables.

Based on the estimated outputs in Table 20, ROA has no significant positive effect on economic growth, this is reflecting that the produced returns from the growth of Islamic banks assets are not enough to generate a significant promoting investments to economic growth in Southeast Asia, that's what as Alkassim (2005) and Flamini et al., (2009) have determined that return on assets (ROA) is bias due to omitted off-balance-sheet activities, therefore, as stated in Bashir (1999), Samad and Hassan (2000), Samad (2004), Alkassim (2005), and Athanasoglou, et al., (2005b), ROA is not reflecting the real competence of Islamic banks over the produced investments, ROA can only reflects the capability and effectiveness of management in allocating asset to produce a net profit in Islamic banks, it is a measure of management competence more than investments competence, thus, Thus, ROA reflects the internal management efficiency of Islamic banks in which management is not refreshing investments like ROE. That's what Bashir (2003) also states that ROA is commonly utilized by regulators since it is certain that ROA is a preferable indicator of a bank's financial performance and management efficiency. Consequently, since ROA can not be an indicator for the real competence of Islamic banks' investments, it can not translate the contribution of Islamic finance on economic growth.

According to this study, which framed the Islamic finance performance via profitability measurements, return on equity (ROE) and net profit margin (NPM) are the real explanatory factor that promotes economic growth. Therefore, this study concluded that there is a positive relationship between Islamic finance performance and economic growth in general reliably with what Ledhem and Mekidiche (2020), Tabash (2019), and Rabaa and Younes (2016) had determined, when they used only the profitability as a measure for the of Islamic banking performance, they found a positive direct link between the Islamic finance performance and economic growth.

5.8 Summary

In this chapter, this study explained the methodology and modeling of the research devoted to exposure to six important aspects of the research design as well as their implications ('Purpose, Strategy, Methods, Study period, Sample, and Data Sources'). As well, this study addressed the data analysis and the empirical model to investigate the impact of Islamic finance performance on economic growth, then, this study also defined the sub-hypothesis and the expected results. After a thorough investigation on the suitable empirical methods for the empirical analysis, this research got the estimated results on the effect of Islamic finance performance on economic growth in Southeast Asia. Finally, the empirical findings were discussed and hypotheses were tested.

Chapter 6: Conclusions and Recommendations

Chapter 6: Conclusions and Recommendations

6.1 Introduction

The objective of this final chapter is to draw conclusions based on theoretical reflection on the main findings with a comparative analysis on the similar findings of the literature, discuss the contribution and limitations of the study, and offer recommendations for future research.

The format of this chapter is organized into five main sections. The first section summarizes the theoretical reflections of the study, and also reflections on the empirical findings. The other sections highlight the research contributions, limitations of the study as well as implications and recommendations. Finally, the chapter concludes with a few closing remarks as further research.

6.2 Conclusions

The main objective of this study is to investigate empirically the link between Islamic finance performance and economic growth in Southeast Asia. To answer the main question of this study, and based on the literature survey, this study followed the theoretical path of Schumpeter (1934) who formed the “Supply-leading hypothesis”. For this reason, this paper investigated empirically the effect of Islamic finance performance on economic growth using a robust method of dynamic panel one-step system GMM. The findings indicated that Islamic finance performance has a significant positive effect on the economic growth in Southeast Asia. As well, as an answer to the main question of this paper, the experimental study has achieved accurate evidence that Islamic finance in Southeast Asia is a real contribution to economic growth. Additionally, the estimated results determined that Southeast Asia is witnessing enormous growth because of Islamic finance when the economic growth is adjusted to equilibrium with a speed of 27.13% (Table 20), this finding is consistent with Canlas (2020) when he determined that countries in Southeast Asia are witnessing massive economic growth which determines that Southeast Asia has a noteworthy economic convergence in all of Malaysia, Indonesia, and Brunei Darussalam due to the homogeneity of Islamic finance in Southeast Asia.

6.2.1 Theoretical Reflections

Since the main hypothesis is derived from the Schumpeterian theory of ‘Supply-leading theory’, this study found that Islamic finance performance is leading to economic growth in Southeast Asia over the return on equity (ROE) and the net profit margin (NPM), this result is consistent with the hypothesis of Schumpeter (1934) in which financial development is leading to economic growth. Above and beyond, the positive effect of Islamic finance performance over the profitability factors of return on equity (ROE) and net profit margin (NPM) is consistent with what Bourke (1989) had established, that banks with high profitability remain well-capitalized which leads to increase the capital stock due to the banking profitability, then it leads to economic growth, therefore, the endogenous growth theory of Romer (2011) is confirmed in this path. Consequently, by projecting the endogenous growth model of Romer (2011), this study also concluded that Islamic finance performance factors of profitability (ROE, NPM) are exogenous factors within the endogenous growth model of Southeast Asia over Malaysia, Indonesia, and Brunei Darussalam.

In addition, due to the significant positive effect of Islamic finance performance over the return on equity (ROE) and the net profit margin (NPM) on economic growth, the endogenous growth model concept confirms that Islamic finance in Southeast Asia is causing accumulation in investments and capital stock which leads to economic growth, in which the gross fixed capital formation (GFCF) was affecting positively economic growth in Southeast Asia (Table 20). This finding under the endogenous growth theory is confirming the validity of the supply-leading theory of Schumpeter's understandings (Schumpeter, 1934) and is compatible with the financial repression theory of McKinnon (1973) and Shaw (1973), in which the Islamic finance development is leading to economic growth.

Schumpeter was the most famous theorist who strongly promoted the idea that well-functioning banks have a positive effect on economic growth by providing credit to entrepreneurs for the best projects, which tends to lead to technological innovation. Thus, Schumpeter felt that entrepreneurs play a critical role in economic growth and that financial intermediaries, particularly bankers, play a crucial role in their financing (Joseph Alois Schumpeter, 1983). As well, without the financing sector, according to Schumpeter, economic growth is impossible (Joseph Alois Schumpeter, 1983). He also expressly opposes Ricardo's

view that banking activities cannot enhance a country's wealth, notwithstanding Say and Ricardo's assertion that banking activities cannot grow a country's wealth (Joseph Alois Schumpeter, 1983). Therefore, by projecting this theoretical analysis in this study, the Islamic finance in Southeast Asia across Islamic banks is creating wealth which leads to economic growth in the three countries of Southeast Asia (Malaysia, Indonesia, and Brunei Darussalam).

In addition, McKinnon (1973) also believes in the existence of a link between financial systems and economic growth. "Money and finance, as primarily governed by the banking sector, are given an amount of influence much greater than that assigned by most authors engaged with development," writes McKinnon (1973). McKinnon (1973) believes in the existence of a link between financial systems and economic progress. "Money and finance, as primarily governed by the banking sector, are given an amount of influence much greater than that assigned by most authors engaged with development," writes McKinnon (1973). The financial system, according to McKinnon (1973), can help economic growth by boosting the return rate on present capital assets. Therefore, by projecting this theoretical analysis in this study, the Islamic finance in Southeast Asia is promoting economic growth by boosting the return rate, that's what this study has found that Islamic finance performance through profitability (returns) has a significant positive effect on economic growth in Southeast Asia, which means that the increasing of returns across return on equity and net profit margin is helping economic growth in Southeast Asia according to McKinnon (1973).

In the same vein, there is a substantial quantity of theoretical literature on the topic of financial intermediaries and economic growth. This study won't be able to cover everything, or even most of it, so this study is reflecting the empirical results only at some of it quickly, like studies of Beck et al. (2000), Bekaert et al. (2001), and Beck and Levine (2004), all strongly backed the premise that financial development and economic growth are linked. Thus, the result that Islamic finance performance is promoting economic growth is sharing the same points with those studies. As well, this study concluded that Islamic finance performance is an exogenous aspect of economic growth according to the endogenous growth theory, in which this result is reliable with Levine et al. (2000) when they investigated whether the exogenous aspect of economic intermediary development has an impact on economic growth, as well as if disparities in legal and accounting systems justify disparities in financial development between countries,

their results indicate that the exogenous aspect of economic intermediary development and long-run economic growth has a substantial link. Also, because Levine et al. (2000) has indicated that each of the three financial intermediary development indicators (private credit, liquid liabilities, and commercial-central bank) has a strong influence on economic growth, Islamic finance also has a strong influence on economic growth through the significant effect of its performance (ROE and NPM) which translates that Islamic banks also succeed in the contributing financial intermediary to the economic growth.

Correspondingly, that's what Beck et al. (2000) have confirmed, when they studied the empirical relationship between the development of financial intermediaries and economic growth, Beck et al. (2000) discovered a strong, positive relationship between financial intermediary development and both economic and total factor productivity growth. Additionally, Beck et al. (2000) discovered that higher levels of financial intermediary development result in a faster pace of economic growth and total factor productivity growth. Beck et al. (2000) also discovered that, while there is a positive relationship between financial intermediary development and both physical capital accumulation and private savings rates, the findings are sensitive to changes in estimating methodology and financial intermediary development indicators.

In conclusion, based on the concept of the "Supply-leading hypothesis" of Schumpeter (1934), the contribution of Islamic finance on economic growth which has been determined through the positive effect of Islamic finance performance on economic growth in Southeast Asia is reflecting all the theoretical analysis surrounding the contribution of financial development, or financial system, or financial intermediation on economic growth over the banking sector.

