

Vol. 9 No. 4 , September - October 2021

International peer-reviewed journal

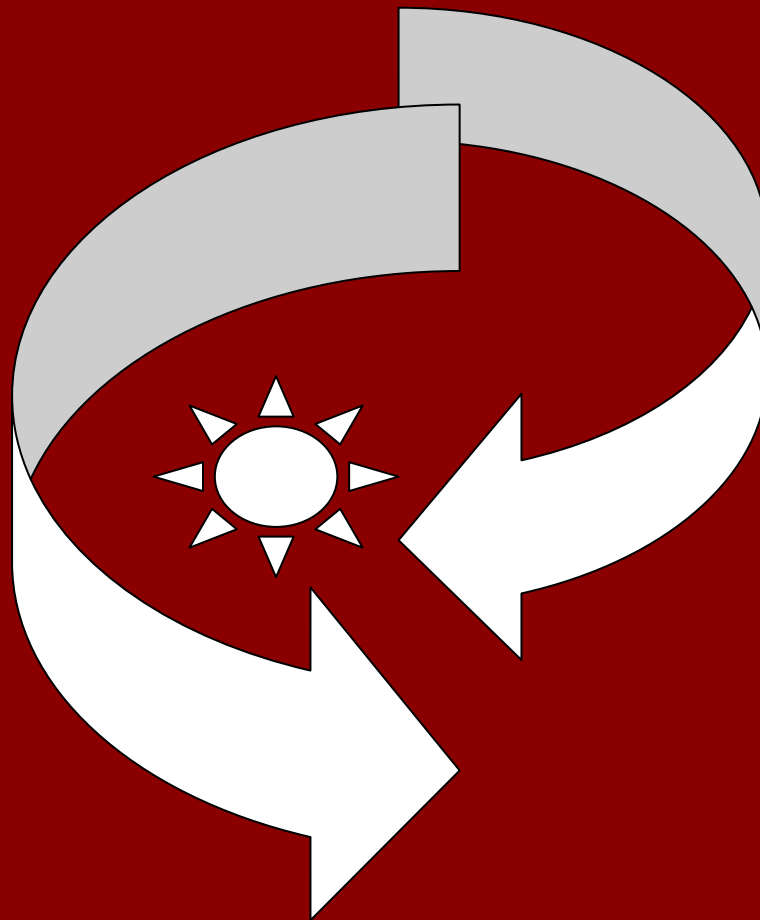
ISSN: 2338-4603 (print)

2355-8520 (online)



# Jurnal Perspektif Pembiayaan dan Pembangunan Daerah

(Journal of Perspectives on Financing and Regional Development)



Master Program in Economics  
Universitas Jambi



## Jurnal

### Perspektif Pembiayaan dan Pembangunan Daerah

Accreditation Decree (SINTA S2), valid from Vol. 6 No. 2 (September – October 2018) based on the Decree of the Director General of Development and Research Enhancement, Ministry of Research, Technology & Higher Education of the Republic of Indonesia, Number 10/E/KTP/2019

Published by Master Program in Economics, Graduate Program of Jambi University

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# Jurnal Perspektif Pembiayaan dan Pembangunan Daerah (Journal of Perspectives of Financing and Regional Development)

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# The impact of Fintech on Islamic banking and the collaboration model: a systematic review studies in Indonesia

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|---------------------------------|-------------------------|------------------------|-------------------------|--------------------------|
| DOI:<br>10.22437/ppd.v9i4.12054 | Received:<br>10.02.2021 | Revised:<br>05.09.2021 | Accepted:<br>25.10.2021 | Published:<br>31.10.2021 |
|---------------------------------|-------------------------|------------------------|-------------------------|--------------------------|

## Abstract

The Fintech company has raised its number significantly in Indonesia and threatened the banking sector as Islamic Banking is not the exception. Fintech can provide better financial services than Islamic Bank with its technological advantages. This research aims to observe the effect of Fintech's on Islamic banks and discover the collaboration model between Fintech and Islamic banks to improve financial services. The method was carried out by Systematic Literature Review (SLR), then analyzed using Nvivo 12 to quantify the words counted to the papers found. The result showed that there were 14 papers found to analyze in the systematic review. According to Nvivo 12 words counted result, the highest words counted was 'services' with 21%, followed by 'user' and 'customers' combined with 16%. Furthermore, Fintech acts as the disruptor for Islamic Banking, shown in its Return on Asset and its potential to take over the millennial customers segment. The collaboration can be done by sharing product marketing, loans, and transaction services. For the customer, big data analysis, the legal aspects, risk of human error, and data security protocol should be mitigated by tightening the registration system to minimize fraud, enhancing the internet server to prevent failure transactions, and closely cooperating with the Authority of Financial Service in Indonesia (OJK) to ensure the legal aspects are fulfilled.

**Keywords:** *Collaboration model, Fintech, Islamic banking*

**JEL Classification:** G2, G3, G4

## INTRODUCTION

A modern sector called the "Fintech industry" arose and exploded across the globe amid the digital revolution 4.0 (Ali et al., 2019a). Due to its similar yet disruptive financial services, Fintech is becoming a significant disruptor to the current banking and finance company (Daryanto et al., 2020; Vives, 2017). Islamic banking and finance industries are also subject to tremendous strain, in particular, because the cost of fees is higher in Islamic banks than in traditional banks. Fintech is inevitably circled the entire room of finance.

Fintech start-up has played and entered the financial sectors, which successfully attracts clients' attention, challenging traditionally established financial businesses (Kohardinata et al., 2020). Gomber et al. (2017) occurred due to the following factors; firstly, Fintech start-up businesses provide new services/products and solutions to meet customers' needs that incumbents have previously missed. Second, the implementation

of new concepts and technologies by Fintech start-up enterprises has created new prospects for promoting services and products. Last, information technology companies are better adapted to creating products and services in an exceptionally inventive environment. Companies must be creative and adaptable since development, information, and communication technology changes can be dynamic and fast. Fintech companies focus on low-cost internet-based business models, and they are innovative and agile enough to challenge incumbents.