6.2.2 Reflection on the Findings

By applying the Panel One-Step System GMM method, this study found that return on equities (ROE) and net profit margin (NPM) were statistically significant and positive to economic growth (GDP). The significant positive impact of return on equity (ROE) is referring to its importance in the Islamic bank, that what Ben Bouheni et al. (2016) have confirmed that return on equity (ROE) is the most important benefit metric, as it calculates Islamic banking

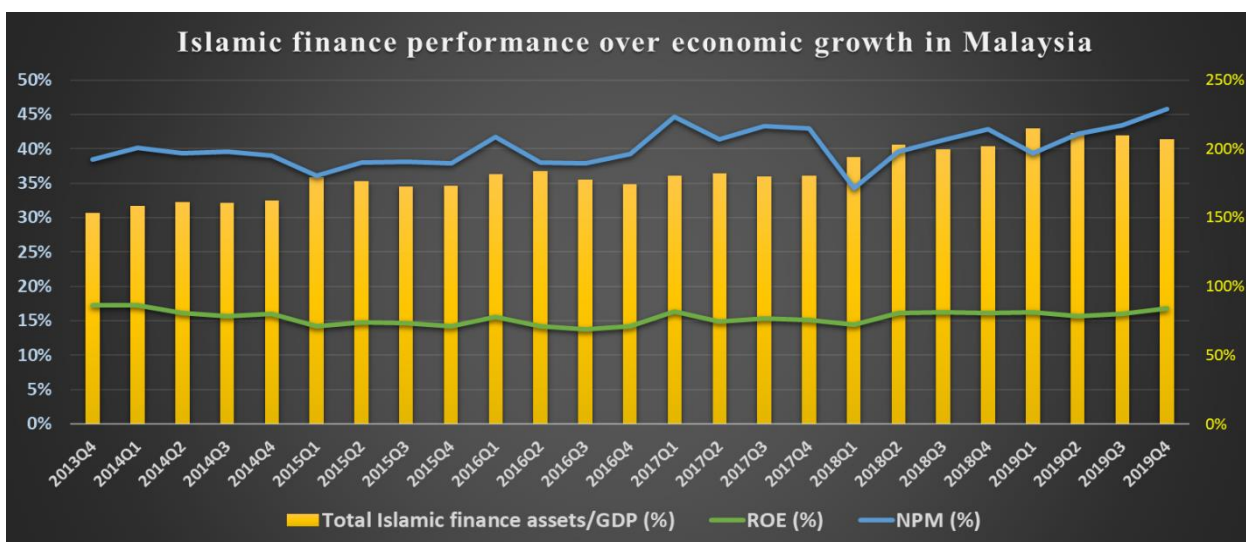
management in all of its aspects and provides an image of how to employ the capitals provided by shareholders, as well as the impact of their retainer in the bank's operations, in another meaning, return on equity (ROE) replicates how efficiently the Islamic bank management is in operating its shareholders' funding (Sufian and Chong, 2008). According to Berk and DeMarzo (2014), a high return on equity (ROE) may mean that the company is capable of identifying highly lucrative investment opportunities (Altan et al., 2014; Dincer et al., 2011; Karim et al., 2018; Lahrech et al., 2014; Munir et al., 2017; Peltonen et al., 2015). Therefore, since the return on equity (ROE) is a mirror of the highly lucrative investment opportunities within Islamic banks, the significant positive effect of return on equity (ROE) is translating that the investments in Islamic banks are positively affecting economic growth in Southeast Asia. Thus, above and beyond, the high performance of return on equity (ROE) is an indicator of Islamic finance's successful contribution to economic growth.

Concerning the other positive influencer on economic growth, the net profit margin (NPM) is reflecting the proportion of profit that Islamic banks produce from their overall revenues, therefore, the significant positive impact of net profit margin (NPM) is referring to the employed profits as investments of Islamic banks in Southeast Asia which affect positively economic growth. Consequently, above and beyond, the high performance of the net profit margin (NPM) is an indicator of Islamic finance's successful contribution to economic growth.

In conclusion, unlike previous studies that investigated the contribution of Islamic finance on economic growth through the development of Islamic finance assets (It can be noticed over the ratio of Islamic finance development to the gross domestic product in Figure 15, Figure 16, and Figure 17) which translate the increasing of Islamic funding in Southeast Asia across Malaysia (It can be seen in Figure 15), Indonesia (It can be seen in Figure 16), and Brunei Darussalam (It can be seen in Figure 17), this research is providing a new approach to catch the contribution of Islamic finance from higher point which is the performance indicator, because the positive effect of return on assets (ROE) and net profit margin (NPM) on economic growth is translating the contribution of the highly profitable investment prospects within Islamic banks on economic growth, that's what is consistent with what Bourke (1989) had established, that banks with high profitability remain well-capitalized which leads to increase the capital stock due to the banking profitability, and according to MacKinnon (1973), the increasing of the

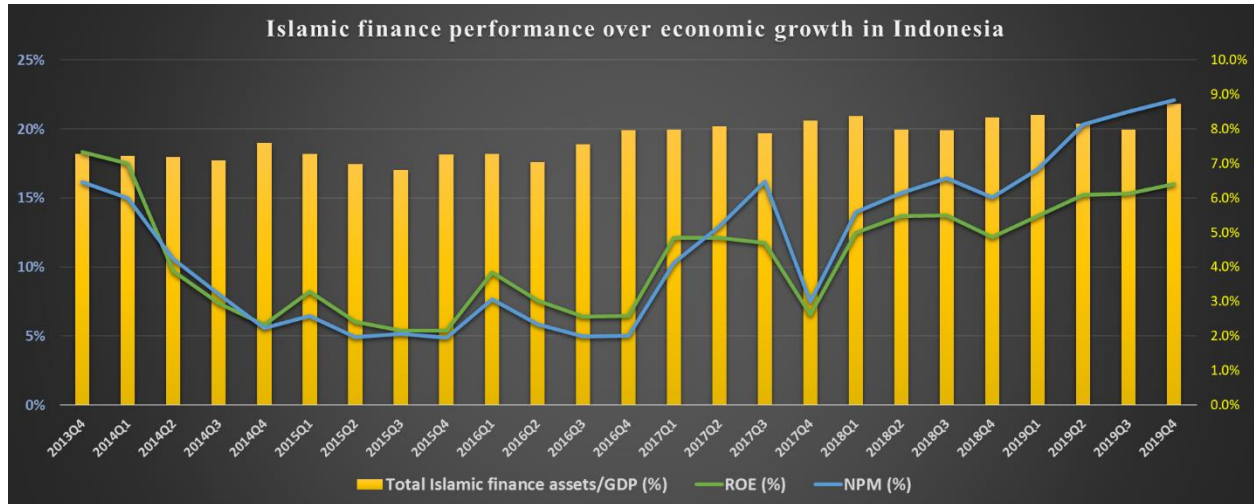
returns (profits) from the produced capital stock via the financial system is promoting economic growth via efficiency, as well, based on the theory of endogenous growth, when investments are augmented due to the finance and banking performance, it leads to higher economic growth (Petkovski and Kjosevski, 2014), in another meaning, the capital stock is a promoting factor on economic growth then it leads to economic growth, therefore, the endogenous growth theory of Romer (2011) is confirmed in this path. Consequently, by projecting the endogenous growth model of Romer (2011), this study also concluded that Islamic finance performance factors of profitability (ROE, NPM) are exogenous factors within the endogenous growth model of Southeast Asia over Malaysia, Indonesia, and Brunei Darussalam. In conclusion, the adopted theoretical path of the “Supply-leading hypotheses” of Schumpeter (1934) which states that financial development is boosting economic growth, this study has settled on confirming the validity of the Schumpeterian hypothesis concerning the contribution of Islamic finance on economic growth in Southeast Asia by concluding that Islamic finance performance is boosting economic growth.

Figure 15: Synchronized behavior between the effective Islamic finance performance (ROE, NPM) over the ratio of Islamic finance development to the economic growth in Malaysia (2013Q4 – 2019Q4)



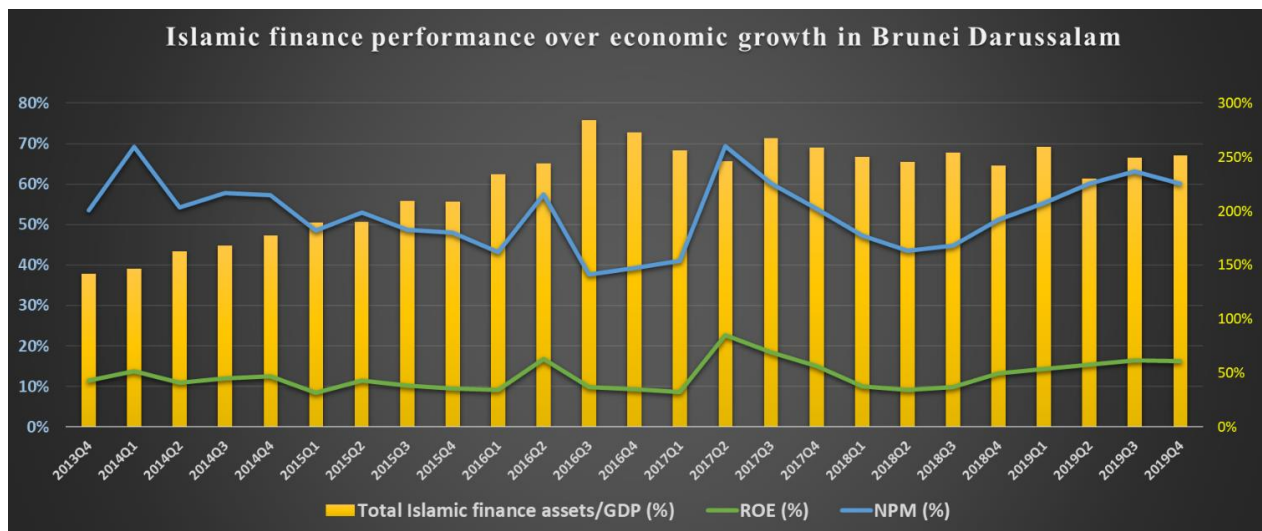
- **Sources:** Prepared chart by authors based on the extracted data from the Islamic Financial Services Board (IFSB) (2020), IMF (2020), and Bank Negara Malaysia (2020).

Figure 16: Synchronized behavior between the effective Islamic finance performance (ROE, NPM) over the ratio of Islamic finance development to the economic growth in Indonesia (2013Q4 – 2019Q4)



- **Sources:** Prepared chart by authors based on the extracted data from the Islamic Financial Services Board (IFSB) (2020) and IMF (2020).

Figure 17: Synchronized behavior between the effective Islamic finance performance (ROE, NPM) over the ratio of Islamic finance development to the economic growth in Brunei Darussalam (2013Q4 – 2019Q4)



- **Sources:** Prepared chart by authors based on the extracted data from the Islamic Financial Services Board (IFSB) (2020) and Brunei Ministry of Finance and Economy (2020).

The success of Islamic finance in promoting economic growth in Southeast Asia is owing to the capabilities of Islamic finance in Southeast Asia that has been shown in the notable performance over return on equity (ROE) and net profit margin (NPM), also what helps the success of Islamic finance in Southeast Asia is the existence of a remarkable population that prefers Islamic banks rather than conventional banks that deal with Riba (interest rate) and other prohibited contracts in Shariah law (Lebdaoui and Wild, 2016).

In conclusion, as an answer to the main question of this study on what is the relationship between Islamic finance performance and economic growth, this study determined the existence of a positive relationship between Islamic finance performance and economic growth in Southeast Asia, which reflects the significant effect of Islamic finance on economic growth through the contribution of the highly lucrative investment opportunities in economic growth that are produced from the profits of shareholders funding (detected by the return of equity (ROE)) and the employed profits (detected by the net profit margin (NPM)) of Islamic banks in Southeast Asia.

As well, as an answer to the first sub-question on what are the factors (determinants) of Islamic finance performance, this study has settled on return on assets (ROA), return on equities (ROE), and net profit margin (NPM) as the main determinants of Islamic finance performance across profitability based on exploring literature. However, only return on assets (ROA) does not reflect the performance that translates the promotion of Islamic finance on economic growth, therefore, as an answer to the question of whether the factors of Islamic finance performance matter for the economic growth in the Southeast of Asia, this research found that return on equities (ROE) and net profit margin (NPM) were statistically significant and positive to the economic growth process in the Southeast of Asia because those factors of Islamic finance performance reflecting the contribution of Islamic banks investments in Southeast Asia the significant positive effect of Islamic finance performance across the return on equity (ROE) and net profit margin (NPM) is translating that investments in Islamic banks are positively affecting economic growth in Southeast Asia. Thus, above and beyond, as an answer to the last question on whether the effect of Islamic finance performance reflects the contribution of Islamic finance development on economic growth, this study found that the Islamic finance performance across

the return on equity (ROE) and net profit margin (NPM) is an indicator of Islamic finance's successful contribution to economic growth.

In conclusion, the Islamic finance industry is playing a major role in promoting economies internationally in Southeast Asia. Lately, the S&P Global Ratings reported that Islamic finance will expand in the coming years across developed and emerging Muslim and non-Muslim countries as a significant player alongside the conventional finance system (S&P Global Ratings, 2020). This paper agreed with the perspective of S&P Global Ratings and confirmed that Islamic finance is predicted to be bright in the future as an alternative financial system that promotes economic growth globally.

6.3 Recommendations and Implications

To deliver recommendations for the Gulf Countries Council (GCC) and the Middle East & North Africa (MENA) regions concerning increasing the Islamic finance performance to enhance economic growth, it is necessary to understand the Islamic finance structure and highlight the performance of Islamic finance in these regions.

6.3.1 Islamic finance structure in the Gulf Countries Council (GCC) and the Middle East & North Africa (MENA) regions

According to IFSB (2020), Several events in the Gulf Countries Council (GCC) and Middle East & North Africa (MENA) areas have highlighted the region's tremendous potential for the Islamic banking business. The Gulf Cooperation Council (GCC) area continues to account for the lion's share of worldwide Islamic banking assets, accounting for 45.4 percent (Figure 18). In 2019Q3, the market share of Qatari Islamic banks grew by 1 percentage point to 26.1 percent (2019Q2: 25.1 percent) owing to the operational consolidation of two combined Islamic banks, offsetting a -0.5 percent decrease in 2018. The combining institutions are intended to enhance performance in the midst of regional regional tensions and attain a 6% share of the Qatari banking sector. Bahrain's Islamic banks continue to increase their market share by maintaining their recovery pace following a little drop in the second quarter of 2016. As of 2019Q3, the Kingdom's Islamic banking sector accounted for 15.5 percent of total banking assets (2018Q2: 14.3 percent). Just from the other hand, the United Arab Emirates Islamic banks'

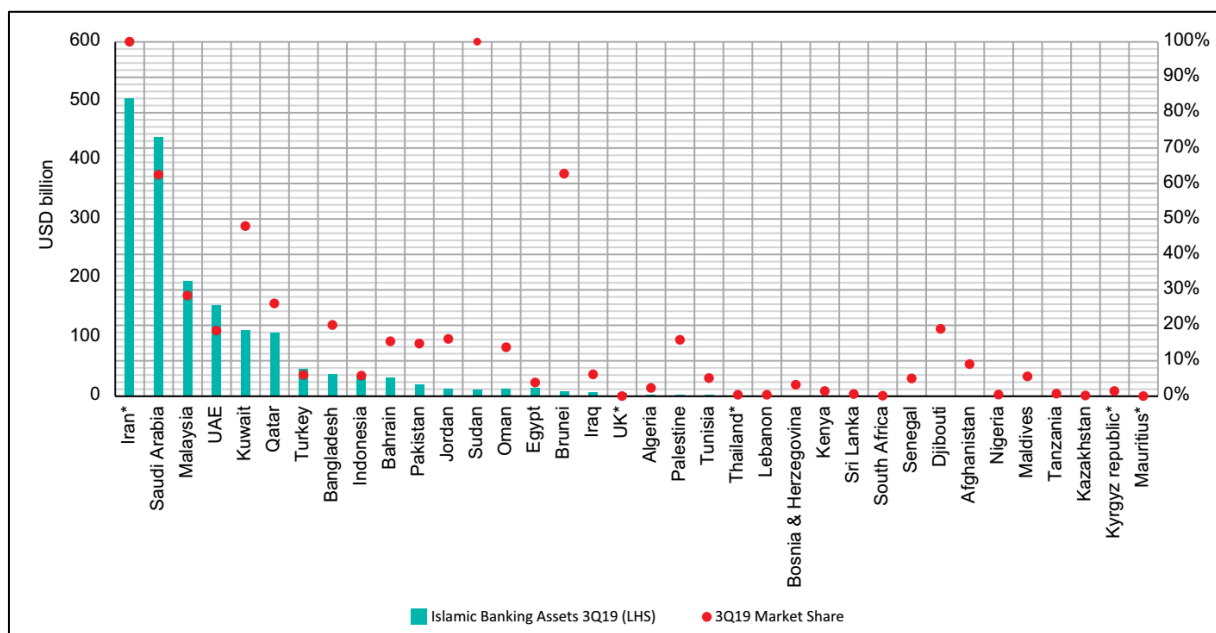
proportion of local banking assets fell after surpassing the 20% threshold in 2018. This drop was caused by slower growth (2.3 percent in 2019Q3) caused by increased economic problems encountered by the whole domestic banking industry, particularly the delayed return of oil prices in 2019 as the economy's main sector. Furthermore, Oman's Islamic Financial sector was prepared to grow in prominence, increasing 1.4 percentage points in 2019Q3 to account for 13.8 percent of the Sultanate's country's banking system.

Jordan's place in the list of countries where the Islamic financial industry is considered fundamentally significant was sustained somewhere else in the Middle East, with the Kingdom's Islamic banking share growing modestly to 16.2 percent of total banking industry assets (2018Q2: 15.6 percent). This comes after a modest increase in Jordan's Islamic financial asset base (4.1 percent), which was lower than the entire Jordanian banking sector's growth of 9.4 percent between 2018Q3 and 2019Q3. In accordance to Islamic banking, Palestine's Islamic banks are on par with Jordan's, with a 15.9% market share (2018Q2: 14.6 percent) (IFSB, 2020).

While new full-fledged Islamic banks are being approved to begin operations, a few well-known commercial banks have opened Islamic banking branches. In Africa, approximately 80 institutions now provide Islamic financial services (IFSB, 2020).

Since May 2017, many participating (Islamic) banks have expanded their operations in Morocco, while Tunisia is working to improve its regulatory environment to support the Islamic finance industry's 5.1 percent market share. Algeria is following in the footsteps of its neighbors, preparing to enable a few banks to introduce Shariah-compliant financial products and establishing the necessary regulatory framework (IFSB, 2020).

Figure 18: Islamic banks assets and market share in the Southeast Asia, Gulf Countries Council (GCC) and the Middle East & North Africa (MENA) regions (2019Q3)

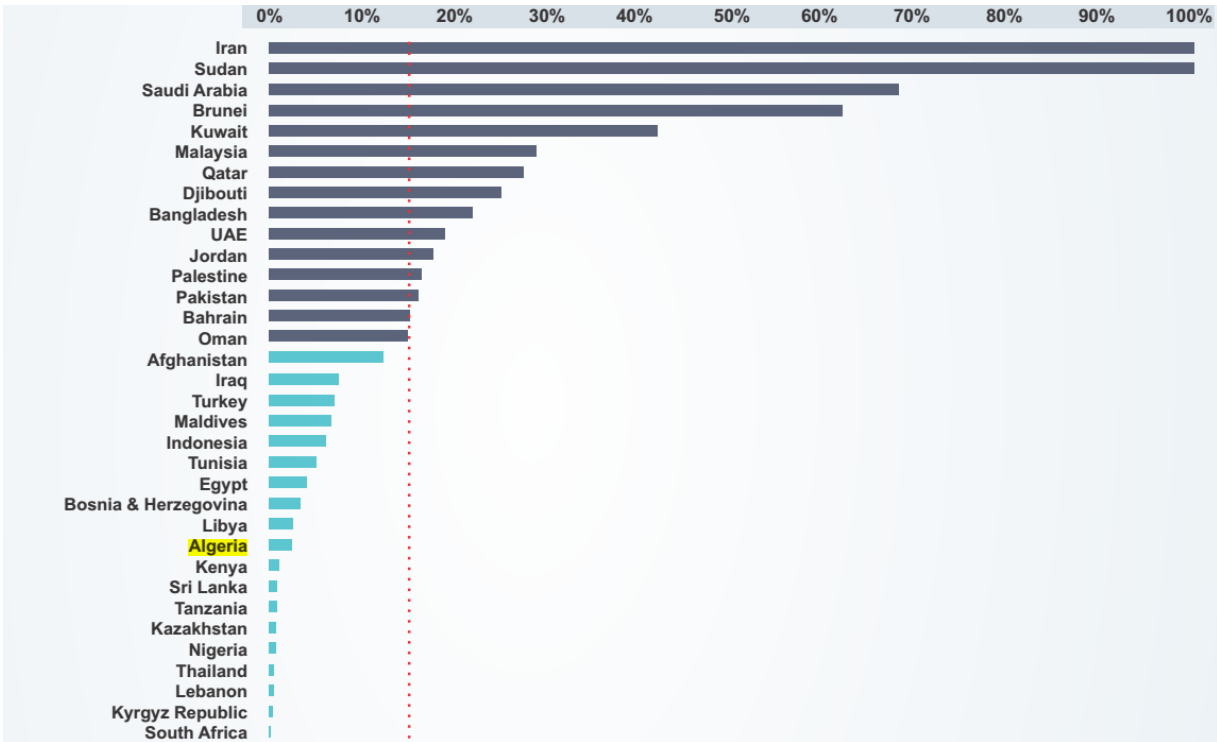


Sources: (IFSB, 2020, p. 16)