Fintech has exploded in popularity due to the widespread use of digitization, which is critical to making information more accessible, faster, and less expensive than traditional methods (Hidajat, 2020). Buchak et al. (2018) measured that the increased regulatory burden on conventional banks (in terms of increased capital requirements and legal scrutiny) is estimated to explain approximately 55% of shadow bank growth in the period. However, the use of financial technology explains 35% of this dynamic. Global Fintech investment reached a new high of \$16.6 billion in 2017 compared to 2016 (\$13.3 billion) (CB Insights, 2018). Asia led fintech venture capital investment in 2018, with \$22.65 billion in 563 transactions. The US touched \$11.89 billion in 659 transactions, led by Asia. In 363 transactions, Europe hit \$3.53 billion (CB Insights, 2018).

Also, Fintech can potentially disrupt existing financial intermediaries and banks, particularly with the generation of new business models based on the use of big data (Thakor, 2020). Fintech facilities can help better determine loan applicants' creditworthiness when an institution screens them using big data, artificial intelligence, and computer learning and enhances the interface between financial clients and their service providers (Vives, 2017). For example, the US mortgage sector where shadow banks (non-bank lenders) nearly tripled their market share from 2007 to 2015. Fintech companies accounted for over a third of shadow bank loan originations by the end of the era (Buchak et al., 2018).

The competition in the banking sector has changed from the big and small banks dynamic towards the competition with Fintech (Kolesova. & Girzheva, 2018). As a result, FinTech firms are viewed as serious competitors to the traditional banking system (Al-Ajlouni & Al-Hakim, 2019). However, Islamic Bank is not the exception. Looking at Fintech with juggernaut potential, the Islamic bank has shown a rather pessimistic counter-back. Some studies observed that Islamic financial institutions' innovation levels are poor as the evolution of Islamic finance is considered a recent activity (Panjwani & Shili, 2020; Al-Salem, 2009). Besides, Abu Bakar et al. (2019) mentioned that the actual performance of 17 sharia compliance in the Malaysia stock market after IPO bounced back with MACAR Value -46% in 2014-2015, and the company performed less than the benchmark. The various factors need to be reviewed to understand Fintech's existence on Islamic banking.

Sharia principles, associated with certain ideological guidelines, gave rise to Islamic banking practices. The paradigm was first developed according to rewards and risk-sharing to promote social well-being (Hassan & Aliyu, 2018). In theory, Islamic banking eliminates interest and an opportunity for gambling, speculation, and unclear risk (*gharar*). Furthermore, illicit transactions, including pornography, cigarettes, short-selling, and other activities deemed to be harmful to society, are prohibited (Hassan & Aliyu, 2018; Ismail, Mohd Noor Azli Ali Khan & Azizi, 2011). Instead, the system condemns exploitation and concentrates on actual economic activities through stakeholders' rewards and risk-sharing of business outcomes. It also entails a stable financial, economic system (Schoon, 2008), and participate in sale and lease-based

(*Ijara*) contracts (which must be underlying by assets), benevolence finance (*Qard Hasan*), and pooling expertise (Aliyu & Bauchi, 2014)

Various research discussed the impact of Fintech on Banking sectors (Kolesova & Girzheva., 2018; Buchak et al., 2018; Vives, 2017; Phan et al., 2020; Daryanto et al., 2020). However, the area of research in discussing the impact of Fintech on Islamic Bank is explicitly still scarce. This paper contributes to the discussion related to the impact of Fintech's existence on Islamic bank performance and discovers the collaboration model between Fintech and Islamic banks to improve financial services.

## **METHODS**

Systematic Literature Review (SLR) was used as a study method to identify, characterize, and assess the existing topic of Fintech and Islamic Banking performance. The SLR applies research questions, searching process strategy, inclusion and exclusion criteria, quality assessment, data collection, and data analysis (Hariyati, 2010). Furthermore, the research questions are as follows;

1. RQ 1: How does Fintech affect Islamic Banking?
2. RQ 2: How does the collaboration between Fintech and Islamic Banking benefit both parties?

Through February 2021, the studies were searched using boolean protocol through keywords (“Islamic Bank” OR “Sharia Bank”) AND (“Fintech” OR “Financial Technology) AND (“Performance” OR “Profitability”) AND (“Indonesia”) in Publish and Perish software with google scholar database. Furthermore, we reviewed the references in relevant studies to identify the additional eligible papers. The titles and abstracts were screened to eliminate the duplication and the irrelevant studies which did not include the Islamic Bank and Fintech information in their abstracts. Lastly, we reviewed the full text and filtered it using inclusion and exclusion criteria.

We included any type of studies with the published period's range of 2017 – 2021 (4 years). Furthermore, English and Indonesian language were included. We selected the outcome based on Islamic banking and Fintech in Indonesia and excluded other nationals except for the comparison study. Lastly, we had journal papers, conference papers, proceedings, and case reports, whereas review articles and bibliometric studies were excluded.

Two independent assessors conducted the quality assessment to select the studies for review by reading the full text. Any disagreement will be recorded using Cohen Kappa to evaluate agreement reliability between assessors. However, if the disagreement happened, the third consultant would decide the papers to reach a consensus.

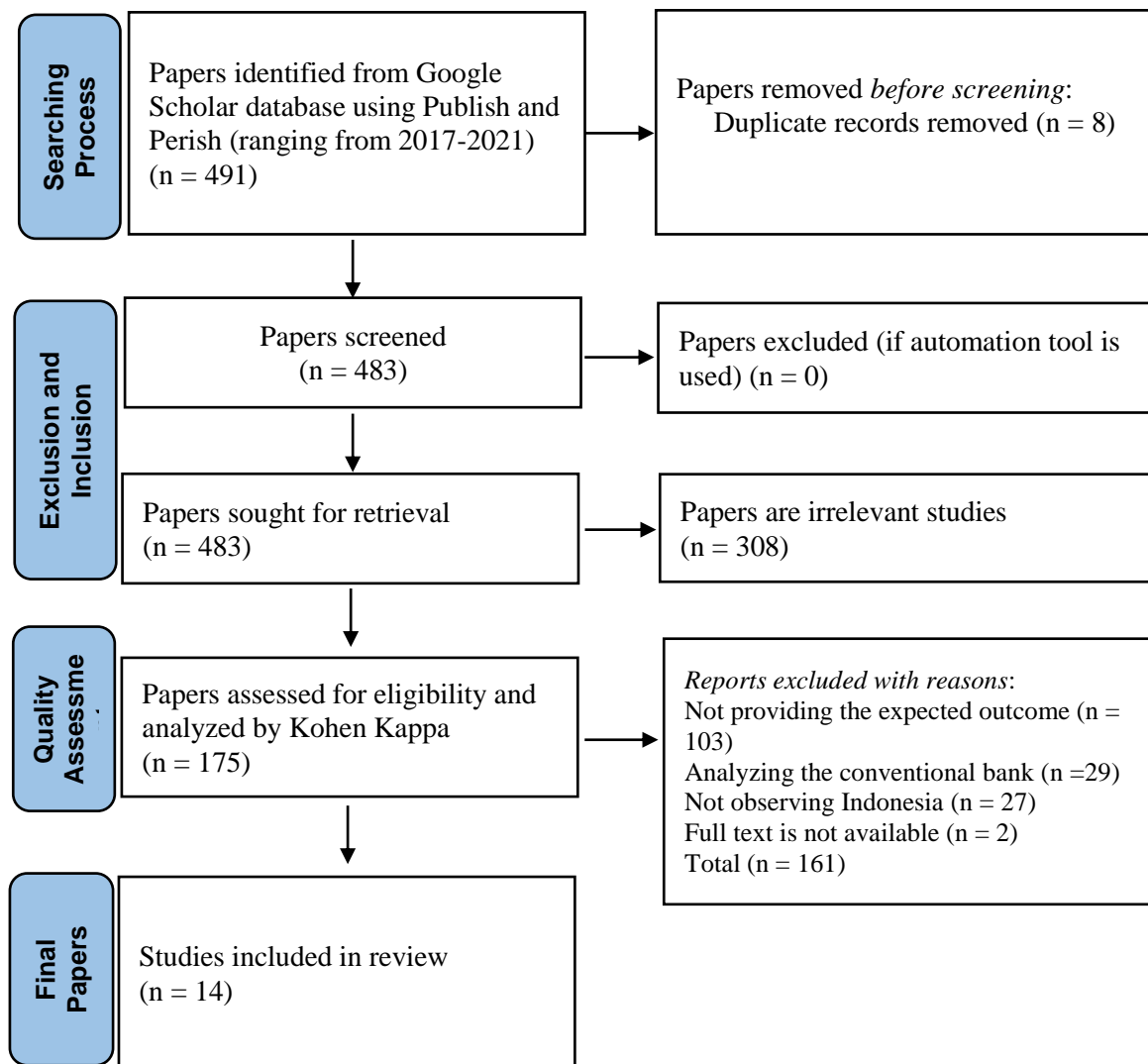
By reviewing the studies' text, graphs, figures, and tables, two independent assessors extracted the study characteristic and outcomes. Also, we extracted the data of the first author's name, published year, type of paper, and finding. If the data were not available, we would contact the authors to obtain them. Furthermore, we focused on the Islamic bank performance and Fintech for the finding analysis.

## **RESULT AND DISCUSSION**

### **Result**

Figure 1 is the flowchart of the studies selection process adapted from PRISMA 2020 (Page et al., 2021). There are four stages of the studies collection process, namely 1) the searching process, which provides information of the total paper found based on the title filter in the database. Furthermore, if any duplicates were observed, the author

must remove them. 2) Exclusion and inclusion are the screening process of paper abstracts to select the relevant studies according to the criteria. 3) Quality assessment is done by reading the full text and yielding the included studies to review, whereas the excluded paper should be justified. Additionally, the agreement of paper final selection done by the author and the assessor should be analyzed by Kohen Kappa. 4) Final paper informs the total of the papers to review by the author.



**Figure 1.** Studies selection process

The flowchart of studies selections are as follows; searching process (491 papers), duplicate found (8 papers), exclusion and inclusion (308 papers), quality assessment (175 papers), and final papers (13 papers)

**Table 1.** Cohen Kappa reliability result in quality assessment

|                            | Value | Asymp.Std. Error <sup>a</sup> | Approx. T <sup>b</sup> | Approx. Sig. |
|----------------------------|-------|-------------------------------|------------------------|--------------|
| Measure of Agreement Kappa | .894  | .061                          | 11.832                 | .000         |
| N of Valid Cases           | .175  |                               |                        |              |

a. Not assuming the null hypothesis

b. Using the asymptotic standard error assuming the null hypothesis

Kohen Kappa Value on assessor agreement in the quality assessment process is 0.894 (high) and sig 0.00 < 0.05 (significant). In Table 2, 13 articles and 1 conference paper were retrieved to analyze our systematic review further. These studies discussed the impact of Fintech on Islamic banking in various aspects and predictors, particularly in the practice of religiosity and sharia compliance (Kusuma & Wibowo, 2020; Usman et al., 2021), the acceptance model, and the technology behavior of the user (Darmansyah et al., 2020; Suhartanto et al., 2021). Furthermore, constraints pointed out were poor IT infrastructure, geographical challenge (Ali et al., 2019b), and the lack of aggressivity of Islamic banking in competing with Fintech (Monika et al., 2021). Haris (2020) has studied a collaboration model that potentially attracts new market segments and increases Islamic bank competitiveness (Mazza Basya & Utami Silfia Ayu, 2020; Aisyah, 2018; Hidayah et al., 2020; Andri et al., 2020; Riza, 2019). However, the collaboration risks that have to be mitigated in the future were also mentioned, such as HR risk, operational risk, liquidity risk, and reputation (Hasan & Sunarti, 2019)