6.3.2 Bright prospects for Islamic finance in Algeria based on the perspective of the Islamic Financial Services Board

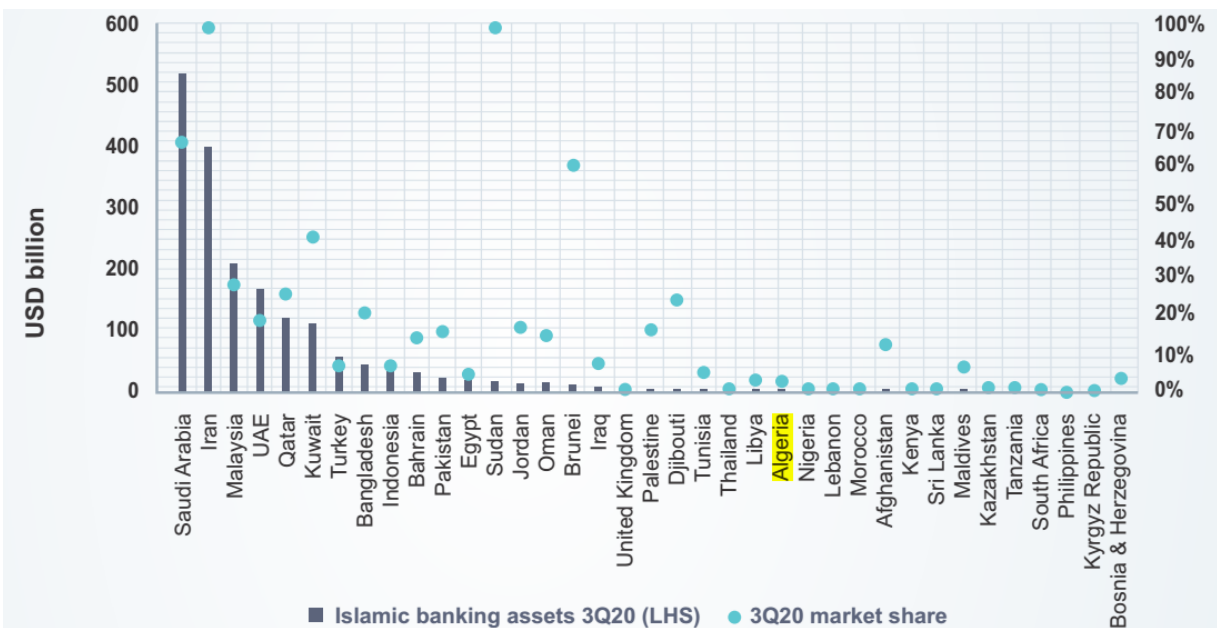
According to IFSB (2020, 2021), Algeria is one of the projected new entrants to the market in the future years. In this country, the use of Islamic banking windows is gaining traction. Algeria's Islamic banking sector maintained its proportion of total domestic banking assets from the previous year [2.4% of the market share in 2019Q3 IFSB (2021) after 1% according to of total market share according to Elhachemi (2012)] (Figure 19, and Figure 20). Algeria is constantly striving to modernize its laws and regulations to also enable Islamic bonds (Sukuk) issuance. Certainly, in 2020, the term of participation banking changed to the term of the Islamic banking industry based on the System 02-20 on March 15th,2020 after it was organised by the system 02-18 on November 4th,2018 (Benzekkoura, 2020). This emerging interest in developing the Islamic finance industry in Algeria is referring to the Algerian government goal that is hoping to achieve economic growth based on the approved economic program of “2035’s Horizons” by the Algerian Parliament (El Djoumhouria, 2020).

Figure 19: Islamic finance share in total banks assets by focusing on Algeria (2020Q3)



Sources: (IFSB, 2021, p. 8)

Figure 20: Islamic finance assets and market share by focusing on Algeria (2020Q3)



Sources: (IFSB, 2021, p. 11)

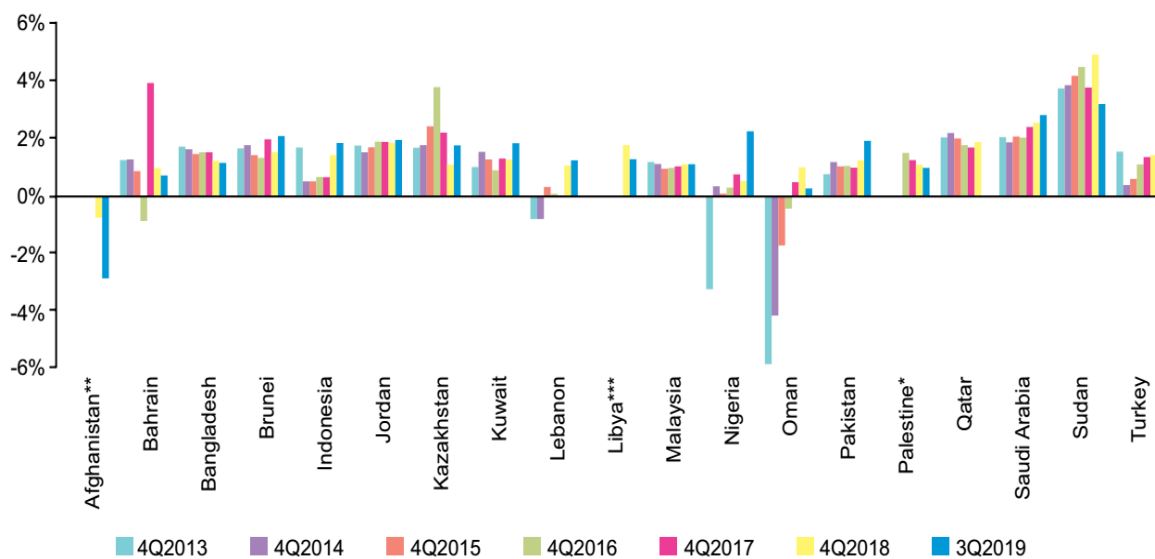
6.3.3 Islamic finance performance in the Gulf Countries Council (GCC) and the Middle East & North Africa (MENA) regions

The performance level of the worldwide Islamic banking sector has been robust and consistent during the previous seven years (2013Q3–2019Q3), averaging a rate of 1.56 percent return on assets (ROA) and 14.30 percent return on equity (ROE) for stand-alone Islamic banking system, as stated by IFSB (2020). In the same time, the ROEs of global Islamic banks outperformed those of conventional banks in Malaysia and the Gulf Countries Council (GCC), which were 13 percent and 11.8 percent, correspondingly. Nonetheless, the average ROA and ROE of global Islamic banks in the review period fell marginally from the end of the financial year 2018 (ROA: 1.66 percent ; ROE: 15.21 percent), owing to poor profit due to increasing non-performing loans and operational expenses in several states in 2019 (IFSB, 2020).

The performance of Islamic banking system in the Gulf countries council was varied over the assessment period. Islamic finance in certain Gulf Cooperation Council nations had significant improvements in their ROA ROE and NPM ((Figure 21, Figure 22 and Figure 23). Islamic banks in the Saudi arabia and Kuwait, for example, have seen significant improvements, but Islamic banks in Bahrain and Oman have seen a small decline in profitability performance measures. While there was no discernible transformation in the profitability for Islamic banking system in Qatar over the evaluation period, it is still laudable given that a regional and global embargo forced by some Gulf countries council countries, which has harmed Qatari banks' profitability performance, remains in place. In the third quarter of 2019, Saudi Arabian banks reported ROA and ROE of 2.81 percent and 20.04 percent, respectively, compared to 2.48 percent and 16.45 percent in the first half of 2018. The profitability numbers for Kuwaiti Islamic banks showed a small decline, with ROA at 1.38 percent (2018Q3: 1.48 percent) and ROE at 12.31 percent in the third quarter of 2019 (2018Q3: 13.47 percent). In the third quarter of 2019, Oman's Islamic banks reported lower profits than in the third quarter of 2018. While in the United Arab Emirates, profitability is declining and the cost-to-income ratio is rising. Despite the UAE's economic recovery and stable mortgage rates, Islamic banks' profitability has decreased, as measured by their return on assets (ROA) and return on equity (ROE), both of which have shown a negative trend. The ROA was 1.14 percent in 2019Q3 (2018Q3: 1.69 percent) while the ROE was 8.4 percent (2018Q3: 12.77 percent). Since 2013Q4, Sudan' Islamic

banks have regularly reported their highest ROA and ROE figures. Even though profitability metrics for the evaluation period have decreased from 2018Q3, they are still the strongest amongst jurisdictions reported. The average ROA in 2019Q3 was 3.2 percent (2018Q3: 4.5 percent) while the ROE was 40 percent (2018Q3: 74.8 percent). The drop in the ROE might also be attributed to Sudanese banks' significant increase in equity capital in 2019 (IFSB, 2020).

Figure 21: Islamic finance performance based on return on assets (ROA) in the Southeast of Asia, GULF COUNTRIES COUNCIL (GCC) and the Middle East & North Africa (MENA) regions (2013Q4-2019Q3)



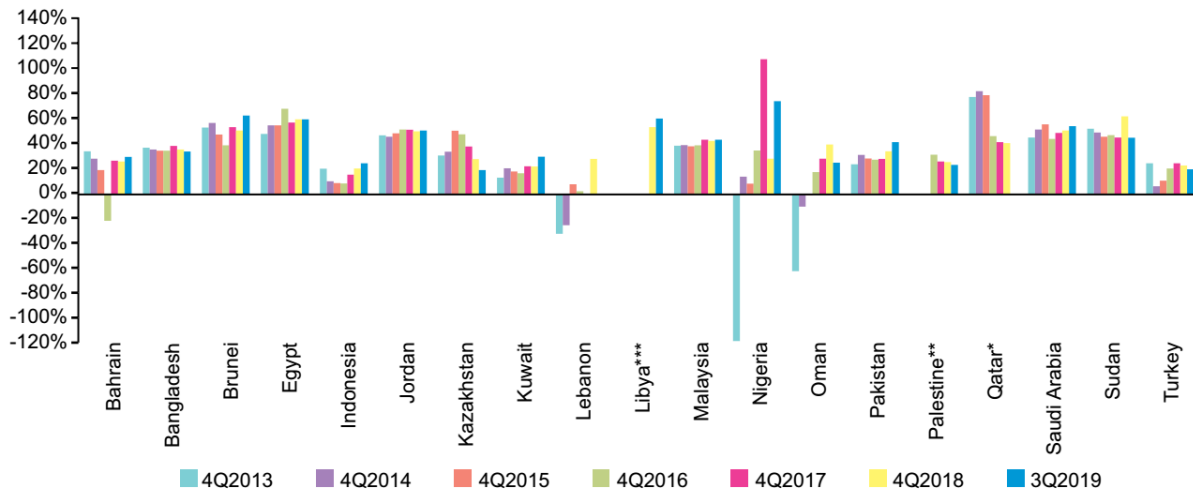
Sources: (IFSB, 2020, p. 60)

Figure 22: Islamic finance performance based on return on equity (ROE) in the Southeast of Asia, GULF COUNTRIES COUNCIL (GCC) and the Middle East & North Africa (MENA) regions (2013Q4-2019Q3)



Sources: (IFSB, 2020, p. 61)

Figure 23: Islamic finance performance based on net profit margin (NPM) in the Southeast of Asia, GULF COUNTRIES COUNCIL (GCC) and the Middle East & North Africa (MENA) regions (2013Q4-2019Q3)



Sources: (IFSB, 2020, p. 61)

6.3.4 Recommendations for the GCC and MENA regions for enhancing economic growth through the Islamic finance industry

As mentioned above in this study, the Islamic finance industry is expanding notably in both the GCC and MENA regions, what mirrors this expansion is the increase of Islamic finance

performance through the return of assets (ROA), return on equity (ROE), and net profit margin (NPM). Hence, by projecting the findings of this study concerning the real factors that enhance economic growth from Islamic finance in the Southeast of Asia, return on assets (ROE) and net profit margin (NPM) of Islamic finance can improve economic growth in both the GCC and MENA regions since these regions are witnessing a prosperous performance in the Islamic finance industry, in which this performance is translating the contribution of the highly profitable investment prospects within Islamic banks that improve economic growth especially for the countries that seek to improve Islamic finance industry like Algeria as stated by IFSB (2020, 2021), which has bright horizons in expanding this industry to finance the investments and business activities for achieving economic growth as reported by Benzekkoura (2020). Therefore, this study has some recommendations for the GCC and MENA regions to learn from the Southeast Asian experience surrounding the contribution of Islamic finance performance on economic growth as the following:

- The necessity of Stimulating the factors of financial performance in Islamic banks of such as return on equity (ROE) and net profit margin (NPM), in which these two Islamic finance performances mirror the involvement of the highly profitable investments within Islamic banks that enhance economic growth.
- The necessity of adopting, stimulating and expanding Islamic finance as a financing mechanism that is no less important than traditional finance to achieve economic growth, through financing the investments and business activities, especially in the new Islamic finance adopters countries in the MENA region as Algeria which is working hard to expand Islamic finance industry through Islamic banks and windows as a significant alternative financial source to support the country's economic growth, and is evidenced by Southeast Asia's success in the contribution of Islamic finance to economic growth.
- The necessity of establishing more Islamic banks and more Islamic financial institutions that direct their products to Islamic financial markets without difficulties and obstacles, especially in the countries that include a social segment with an Islamic doctrine, where it is forbidden to deal with traditional financing mechanisms based on interest (Riba which is usury) and Islamic financial transactions are preferred.

6.3.5 Implications for research and practice

This study has several implications for research and practice as the subsequent:

- This study aims to examine empirically the contribution of Islamic finance on economic growth by focusing on the factor of financial performance through the main effective performance financial ratios of Islamic finance in Southeast Asia within the path of Schumpeterian theory of “Supply-leading hypotheses”. Thus, the empirical examination in this paper would fill the literature gap by investigating the effect of Islamic finance performance on economic growth with the theoretical context of the “Supply-leading hypotheses” to get robust knowledge about this link. Consequently, this study supports financial researchers, policymakers, and decision-makers to improve the Islamic finance industry globally as a substitute financing source for achieving the optimal contribution to economic growth.
- In terms of practical implication, this study delivers important evidence for financial researchers, decision-makers, policymakers, and associated authorities that Islamic finance is enhancing economic growth in Southeast Asia across the pioneering countries in the Islamic finance industry like Malaysia, Indonesia, and Brunei Darussalam, which attracts global attention to the weighty role of Islamic finance as an imperative player in endorsing economic growth alongside conventional finance system in Southeast Asia. Thus, the findings of this study inspire decision-makers, financial researchers, and policymakers around the world to the necessity of boosting Islamic finance industry and developing it to finance investments that enhance the economic growth particularly in the Muslim countries which contain an outstanding Muslim population who trust Islamic financing rather than conventional financing.

6.4 Research Contribution

The link between Islamic finance performance and economic growth is taking a new way of empirical investigation. Unlike previous studies that assessed if Islamic finance is contributing to economic growth over assessing the impact of the Islamic finance development on economic growth, this study is passing through another path of empirical investigation, in which the investigated contribution of Islamic finance on economic growth is assessed by

focusing on the factor of the financial performance through the main effective performance financial ratios of Islamic finance. Therefore, this thesis is the first of its kind that attempts to fill the gap in the literature by addressing the contribution of Islamic finance on economic growth through its performance effect, therefore, it is believed that this thesis will make a significant contribution to the existing literature.

6.5 Limitations

This study was conducted within a limited period from the fourth quarter of 2013 (2013Q4) until the fourth quarter of 2019 (2019Q4) due to macroeconomic data constraints that are available in the International Monetary Fund (IMF) and each country's central bank. As well, this study is limited before 2020 due to the Covid-19 pandemic, because based on the State of the Global Islamic Economy 2020/21 Report (2020), the Covid-19 pandemic has caused a lot of instability in the Islamic financial industry which makes the empirical analysis is not accurate in this period of the pandemic.

As well, Southeast Asia countries (Malaysia, Indonesia, and Brunei Darussalam) have a dual banking system (conventional and Islamic) and both can influence Southeast Asia's real economy. This study is limited to the effect of Islamic finance performance through Islamic banks on the economic growth of Southeast Asia. Future Research.

To investigate the link between Islamic finance and economic growth through tracking the effect of Islamic finance performance on economic growth, this paper restricted the empirical investigation over Southeast Asia which contains the most developed countries in the Islamic finance industry like Malaysia, Indonesia, and Brunei Darussalam. Future research could consider expanding the sample by including other pioneering regions in the Islamic finance industry and where those regions conclude a noteworthy Muslim population such as the Middle East and North Africa (MENA) countries (Islamic Financial Services Board (IFSB), 2020). As well, this study restricted modelling the financial performance of Islamic banking to a limited period, therefore, future research could consider enlarging the sample period for modelling the link between Islamic finance performance on economic growth.

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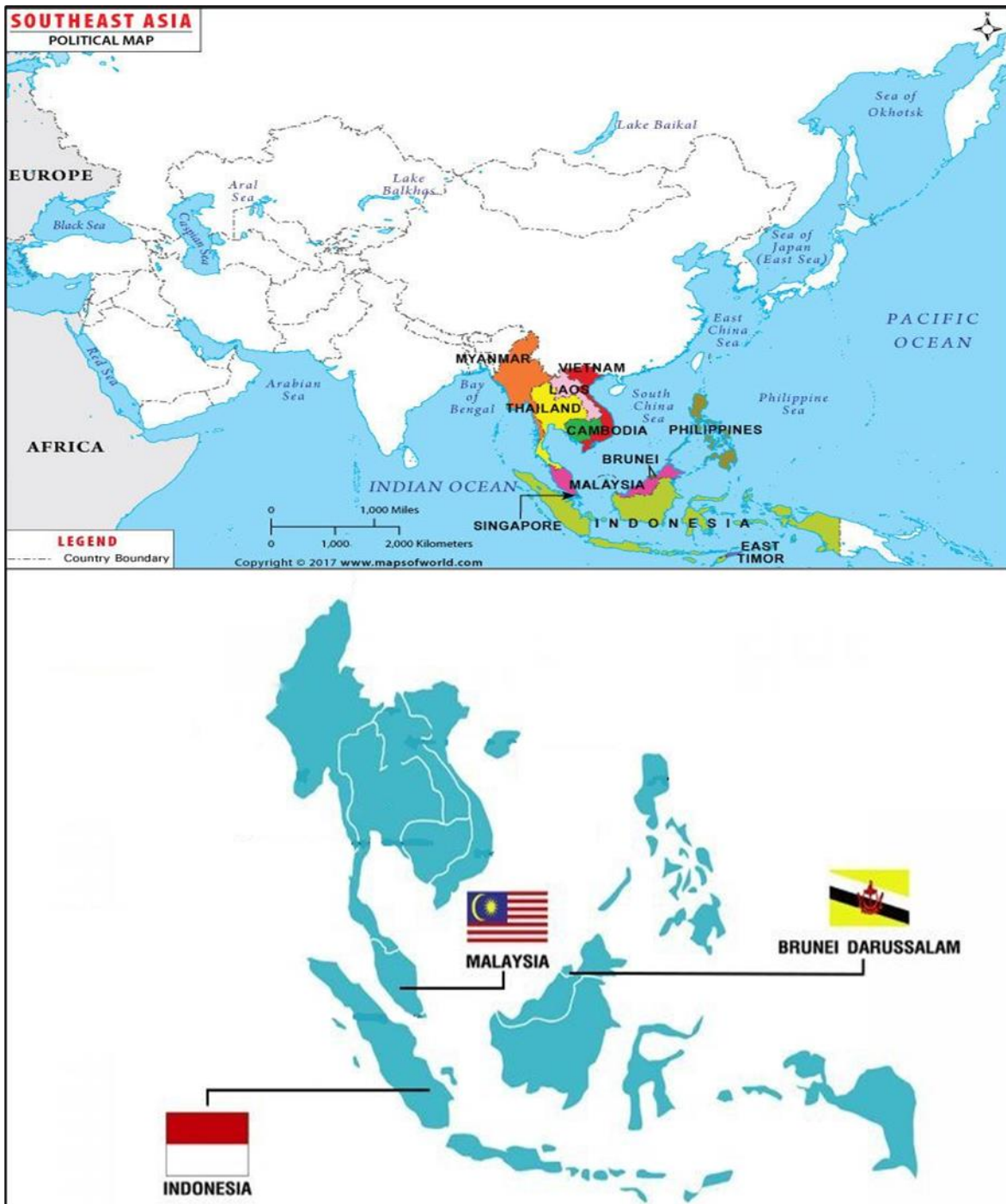
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Appendices

Appendix. I Selected countries in the Southeast Asia Region



- Sources: Derived from "Map of Southeast Asia" (2021).