**Table 2.** Key findings of the Fintech and Islamic banks after quality assessment

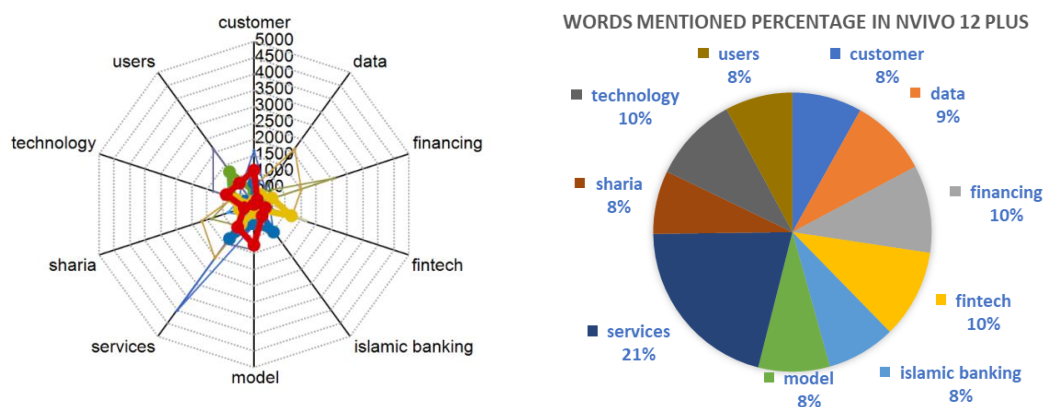
| No | Authors and Year                       | Document type | Finding                                                                                                                                                                                                                                         |
|----|----------------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | (Kusuma & Wibowo, 2020)                | Article       | The major factor of customer decision in using the Islamic Bank is to practice religiosity and expectancy of performance improvement while using technology-based services                                                                      |
| 2  | (Darmansyah et al., 2020)              | Article       | The planned behavior, acceptance model, and use of technology have a significant impact on encouraging the behavior intention of using Islamic Financial technology in Indonesia                                                                |
| 3  | (Ali et al., 2019b)                    | Article       | The Islamic financial inclusion in Indonesia (2014-2017) was very low due to the challenge of poor IT development, geographical expansion, and lack of infrastructure support.                                                                  |
| 4  | (Monika et al., 2021)                  | Article       | The development of Fintech had a negative effect on the ROA of state-owned Islamic banks due to its lack of aggressiveness and adaptability to technology. Thus, Fintech contributes as disruption to the state-owned Islamic Bank in Indonesia |
| 5  | (Mazza Basya & Utami Silfia Ayu, 2020) | Article       | Based on SWOT analysis, the opportunity of Islamic banks in using Fintech may increase the market size by embracing the internet user in Indonesia and improve the financial service by collaborating with small fintech company                |
| 6  | (Aisyah, 2018)                         | Article       | The ease of financial transaction, user-friendly, and more convenient services by Islamic Bank can increase customer satisfaction and loyalty. Thus, collaboration with Fintech is considered necessary                                         |
| 7  | (Hidayah et al., 2020)                 | Article       | The use of information and technology has a significant impact on the sustainable competitive advantage of Islamic Bank                                                                                                                         |
| 8  | (Andri et al., 2020)                   | Article       | The sharia innovation on technology and efficiency has a positive and significant effect on the sustainability of Bank Syariah Mandiri, Lampung.                                                                                                |
| 9  | (Suhartanto et al.,                    | Article       | In millennial consumers, the attitude towards                                                                                                                                                                                                   |



| No | Authors and Year          | Document type    | Finding                                                                                                                                                                                                                                                                                                                                                                                              |
|----|---------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | 2021)                     |                  | artificial intelligence (AI) and trust in banking transactions increased the millennial loyalty in using Islamic Bank in Aceh.                                                                                                                                                                                                                                                                       |
| 10 | (Riza, 2019)              | Article          | In millennial consumers, the perceived ease of use (PEOU) and perceived usefulness (PU) correlate to intending to use Islamic digital banking. Thus, the fintech integration may attract millennial segments in Indonesia.                                                                                                                                                                           |
| 11 | (Usman et al., 2021)      | Article          | The sharia compliance (SC), the knowledge of SC, and the belief of SC have a significant impact on customer satisfaction in using digital Islamic bank                                                                                                                                                                                                                                               |
| 12 | (Swastiratu et al., 2019) | Article          | Based on SWOT analysis, the collaboration strategy (SO, ST, and WT) between Islamic banks and Fintech that can be implemented are as follows; 1) Optimization of data access of Islamic bank; 2) increasing the availability and adversity of Islamic bank products; 3) More competitive and efficient system enhancement; 4) Improving the customer experience in using Fintech in an Islamic bank. |
| 13 | (Haris, 2020)             | Article          | To develop synergy between Fintech and Islamic Bank in improving the medium-small enterprises in Indonesia, can be done as follows; 1) cross-selling scheme; 2) channeling and joint financing; 3) referral; 4) forming fintech consortium; 5) shadow investor collaboration, and 6) outsourcing platform                                                                                            |
| 14 | (Hasan & Sunarti, 2019)   | Conference Paper | The risks of using Fintech in Islamic Banks in Indonesia are HR risks, operational risks, liquidity risks, legal risks, and reputation.                                                                                                                                                                                                                                                              |

*Note; Based on quality assessment using Kohen Kappa reliability analysis, 14 papers were summarized to answer the research questions.*

Figure 2 showed that the words services (21%) are the most frequent word used in the 14 papers, followed by customers and users combined respectively (16%), financing (10%), fintech (10%), technology (10%), data (9%), sharia (8%), Islamic Bank (8%), and model (8%)



**Figure 2.** Words coding analysis using Nvivo 12 plus

## Discussion

Due to the exponential growth of Fintech in Indonesia, which is expected to reach 149 fintech enterprises by December 2020 (OJK, 2021), previous research has revealed that Fintech may contribute as a disruptor for Islamic banks. In state-owned Islamic banks, the existence of Fintech had a negative effect on ROA (return on assets) (Monika et al., 2021). Furthermore, it appears that state-owned Islamic banks struggle hard to adapt to the technological advance of Fintech. Not to mention, an Islamic bank is considered to have a lack of aggressiveness in facing competition with Fintech. In the case of study research, the customer of state-owned Islamic Bank in south Jakarta felt dissatisfied with the services provided by Islamic Bank (Aisyah, 2018) due to the excessive queue, unclear standardization of branches, and the limited technology-based services. Therefore, Islamic banks should provide advanced technology and banking delivery systems to the customer.