Appendix. II Descriptive statistics of Malaysia' experimental variables

Date: 04/17/21 Time: 22:03 Sample: 2013Q4 2019Q4							
	GDP	ROA	ROE	NPM	TRADE	GFCF	CPI
Mean	81584.82	0.010676	0.154946	0.401604	1.320567	20226.55	116.3646
Median	82783.40	0.010968	0.157034	0.395605	1.326799	20349.58	116.4806
Maximum	96719.12	0.012014	0.172921	0.457750	1.423246	23611.90	122.1130
Minimum	65846.81	0.009508	0.138149	0.342367	1.202234	16954.00	108.5819
Std. Dev.	7777.862	0.000762	0.010054	0.027149	0.060134	1538.339	4.539650
Skewness	-0.094592	-0.061307	0.011600	0.097312	-0.482829	-0.170236	-0.281379
Kurtosis	2.084451	1.808933	1.986587	2.663602	2.599900	3.264562	1.567087
Jarque-Bera	0.910438	1.493412	1.070358	0.157335	1.138100	0.193661	2.468684
Probability	0.634309	0.473925	0.585564	0.924347	0.566063	0.907710	0.291026
Sum	2039620.	0.266900	3.873641	10.04009	33.01418	505663.8	2909.115
Sum Sq. Dev.	1.45E+09	1.39E-05	0.002426	0.017690	0.086788	56795718	494.6021
Observations	25	25	25	25	25	25	25

- Sources: EViews10 outputs.

Appendix. III Descriptive statistics of Indonesia' experimental variables

Date: 04/17/21 Time: 22:06 Sample: 2013Q4 2019Q4							
	GDP	ROA	ROE	NPM	TRADE	GFCF	CPI
Mean	241113.9	0.011292	0.107531	0.115547	0.416838	78232.39	138.2078
Median	242337.1	0.011021	0.117452	0.105941	0.408562	78575.94	138.6054
Maximum	289104.6	0.019168	0.183239	0.220980	0.539047	97731.01	152.3715
Minimum	203224.0	0.005192	0.053807	0.048724	0.345605	65571.62	120.2287
Std. Dev.	25895.86	0.004852	0.040647	0.057093	0.048156	8409.700	9.814073
Skewness	0.211814	0.162119	0.198889	0.292028	0.796681	0.470323	-0.288341
Kurtosis	1.951741	1.507597	1.787097	1.760142	2.986453	2.480342	1.984169
Jarque-Bera	1.331570	2.429579	1.697251	1.956636	2.644779	1.202976	1.421329
Probability	0.513870	0.296772	0.428003	0.375943	0.266498	0.547995	0.491318
Sum	6027848.	0.282294	2.688263	2.888686	10.42095	1955810.	3455.196
Sum Sq. Dev.	1.61E+10	0.000565	0.039653	0.078229	0.055656	1.70E+09	2311.585
Observations	25	25	25	25	25	25	25

- Sources: EViews10 outputs.

Appendix. IV Descriptive statistics of Brunei Darussalam' experimental variables:

Date: 04/17/21 Time: 22:08 Sample: 2013Q4 2019Q4							
	GDP	ROA	ROE	NPM	TRADE	GFCF	CPI
Mean	3397.420	0.017082	0.126154	0.527202	0.940799	1184.395	99.54021
Median	3353.389	0.016553	0.114592	0.535710	0.876544	1072.510	99.59837
Maximum	4551.527	0.032785	0.227729	0.694621	1.426386	1809.935	100.9713
Minimum	2756.005	0.010601	0.084925	0.377562	0.777485	762.7048	98.25291
Std. Dev.	513.1245	0.005099	0.036062	0.085924	0.137759	302.7902	0.727663
Skewness	0.955063	1.268960	1.001136	0.131082	1.821787	0.333266	-0.046397
Kurtosis	2.927090	4.795046	3.557955	2.362902	7.103215	1.911219	2.408317
Jarque-Bera	3.806140	10.06587	4.500428	0.494400	31.36668	1.697613	0.373645
Probability	0.149110	0.006520	0.105377	0.780985	0.000000	0.427925	0.829591
Sum	84935.49	0.427062	3.153839	13.18006	23.51998	29609.87	2488.505
Sum Sq. Dev.	6319122.	0.000624	0.031211	0.177191	0.455459	2200365.	12.70784
Observations	25	25	25	25	25	25	25

- *Sources: EViews10 outputs.*

Appendix. V Descriptive statistics summary of the experimental variables in the panel data

Variable		Mean	Std. Dev.	Min	Max	Observations	
GDP	overall	108698.7	100773.1	2756.005	289104.6	N =	75
	between		121155.5	3397.42	241113.9	n =	3
	within		15401.17	70808.8	156689.4	T =	25
ROA	overall	.0130167	.0049694	.0051916	.0327846	N =	75
	between		.0035345	.010676	.0170825	n =	3
	within		.0040317	.0065355	.0287189	T =	25
ROE	overall	.1295432	.0370943	.0538067	.2277291	N =	75
	between		.0238886	.1075305	.1549456	n =	3
	within		.0314706	.0758194	.2311188	T =	25
NPM	overall	.3481282	.1837584	.0487244	.6946212	N =	75
	between		.2109791	.1155474	.5272025	n =	3
	within		.0607565	.1984878	.515547	T =	25
TRADE	overall	.8927349	.3836809	.3456053	1.426386	N =	75
	between		.4537777	.4168381	1.320567	n =	3
	within		.0898875	.729421	1.378321	T =	25
GFCF	overall	33214.45	33346.45	762.7048	97731.01	N =	75
	between		40132.44	1184.395	78232.39	n =	3
	within		4871.802	20553.68	52713.06	T =	25
CPI	overall	118.0376	17.09025	98.25291	152.3715	N =	75
	between		19.38802	99.54021	138.2078	n =	3
	within		6.171967	100.0584	132.2012	T =	25

- *Sources: Prepared by authors using STATA16.*

Appendix. VI Panel unit root tests of GDP in the level (No trend, no individual intercept)

Panel unit root test: Summary				
Series: GDP				
Date: 04/18/21 Time: 08:41				
Sample: 2013Q4 2019Q4				
Exogenous variables: None				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 4				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	1.94927	0.9744	3	68
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	1.36304	0.9681	3	68
PP - Fisher Chi-square	2.97620	0.8118	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. VII Panel unit root tests of GDP in the 1st difference (No trend, no individual intercept)

Panel unit root test: Summary				
Series: D(GDP)				
Date: 04/18/21 Time: 08:43				
Sample: 2013Q4 2019Q4				
Exogenous variables: None				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 3				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.93486	0.0000	3	66
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	38.4123	0.0000	3	66
PP - Fisher Chi-square	58.6653	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. VIII Panel unit root tests of ROA in the level (No trend, no individual intercept)

Panel unit root test: Summary				
Series: ROA				
Date: 04/18/21 Time: 08:44				
Sample: 2013Q4 2019Q4				
Exogenous variables: None				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 4				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.48829	0.6873	3	67
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	2.97771	0.8116	3	67
PP - Fisher Chi-square	3.37931	0.7600	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. IX Panel unit root tests of ROA in the 1st difference (No trend, no individual intercept)

Panel unit root test: Summary				
Series: D(ROA)				
Date: 04/18/21 Time: 08:45				
Sample: 2013Q4 2019Q4				
Exogenous variables: None				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 3				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-8.12972	0.0000	3	64
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	57.3185	0.0000	3	64
PP - Fisher Chi-square	83.0091	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. X Panel unit root tests of ROE in the level (No trend, no individual intercept)

Panel unit root test: Summary				
Series: ROE				
Date: 04/18/21 Time: 08:46				
Sample: 2013Q4 2019Q4				
Exogenous variables: None				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 4				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.21428	0.5848	3	67
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	2.73222	0.8416	3	67
PP - Fisher Chi-square	4.24165	0.6440	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XI Panel unit root tests of ROE in the 1st difference (No trend, no individual intercept)

Panel unit root test: Summary				
Series: D(ROE)				
Date: 04/18/21 Time: 08:49				
Sample: 2013Q4 2019Q4				
Exogenous variables: None				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 3				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-8.54309	0.0000	3	64
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	60.5294	0.0000	3	64
PP - Fisher Chi-square	85.3697	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XII Panel unit root tests of NPM in the level (No trend, no individual intercept)

Panel unit root test: Summary				
Series: NPM				
Date: 04/18/21 Time: 08:50				
Sample: 2013Q4 2019Q4				
Exogenous variables: None				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.26150	0.6031	3	71
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	2.40233	0.8792	3	71
PP - Fisher Chi-square	1.74936	0.9412	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XIII Panel unit root tests of NPM in the 1st difference (No trend, no individual intercept)

Panel unit root test: Summary				
Series: D(NPM)				
Date: 04/18/21 Time: 08:52				
Sample: 2013Q4 2019Q4				
Exogenous variables: None				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-10.7637	0.0000	3	69
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	82.4981	0.0000	3	69
PP - Fisher Chi-square	88.7903	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XIV Panel unit root tests of TRADE in the level (No trend, no individual intercept)

Panel unit root test: Summary				
Series: TRADE				
Date: 04/18/21 Time: 08:53				
Sample: 2013Q4 2019Q4				
Exogenous variables: None				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.34978	0.0885	3	72
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	7.05608	0.3157	3	72
PP - Fisher Chi-square	8.13233	0.2286	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XV Panel unit root tests of TRADE in the 1st difference (No trend, no individual intercept)

Panel unit root test: Summary				
Series: D(TRADE)				
Date: 04/18/21 Time: 08:54				
Sample: 2013Q4 2019Q4				
Exogenous variables: None				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-7.99324	0.0000	3	69
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	57.3765	0.0000	3	69
PP - Fisher Chi-square	56.6048	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XVI Panel unit root tests of GFCF in the level (No trend, no individual intercept)