The banking services in the digital era should not only focus on the tangible aspects of the business. Nowadays, the customers are reluctant to come and queue to conduct the transaction in the banking branch, yet, they would rather demand faster, more convenient, trustworthy, and advanced banking services. The increase of gadget users, improvement of internet bandwidth, growth of e-commerce in the market, and other online medium transaction inevitably change the nature of banking itself. In Islamic Bank in Lampung, Andri et al. (2020) suggested that technology innovation has a positive and significant effect on the bank sustainability and competitive advantage of state-owned Islamic banks (Hidayah et al., 2020). The huge shifting to the technology of everyday life has to be taken into account seriously by Islamic Bank in Indonesia to survive.

As a disruptor, Fintech closely approaches the existing customer in Islamic Bank and millennials as digital natives who are highly exposed to the mobile gadget. The technological advantages of Fintech may attract the internet user by constantly putting the advertisement of its product on social media. The social media users interested in financial services will be gathered and exposed to fintech companies promoting advertisement. The advertising algorithm creates traffic to promote fintech products on a bigger scale. This new technological advanced advertising method has gradually benefited Fintech in expanding customer segments more effectively.

On the contrary, Islamic banks did not aggressively promote their unique value proposition, relying on sharia compliance. According to Kusuma & Wibowo (2020), the Islamic Bank's major decision is to practice religiosity and prevent ones from *Riba* and *Gharar*. It may also contribute to customer satisfaction in using Islamic Bank (Usman et al., 2021). However, this research also emphasized that the customers expect the Islamic Bank to perform better by improving the technology-based services. Thus, Islamic bank needs to implement a technology-based strategy to improve the services, promotion, and products.

Fintech embraces the product of financial services from online payment services, peer-to-peer lending, and crowdfunding (Darmansyah et al., 2020) that closely embraces the whole banking services. As for the millennial segment, the Fintech and Islamic banks may share their financial services segment. As the credit card services would be disrupted by the pay later, which requires less bureaucracy, interbank money transfer would be replaced by e-money which charges less, peer to peer lending would be preferable instead of applying for the bank loan due to extreme floating rates, and crowdfunding services which defeats the banking sector to promote financial inclusion are arguably the major threat for Islamic Bank.

Furthermore, the studies conducted by Suhartanto et al. (2021) and Riza (2019) (2019) on millennials suggested that in using the Islamic Bank technology services like digital banking or mobile banking, the millennial perceived that it eased their transaction and found it useful. These studies confirmed that millennial has digital behavior and preferably use of which faster and more convenient for them in choosing transaction service method. Also, the words counted in 14 papers in this review showed supportive proof. The words ‘services’ appeared 21% followed by ‘customer’ and ‘user’ altogether 16% have demonstrated that the way fintech impacts the Islamic bank highly depends on the services provided and customers or users experiences.

In those aforementioned financial services, the existence of Fintech is a guerilla threat towards state-owned Islamic banks. On the contrary, Fintech is complementary to the private Islamic bank if we analyze the ROA (Monika et al., 2021). The exponential growth of FinTech companies has a positive effect on the ROA of private Islamic banks in Indonesia. In this scenario, because Fintech may harm the bank's dominating position, it encouraged private Islamic banks to use information technology and collaborate with Fintech peer-to-peer lending companies to run their operations more efficiently. This cooperation can generate profits by generating new client segments, products, and services using new technologies that provide new income opportunities and enhance efficiency. For Fintech, it gains more capital to provide financial services and obtain reputable-trustworthy as it attaches to the well-established brand of the bank as a national financial intermediary.

In promoting collaboration between Fintech and Islamic bank, SWOT analysis carried out by Swastiratu et al. (2019) showed that the strategy that can be implemented such as 1) optimization of data access of Islamic Bank; 2) increasing the availability and adversity of Islamic Bank products; 3) More competitive and efficient system enhancement; 4) Improving the customer experience in using Fintech in Islamic Bank. The benefits should be reciprocal and can be done by sitting together and discussing the strategy further in detail. Fintech acts as the newcomer, and the Islamic bank is unsure how much worth of investment put for this collaboration. Being fully aware of value prepositions is crucial in initiating the collaboration or conducting a merger if necessary.

However, the business structure differences of Fintech and Islamic Bank remain to be a challenge. Fintech, which is associated with technology-based financial services not necessarily solve the technology issue of Islamic Bank. It may work at ease for some areas like product promotion and marketing, loans, and transaction services. Still, the legal aspects, potentially human error, and data security protocol should be addressed further for the more sophisticated area related to the customer big data. Ignoring these aspects may lead to financial services errors which cause a bad reputation for the customer. As Hasan & Sunarti (2019) emphasized, this risk should be mitigated by tightening the registration system to minimize fraud, enhancing the internet server to prevent failure transactions, and closely cooperating with the Authority of Financial Service in Indonesia (OJK) to ensure the legal aspects are fulfilled.

The collaboration between Fintech and Islamic banks may improve financial inclusion and play a big role in achieving the goal of SDGs. More importantly, it may empower the Micro, Small, Medium Businesses (MSMEs) in Indonesia. As Haris (2020) emphasized, the collaboration will ease financial access in proposing business

loans and *mudharabah*/risk-sharing investment for the MSMEs in Indonesia. MSMEs are not considered bankable as it does not provide a good company data record. With the help of Fintech, the MSMEs can be developed to be more bankable at a measurable scale. Thus, it may achieve more inclusive financial services in Indonesia.

## CONCLUSION AND RECOMMENDATION

### Conclusion

As the rapid growth of fintech companies in Indonesia, it acts as a disruptor for the state-owned Islamic Bank by affecting the ROA (Return on Assets) due to its lack of adaptability in facing the technological advance of Fintech. Fintech may disrupt not only millennial segments but also the whole gadget users who are constantly exposed to social media, thus making them the target of effective promotion in the digital era.

To compete with Fintech, the Islamic Bank should innovate and invest heavily in technology to improve sustainability and competitiveness. Also, Islamic Bank needs to focus more on the technology-based strategy to improve promotion and marketing, financial services products, and customer experiences to improve customer satisfaction.

For Islamic Bank, instead of treating the Fintech as a competitor, it is better to treat them as a partner by conducting collaboration which may generate profits by generating new client segments, products, and services using new technologies that provide new income opportunities by utilizing new technologies that can enhance efficiency. For Fintech, it gains more capital to provide financial services and obtain reputable-trustworthy as it attaches to the well-established brand of the bank as a national financial intermediary.

The collaboration challenge that may occur such as customer big data exploration, the legal aspects constraint, potentially human error, and data security protocol. It can be mitigated by tightening the registration system to minimize fraud, enhancing the internet server to prevent failure transactions, and closely cooperating with the Authority of Financial Service in Indonesia (OJK) to ensure the legal aspects are fulfilled

### Recommendation

To provide a more comprehensive understanding regarding the impact and collaboration of Fintech and Islamic Bank, the review analysis can be broadened not only in Indonesia but also in ASEAN countries level. The exploration of the study finding will not be limited to either the fintech act as complementary or disruptor for the current banking (incumbent), but also understand how it interacts with existing Islamic Bank. Not to mention, each Islamic Bank's adaptability in ASEAN countries is a different one and another. Thus, the coping mechanism in facing Fintech can be adopted by the manager level of Islamic Bank in Indonesia.

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## Criminality and economic growth province in Indonesian

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|---------------------------------|-------------------------|------------------------|-------------------------|--------------------------|
| DOI:<br>10.22437/ppd.v9i4.13408 | Received:<br>21.06.2021 | Revised:<br>20.08.2021 | Accepted:<br>28.09.2021 | Published:<br>31.10.2021 |
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### Abstract

The decline in economic growth, which is offset by the increasing number of people and the lack of availability of jobs, has caused more people to be affected and involved in non-crime activities based on the crime rate (CR). This study aims to analyze the effect of crime rates on provincial economic growth in Indonesia in 2011-2020. The variables used are economic growth, crime rates, investment, labor, and initial growth. The method used is the Fixed Effect Model. The results show that the higher the crime rate impacts the decline in economic growth, further increase in investment and labor will encourage economic growth. In contrast, the initial growth shows that the economy of poor provinces grows slower than rich provinces.

**Keywords:** *Crime rate, Economic growth, Initial growth, Investment, Labor.*

**JEL Classification:** O11, O47, R11

### INTRODUCTION

Crime is an unacceptable phenomenon in society. The history of crime begins with the origin of human history in this world. There is no universal and permanent definition of crime. In different eras, the definition of crime is also different. In other words, crime is an instrumental act of violating the law carried out without justification and sanctions as a violation by the state. In criminology, the tendency of individuals to commit crimes can be seen from a biological perspective, a sociological perspective, and other perspectives. This science also gives two meanings to crime, namely juridically and sociologically. Juridically, Bonger (Kummar, 2013) argues that crime means a social cycle that consciously receives a reaction from the state in the form of suffering and then reacts to legal definitions regarding crime. Sociologically, crime is human behavior created by society.

Two factors can lead to crime: internal factors, which include specific and general characteristics in the sense of the individual, and external factors. Individuals' special traits include mental illness, emotional power, low mentality, and anatomy. At the same time, the general characteristics of individuals include physical strength, individual position in society, individual education, and individual entertainment (Kathena & Sheefeni, 2017). External factors may include economic factors (price changes, unemployment, income, urbanization), religious, reading, and film factors. In general, criminals do illegal things because the thought of satisfaction is greater than their satisfaction if they follow the applicable law (Mulok et al., 2016).



The performance of a country can be measured by economic growth. Economic growth is one of the indicators used to measure the economic performance of a country. Economic growth is the main goal of developing countries. The success of the government's performance and its institutions tends to be measured by the economic growth generated (Krugman & Wells, 2018). According to Mankiw (2019), economic growth increases output in the long run. He also mentioned that economic growth is also related to increased "output per capita". In addition, according to Mankiw (2019), economic growth is the process of increasing the production of goods and services in community economic activities.

Kummar (2013) found a negative and statistically significant relationship between crime and economic growth in the Indian state. Simple logic suggests that criminal activity should decrease in good economic conditions. This means that the better the country's economy, the more jobs will be created, less unemployment, increased income levels, and reduced criminal activity. However, this is not always the case. On the contrary, what is true is that criminal activity tends to increase even when the economy is good. Mulok et al. (2016), in their research, found strong evidence of cointegration in the long term where the impact of economic growth on crime in the long term was found to have a positive and statistically significant relationship. In the short term, the bidirectional cause between crime and economic growth was also significant. This means that their research is consistent with economists' arguments that the better the economic activity in a country, the more crime it will cause, and vice versa when economic conditions are bad.

Previous research has concluded that countries are experiencing an economic downturn due to crime. Islam (2014) conducted a study to examine the relationship between GDP and crime from 1960 to 2013. He started his research by experiencing difficulties in testing the hypothesis that macroeconomic factors greatly influence crime trends. In his research, he found that crime affects economic factors and an interdependent relationship between the two.

However, according to Levine & Renelt (1992), as a determinant of economic growth, a study must use control variables, which control variables are variables that have been widely recognized as determinants of economic growth. Control variables consist of, among others, the initial level of GDP, population growth, and investment. Based on Levine and Renelt's economic growth model, the author conducted a study on the relationship between crime and the economy in Indonesia using panel data from 31 provinces. Researchers make Indonesia the object of research because Indonesia is a developing country where economic growth is an indicator of the success or decline of a country's economy; economic growth is also an indicator of people's welfare.