Panel unit root test: Summary				
Series: GFCF				
Date: 04/18/21 Time: 08:55				
Sample: 2013Q4 2019Q4				
Exogenous variables: None				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 4				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	1.22461	0.8896	3	68
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	1.74937	0.9412	3	68
PP - Fisher Chi-square	3.45610	0.7498	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XVII Panel unit root tests of GFCF in the 1st difference (No trend, no individual intercept)

Panel unit root test: Summary				
Series: D(GFCF)				
Date: 04/18/21 Time: 08:57				
Sample: 2013Q4 2019Q4				
Exogenous variables: None				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 3				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-7.73507	0.0000	3	65
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	54.0186	0.0000	3	65
PP - Fisher Chi-square	89.7858	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XVIII Panel unit root tests of CPI in the level (No trend, no individual intercept)

Panel unit root test: Summary				
Series: CPI				
Date: 04/18/21 Time: 08:59				
Sample: 2013Q4 2019Q4				
Exogenous variables: None				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	1.82283	0.9658	3	71
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	1.98190	0.9214	3	71
PP - Fisher Chi-square	2.14106	0.9063	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XIX Panel unit root tests of CPI in the 1st difference (No trend, no individual intercept)

Panel unit root test: Summary				
Series: D(CPI)				
Date: 04/18/21 Time: 09:00				
Sample: 2013Q4 2019Q4				
Exogenous variables: None				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 3				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.38734	0.0000	3	66
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	43.6697	0.0000	3	66
PP - Fisher Chi-square	44.0877	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XX Panel unit root tests of GDP in the level (Including the individual intercept)

Panel unit root test: Summary				
Series: GDP				
Date: 04/18/21 Time: 09:36				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 4				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.48720	0.3131	3	68
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.49391	0.3107	3	68
ADF - Fisher Chi-square	12.9034	0.0446	3	68
PP - Fisher Chi-square	3.28938	0.7717	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XXI Panel unit root tests of GDP in the 1st difference (Including the individual intercept)

Panel unit root test: Summary				
Series: D(GDP)				
Date: 04/18/21 Time: 09:38				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 3				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.79339	0.0026	3	66
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-3.53676	0.0002	3	66
ADF - Fisher Chi-square	26.3804	0.0002	3	66
PP - Fisher Chi-square	43.9943	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XXII Panel unit root tests of ROA in the level (Including the individual intercept)

Panel unit root test: Summary				
Series: ROA				
Date: 04/18/21 Time: 09:40				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 4				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.49974	0.6914	3	68
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.87836	0.1899	3	68
ADF - Fisher Chi-square	12.8225	0.0459	3	68
PP - Fisher Chi-square	13.6434	0.0339	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XXIII Panel unit root tests of ROA in the 1st difference (Including the individual intercept)

Panel unit root test: Summary				
Series: D(ROA)				
Date: 04/18/21 Time: 09:43				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 3				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.80632	0.0000	3	64
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.11320	0.0000	3	64
ADF - Fisher Chi-square	42.6815	0.0000	3	64
PP - Fisher Chi-square	62.9879	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XXIV Panel unit root tests of ROE in the level (Including the individual intercept)

Panel unit root test: Summary				
Series: ROE				
Date: 04/18/21 Time: 09:44				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 4				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.30511	0.6199	3	68
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.19921	0.1152	3	68
ADF - Fisher Chi-square	13.0789	0.0418	3	68
PP - Fisher Chi-square	15.9090	0.0143	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XXV Panel unit root tests of ROE in the 1st difference (Including the individual intercept)

Panel unit root test: Summary				
Series: D(ROE)				
Date: 04/18/21 Time: 09:46				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 3				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.49407	0.0000	3	64
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.25939	0.0000	3	64
ADF - Fisher Chi-square	43.7373	0.0000	3	64
PP - Fisher Chi-square	66.7252	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XXVI Panel unit root tests of NPM in the level (Including the individual intercept)

Panel unit root test: Summary				
Series: NPM				
Date: 04/18/21 Time: 09:48				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.95632	0.1695	3	72
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.59647	0.0552	3	72
ADF - Fisher Chi-square	13.4337	0.0366	3	72
PP - Fisher Chi-square	13.3960	0.0372	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XXVII Panel unit root tests of NPM in the 1st difference (Including the individual intercept)

Panel unit root test: Summary				
Series: D(NPM)				
Date: 04/18/21 Time: 09:50				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-9.16018	0.0000	3	69
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-9.03810	0.0000	3	69
ADF - Fisher Chi-square	62.1051	0.0000	3	69
PP - Fisher Chi-square	79.3751	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XXVIII Panel unit root tests of TRADE in the level (Including the individual intercept)

Panel unit root test: Summary				
Series: TRADE				
Date: 04/18/21 Time: 09:51				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.40310	0.3434	3	72
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.37024	0.3556	3	72
ADF - Fisher Chi-square	7.05701	0.3156	3	72
PP - Fisher Chi-square	7.45127	0.2811	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XXIX Panel unit root tests of TRADE in the 1st difference (Including the individual intercept)

Panel unit root test: Summary				
Series: D(TRADE)				
Date: 04/18/21 Time: 09:52				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-6.19676	0.0000	3	69
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.98479	0.0000	3	69
ADF - Fisher Chi-square	40.4981	0.0000	3	69
PP - Fisher Chi-square	39.8155	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XXX Panel unit root tests of GFCF in the level (Including the individual intercept)

Panel unit root test: Summary				
Series: GFCF				
Date: 04/18/21 Time: 09:53				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 4				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.19578	0.5776	3	64
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.08054	0.4679	3	64
ADF - Fisher Chi-square	6.83427	0.3364	3	64
PP - Fisher Chi-square	17.3906	0.0079	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XXXI Panel unit root tests of GFCF in the 1st difference (Including the individual intercept)

Panel unit root test: Summary				
Series: D(GFCF)				
Date: 04/18/21 Time: 10:01				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 3				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.41354	0.0000	3	65
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.51529	0.0000	3	65
ADF - Fisher Chi-square	39.1887	0.0000	3	65
PP - Fisher Chi-square	85.7715	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XXXII Panel unit root tests of CPI in the level (Including the individual intercept)

Panel unit root test: Summary				
Series: CPI				
Date: 04/18/21 Time: 10:02				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.44300	0.0073	3	72
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.73696	0.2306	3	72
ADF - Fisher Chi-square	7.30727	0.2934	3	72
PP - Fisher Chi-square	10.3117	0.1121	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XXXIII Panel unit root tests of CPI in the 1st difference (Including the individual intercept)

Panel unit root test: Summary				
Series: D(CPI)				
Date: 04/18/21 Time: 10:04				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-6.56990	0.0000	3	69
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.79070	0.0000	3	69
ADF - Fisher Chi-square	45.9372	0.0000	3	69
PP - Fisher Chi-square	46.0679	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XXXIV Panel unit root tests of GDP in the level (Including trend and individual intercept)

Panel unit root test: Summary				
Series: GDP				
Date: 04/18/21 Time: 10:10				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.08097	0.5323	3	71
Breitung t-stat	1.02807	0.8480	3	68
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.87254	0.8085	3	71
ADF - Fisher Chi-square	2.24231	0.8961	3	71
PP - Fisher Chi-square	1.84876	0.9331	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XXXV Panel unit root tests of GDP in the 1st difference (Including trend and individual intercept)

Panel unit root test: Summary				
Series: D(GDP)				
Date: 04/18/21 Time: 10:12				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.52068	0.0000	3	69
Breitung t-stat	-2.69668	0.0035	3	66
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.84800	0.0000	3	69
ADF - Fisher Chi-square	42.1778	0.0000	3	69
PP - Fisher Chi-square	41.5661	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XXXVI Panel unit root tests of ROA in the level (Including trend and individual intercept)

Panel unit root test: Summary				
Series: ROA				
Date: 04/18/21 Time: 10:14				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 3				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.11984	0.0000	3	69
Breitung t-stat	0.13316	0.5530	3	66
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-3.65021	0.0001	3	69
ADF - Fisher Chi-square	23.3721	0.0007	3	69
PP - Fisher Chi-square	25.7889	0.0002	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XXXVII Panel unit root tests of ROA in the 1st difference (Including trend and individual intercept)

Panel unit root test: Summary				
Series: D(ROA)				
Date: 04/18/21 Time: 10:17				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 3				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.74192	0.0000	3	64
Breitung t-stat	-0.92263	0.1781	3	61
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.38226	0.0000	3	64
ADF - Fisher Chi-square	34.8734	0.0000	3	64
PP - Fisher Chi-square	117.124	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XXXVIII Panel unit root tests of ROE in the level (Including trend and individual intercept)

Panel unit root test: Summary				
Series: ROE				
Date: 04/18/21 Time: 10:18				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 3				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-3.89691	0.0000	3	69
Breitung t-stat	-0.62777	0.2651	3	66
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.18858	0.0000	3	69
ADF - Fisher Chi-square	26.3220	0.0002	3	69
PP - Fisher Chi-square	30.4280	0.0000	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XXXIX Panel unit root tests of ROE in the 1st difference (Including trend and individual intercept)

Panel unit root test: Summary				
Series: D(ROE)				
Date: 04/18/21 Time: 10:21				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 1 to 3				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.89057	0.1866	3	63
Breitung t-stat	-0.49397	0.3107	3	60
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.25151	0.0000	3	63
ADF - Fisher Chi-square	27.4304	0.0001	3	63
PP - Fisher Chi-square	168.190	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XL Panel unit root tests of NPM in the level (Including trend and individual intercept)

Panel unit root test: Summary				
Series: NPM				
Date: 04/18/21 Time: 10:24				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.81617	0.0024	3	72
Breitung t-stat	-0.69298	0.2442	3	69
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.12853	0.0166	3	72
ADF - Fisher Chi-square	13.8486	0.0314	3	72
PP - Fisher Chi-square	14.4483	0.0250	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XLI Panel unit root tests of NPM in the 1st difference (Including trend and individual intercept)

Panel unit root test: Summary				
Series: D(NPM)				
Date: 04/18/21 Time: 10:27				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 2				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.27829	0.0000	3	65
Breitung t-stat	-5.71132	0.0000	3	62
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.87271	0.0000	3	65
ADF - Fisher Chi-square	36.7722	0.0000	3	65
PP - Fisher Chi-square	192.653	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XLII Panel unit root tests of TRADE in the level (Including trend and individual intercept)