## **METHODS**

The variable used in this study is economic growth (EG) in 31 provinces of Indonesia obtained from the Central Statistics Agency (BPS). The data taken is secondary data in the form of a combination of time series data with cross-individual data (cross-section) from 2011-2016 in the form of a percentage (%).

The dependent variable in this study is economic growth (EG). To measure the variable economic growth is proxied through the value of per capita GRDP growth based on constant prices. The independent variable in this study consists of the Crime Rate (CR), which is a number that indicates the level of crime vulnerability in a particular area. The data used to obtain the crime rate for 31 provinces in Indonesia was

obtained from the Central Statistics Agency (BPS) during the period 2011-2016 in percentage form (%).

Investment (I) uses the ratio of realized domestic investment to Gross Regional Domestic Product (GRDP) based on 2010 price constants obtained from the Central Statistics Agency (BPS), Manpower (L) uses data on the ratio of the population aged 15 years and over who work the population (EPR) which includes the labor force is obtained from the Central Statistics Agency (BPS), and the Initial Growth (IGt-1) data on economic growth taken from one year before the academic year is obtained from the Central Statistics Agency (BPS).

This study uses an analysis of the economic model of Levine & Renelt (1992) as follows:

$$Y = \beta_i i + \beta_m M + \beta_z Z + \mu \dots\dots\dots(1)$$

Where:

- Y = GRDP per capita
- I = Growth Function Variable
- M = Researcher Interest Variables
- Z = Supporting Variables
- $\mu$  = *Error Term*
- $\beta_i$  = Regression coefficient of each influencing variable.

Then the model (1) is transformed into a panel data regression equation model as follows:

$$PE_{it} = \beta_0 - \beta_1 CR_{it} + \beta_2 PM_{it} + \beta_3 TK_{it} + \beta_4 IG_{it-1} + \mu_{it} \dots\dots\dots(2)$$

This model determines the effect of Crime Rate (CR) on economic growth (EG) and other supporting variables. 1) Investment; 2) Labor; 3) Initial growth.

Information:

- PE = GRDP per capita.
- CR = *Crime Rate*.
- PM = Investment
- TK = Labor
- IG<sub>t-1</sub> = Initial Growth.
- i* = 1,2.....n, indicates the number of individual crosses.
- t* = 1,2.....n, shows the time series.
- 0 = Constant (intercept).
- $\beta_i$  = Regression Coefficient.
- $\mu$  = *Error Term*.

Some of the advantages of using panel data in the econometric analysis were stated by Baltagi (2005), namely, first controlling for individual heterogeneity. Panel data states that individuals, companies, places, or countries are heterogeneous. Panel data consists of quantity and time, so many other variables may be state-invariant or time-invariant, affecting the dependent variable. Panel data provides an opportunity for the treatment of each unit analyzed to be heterogeneous. Panel data is also suitable for studying the duration of economic magnitude variables such as unemployment, poverty, and inflation and can also explain the speed of response to changes in economic policy.

In the analysis with the panel data model, there are three kinds of estimation

approach methods that are commonly used: Common Effect Model (CEM), Fixed Effect Model (FEM), Random Effect Model (REM). The Chow test chooses the analysis technique that will be used best between the fixed effect and Ordinary Least Square models. The Hausman test carried out is to choose the best analysis technique between the random effect model and the fixed effect model to be used in regression testing. If the results of the two previous tests are obtained in one test or even both tests accept H0, then a test called the Lagrange Multiplier (LM) test is carried out, which is also called the Breusch-Pagan Random Effect. However, this test does not need to be carried out if this is not the case. This test is conducted to select the best analysis technique between the common effect model and the random effect model (Baltagi, 2015).

## RESULTS AND DISCUSSION

### Results

Descriptive statistics provide an overview or description of data seen from the average value (mean), standard deviation, maximum, minimum, kurtosis, and slope of the distribution (skewness). The variables used are economic growth, crime rate, investment, labor, and initial growth. These variables, descriptive statistical tests were carried out with the following results:

**Table 1.** Descriptive statistics

| Variable     | Growth | Crime Rate | Investment | Labor | Initial Growth |
|--------------|--------|------------|------------|-------|----------------|
| Mean         | 3.89   | 0.20       | 2.06       | 94.53 | 3.91           |
| Median       | 4.50   | 0.20       | 1.50       | 94.95 | 4.50           |
| Maximum      | 10.60  | 0.50       | 10.00      | 98.60 | 20.60          |
| Minimum      | -9.30  | 0.00       | 0.00       | 88.30 | -9.30          |
| Std, Dev,    | 2.59   | 0.11       | 2.10       | 2.08  | 2.74           |
| Skewness     | -1.32  | 0.26       | 1.89       | -0.75 | -0.45          |
| Kurtosis     | 5.61   | 2.86       | 6.81       | 3.01  | 8.89           |
| Jarque-Bera  | 178.01 | 3.76       | 3.73       | 29.22 | 459.08         |
| Probability  | 0.00   | 0.15       | 0.00       | 0.00  | 0.00           |
| Observations | 310    | 310        | 310        | 310   | 310            |

N or the amount of data for each valid variable is 310, from 310 sample data on economic growth (Y), the minimum value is -9.30, the maximum value is 10.56, and the mean value is 3.89. The standard deviation value is 2.59, which means that the mean value is greater than the standard value. The deviation of the data that occurs is low, then the distribution of the values is evenly distributed.

Based on the Chow test and Hausman test results, the best model to analyze the data in this study is the Fixed Effect (FEM) model. The Chow test is a test conducted to select the best approach model between the Common Effect Model and the Fixed Effect Model by looking at the value of the F statistical distribution. Suppose the probability value of the F statistical distribution is more than the specified significance level value. In that case, the model used is the Common Effect Model. If the probability value of the F statistical distribution is less than the significance level, the model used is the Fixed Effect Model (Gujarati & Porter, 2013).