Panel unit root test: Summary				
Series: TRADE				
Date: 04/18/21 Time: 10:28				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.38952	0.6516	3	72
Breitung t-stat	1.58721	0.9438	3	69
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.75015	0.7734	3	72
ADF - Fisher Chi-square	4.29563	0.6367	3	72
PP - Fisher Chi-square	4.26397	0.6410	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XLIII Panel unit root tests of TRADE in the 1st difference (Including trend and individual intercept)

Panel unit root test: Summary				
Series: D(TRADE)				
Date: 04/18/21 Time: 10:31				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 3				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.02966	0.0000	3	66
Breitung t-stat	-0.04831	0.4807	3	63
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.95309	0.0000	3	66
ADF - Fisher Chi-square	37.5627	0.0000	3	66
PP - Fisher Chi-square	29.7975	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XLIV Panel unit root tests of GFCF in the level (Including trend and individual intercept)

Panel unit root test: Summary				
Series: GFCF				
Date: 04/18/21 Time: 10:32				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 4				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.07684	0.1408	3	64
Breitung t-stat	-1.14361	0.1264	3	61
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.83807	0.2010	3	64
ADF - Fisher Chi-square	7.79943	0.2532	3	64
PP - Fisher Chi-square	20.9023	0.0019	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XLV Panel unit root tests of GFCF in the 1st difference (Including trend and individual intercept)

Panel unit root test: Summary				
Series: D(GFCF)				
Date: 04/18/21 Time: 10:34				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 1 to 3				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.30357	0.0106	3	63
Breitung t-stat	-1.81624	0.0347	3	60
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-3.72112	0.0001	3	63
ADF - Fisher Chi-square	25.0625	0.0003	3	63
PP - Fisher Chi-square	84.2044	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XLVI Panel unit root tests of CPI in the level (Including trend and individual intercept)

Panel unit root test: Summary				
Series: CPI				
Date: 04/18/21 Time: 10:36				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.30423	0.6195	3	72
Breitung t-stat	0.30088	0.6182	3	69
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.54277	0.7064	3	72
ADF - Fisher Chi-square	3.08571	0.7980	3	72
PP - Fisher Chi-square	3.15117	0.7896	3	72
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XLVII Panel unit root tests of CPI in the 1st difference (Including trend and individual intercept)

Panel unit root test: Summary				
Series: D(CPI)				
Date: 04/18/21 Time: 10:38				
Sample: 2013Q4 2019Q4				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.56507	0.0000	3	69
Breitung t-stat	-5.45868	0.0000	3	66
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.25445	0.0000	3	69
ADF - Fisher Chi-square	38.4297	0.0000	3	69
PP - Fisher Chi-square	38.9315	0.0000	3	69
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

- *Sources: Prepared by authors using EViews10.*

Appendix. XLVIII Cross-sectional dependence test

Pesaran's test of cross sectional independence =	-1.153, Pr = 0.2489
Average absolute value of the off-diagonal elements =	0.168

- *Sources: Prepared by authors using STATA16.*

Appendix. XLIX Panel regression with fixed effects

Fixed-effects (within) regression	Number of obs	=	75
Group variable: id	Number of groups	=	3
R-sq:	Obs per group:		
within = 0.9230	min =		25
between = 0.9990	avg =		25.0
overall = 0.9966	max =		25
corr(u_i, Xb) = 0.9626	F(6,66)	=	131.87
	Prob > F	=	0.0000

GDP	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ROA	-1205776	528544	-2.28	0.026	-2261049	-150504.3
ROE	183107.8	62235.32	2.94	0.004	58850.95	307364.6
NPM	12414.32	17889.87	0.69	0.490	-23303.95	48132.6
TRADE	-13423.77	7011.282	-1.91	0.060	-27422.25	574.7072
GFCF	2.151933	.1832612	11.74	0.000	1.786041	2.517826
CPI	769.9854	152.9247	5.04	0.000	464.6614	1075.309
_cons	-54026.74	16396.3	-3.30	0.002	-86763.01	-21290.47

sigma_u	18324.229
sigma_e	4525.0491
rho	.94252387 (fraction of variance due to u_i)

F test that all u_i=0: F(2, 66) = 4.96	Prob > F = 0.0098
--	-------------------

- *Sources: Prepared by authors using STATA16.*

Appendix. L Panel regression with random effects

Random-effects GLS regression		Number of obs	=	75		
Group variable: id		Number of groups	=	3		
R-sq:		Obs per group:				
within	= 0.9157			min	=	25
between	= 1.0000			avg	=	25.0
overall	= 0.9979			max	=	25
corr(u_i, X) = 0 (assumed)		Wald chi2(6)	=	32801.83		
		Prob > chi2	=	0.0000		
GDP	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
ROA	-1959321	446810.4	-4.39	0.000	-2835054	-1083589
ROE	295151.8	43624.7	6.77	0.000	209649	380654.7
NPM	-9564.765	17317.87	-0.55	0.581	-43507.16	24377.63
TRADE	-12416.25	6217.169	-2.00	0.046	-24601.68	-230.8227
GFCF	2.48532	.1120042	22.19	0.000	2.265796	2.704845
CPI	762.5909	124.0933	6.15	0.000	519.3724	1005.809
_cons	-62180.93	11428.44	-5.44	0.000	-84580.27	-39781.59
sigma_u	0					
sigma_e	4525.0491					
rho	0	(fraction of variance due to u_i)				

- *Sources: Prepared by authors using STATA16.*

Appendix. LI Hausman test

Test: Ho: difference in coefficients not systematic
chi2(2) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 8.89
Prob>chi2 = 0.0117
(V_b-V_B is not positive definite)

- *Sources: Prepared by authors using STATA16.*

Appendix. LII Wooldridge test for autocorrelation in panel data

```
Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
      F( 1,      2) =      881.103
      Prob > F =      0.0011
```

- *Sources: Prepared by authors using STATA16.*

Appendix. LIII Wald test for group-wise heteroskedasticity in the fixed effects regression

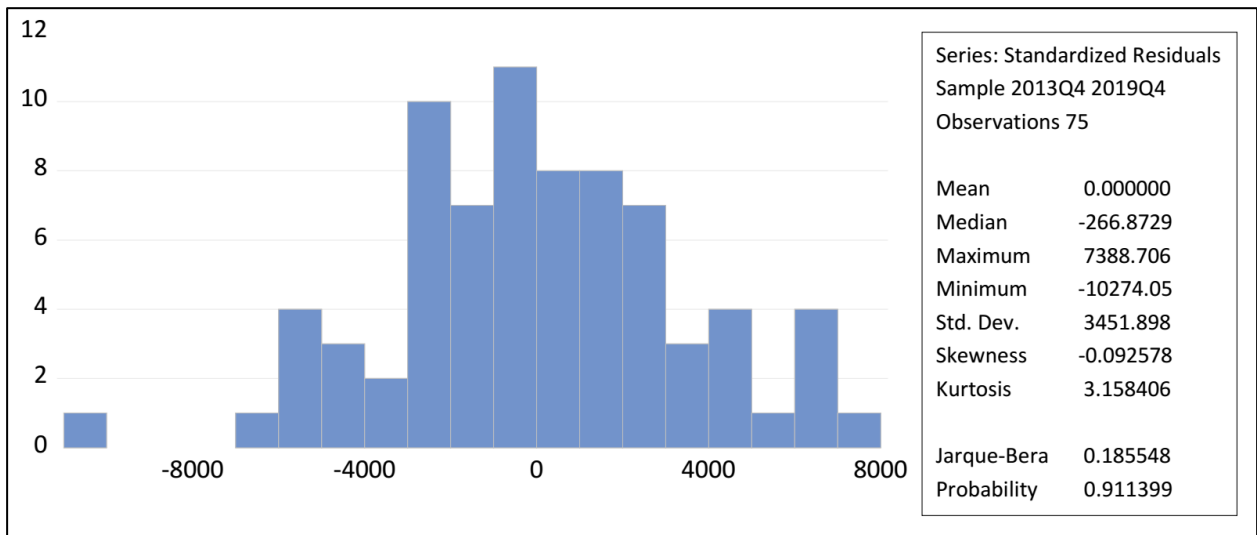
```
Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (3) =      249.16
Prob>chi2 =      0.0000
```

- *Sources: Prepared by authors using STATA16.*

Appendix. LIV Normality test for the panel data regression



Sources: Prepared by authors using EViews10.

Appendix. LV Dynamic panel one-step system GMM

Dynamic panel-data estimation, one-step system GMM						
Group variable: id	Number of obs	=	72			
Time variable : qdate	Number of groups	=	3			
Number of instruments = 26	Obs per group: min	=	24			
Wald chi2(7) = 109.48	avg	=	24.00			
Prob > chi2 = 0.000	max	=	24			
GDP	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
GDP L1.	.2713367	.0357653	7.59	0.000	.2012379	.3414354
ROA	-2704402	1577615	-1.71	0.086	-5796471	387666.9
ROE	355406.7	144012.5	2.47	0.014	73147.36	637666.1
NPM	45854.23	9565.756	4.79	0.000	27105.69	64602.77
TRADE	-62509.48	23330.98	-2.68	0.007	-108237.4	-16781.59
GFCF	1.749821	.2320646	7.54	0.000	1.294982	2.204659
CPI	258.784	184.2118	1.40	0.160	-102.2646	619.8325
_cons	19860.71	42841.58	0.46	0.643	-64107.24	103828.7

- *Sources: Prepared by authors using STATA16.*

Appendix. LVI Dynamic panel one-step system GMM diagnostics

Arellano-Bond test for AR(1) in first differences: z = -1.61 Pr > z = 0.108	
Arellano-Bond test for AR(2) in first differences: z = -1.57 Pr > z = 0.117	
Sargan test of overid. restrictions: chi2(18) = 15.84 Prob > chi2 = 0.604 (Not robust, but not weakened by many instruments.)	
Hansen test of overid. restrictions: chi2(18) = 0.00 Prob > chi2 = 1.000 (Robust, but weakened by many instruments.)	
Difference-in-Hansen tests of exogeneity of instrument subsets:	
GMM instruments for levels	
Hansen test excluding group:	chi2(17) = 0.00 Prob > chi2 = 1.000
Difference (null H = exogenous):	chi2(1) = 0.00 Prob > chi2 = 1.000

- *Sources: Prepared by authors using STATA16.*