**Table 2.** Panel data regression results for economic growth bound variables

| Variable               | CEM                   | FEM                 | REM                  |
|------------------------|-----------------------|---------------------|----------------------|
| Constant               | -17.861<br>(0.007)*   | 12.388<br>(0.000)*  | 17.861<br>(0.001)    |
| Crime Rate<br>(CR)     | -4.39339<br>(0.001) * | -0.561<br>(0.000)*  | -4.39339<br>(0.000)* |
| Investation<br>(PM)    | -0.045<br>(0.507)     | 0.026<br>(0.004)    | -0.045<br>(0.421)    |
| Labor<br>(TK)          | 0.234<br>(0.001)*     | 0.752<br>(0.000)*   | 0.234<br>(0.000)*    |
| Initial Growth<br>(IG) | 0.149<br>(0.005)*     | -0.148<br>(0.005)*  | 0.149<br>(0.001)*    |
| Chow test              |                       | 152.068<br>(0.000)* |                      |
| Hausman test           |                       | 169.927<br>(0.000)* |                      |

Note: \*) significant at = 5% and \*\*) significant at = 10%

The regression results show that the Fixed Effect Model (FEM) is the best model used. The crime rate has a significant and negative effect on the economic growth of provinces in Indonesia. This shows that an increase in the crime rate will reduce economic growth, then investment and labor have a significant and positive effect on economic growth. Initial growth has a significant and negative effect on the economic growth of provinces in Indonesia. The negative sign indicates that the economy in underdeveloped provinces grows more slowly than in more developed provinces.

## Discussion

### *The crime rate on economic growth*

The calculation results show that the crime rate has a negative and significant effect on economic growth in Indonesia's 31 (thirty-one) provinces. A high crime rate (CR) can disrupt or reduce investment entering a region or country. Because if the crime rate in an area is high, it will disrupt the running of the business and investment environment, which results in doubts in making investments in that region, which means it can reduce economic growth in a region or country. So we can assume that crime affects economic growth.

Kummar (2013) found a negative and statistically significant relationship between crime and economic growth in the Indian state. Simple logic suggests that criminal activity should decrease in good economic conditions. This means that the better the country's economy, the more jobs will be created, less unemployment, increased income levels, and reduced criminal activity. However, this is not always the case. On the contrary, what is true is that criminal activity tends to increase even when the economy is good.

Islam (2014) conducted a study to examine the relationship between GDP and crime from 1960 to 2013. He found that macroeconomic factors have a major influence on crime trends. In his research, he found that crime affects economic factors, and there is an interdependent relationship between the two. This means that their research is consistent with economists' arguments that the better the economic activity in a country, the more crime it will cause, and vice versa when economic conditions are bad.

In his research, Ahmad et al. (2014) and Rahman & Prasetyo (2018) found no statistically significant effect of crime on economic growth. The regression analysis

results failed to support the hypothesis that crime has a statistically significant negative impact on economic growth. Although crime does not have a significant effect, it still changes some of the determinants, such as higher population growth than economic growth while investment contributes less.

#### ***Investment in economic growth***

The calculation results show that investment has a positive and significant effect on economic growth. Investment is essentially the first step in economic development activities. The investment dynamics affect the level of economic growth and reflect the rampant sluggish development. To grow the economy, each country seeks to create a climate that can encourage increased investment and impact economic growth in a positive direction.

Regional investment has been empirically proven to encourage economic growth through national income. In addition, the results of this study are by the results of research conducted by Levine & Renelt (1992), which states that there is a strong relationship between the variable identity of capital (initial capital) which is realized by the level of investment and economic growth. Regional investment has been empirically proven to encourage economic growth through national income.

#### ***Labor on economic growth***

The results show that an increase in the workforce will positively increase economic growth. An increase in labor means an increase in output per person employed, commonly known as labor productivity. The increase in labor productivity is the main contributor to increasing economic growth.

Sani et al. (2018) and Levine & Renelt (1992) state that the population manifested into the workforce will always have a positive and significant effect on economic growth in a region. Labor is a potential input that can be used as a production factor to increase the production of a company household. The number of workers directly involved in various sectors of the economy has given a strong influence in encouraging economic growth. The workforce that continues to increase from year to year if accompanied by an increase in the quality of human resources will be a force in encouraging the development of strong economic growth. In addition, the workforce also requires special attention such as requiring additional investment. The incoming investment is expected to open up job opportunities so that it can reduce the level of unemployment which can later have an impact on reducing the crime rate.

#### ***Initial growth on economic growth***

In addition, the results of the Initial Growth regression show a negative sign, which means that there is a divergence in economic growth in 31 (thirty-one) provinces in Indonesia for the period 2011-2016. This shows that some provinces that are lagging or are still underdeveloped have not been able to catch up with those that have developed.

This shows that some provinces are lagging or are still not developed and have not succeeded in catching up with provinces that are already developed, from an economic and development perspective. This result also follows the research conducted by Levine & Renelt (1992), which shows that initial growth has an effect and has a significant impact on economic growth.

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

This study indicates that an increase in the crime rate will suppress the economic growth of provinces in Indonesia. It is well recognized in public policy debates that crime undermines economic growth. Crime undermines the rule of law, reduces perceptions of security in property rights, and deters new investment from entering, leading to a decline in economic growth. The effect of crime on the economy is visible, especially in that violent crimes are more common in developing countries, especially in Indonesian society. This shows that an increase in the crime rate will reduce economic growth, then an increase in investment and labor will impact an increase in economic growth. Initial growth is divergent in that the economy is lagging provinces grows more slowly than in more developed provinces.

### Recommendations

The government should review and add criminal statistical indicators that highlight aspects in the economic field. Such as making special data in the field so that it can be used in research in the economic field to be used as a reference for making policies. The government should try to reduce the unemployed workforce by adding or opening a lot of jobs. The government should provide convenience in terms of licensing both in terms of time and costs that will be charged to investors, both domestic and foreign investors.

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## An empirical look at the effect of service quality on online shopping customer satisfaction in Indonesia

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|---------------------------------|-------------------------|------------------------|-------------------------|--------------------------|
| DOI:<br>10.22437/ppd.v9i4.11044 | Received:<br>15.11.2020 | Revised:<br>26.09.2021 | Accepted:<br>27.10.2021 | Published:<br>31.10.2021 |
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### Abstract

The main purpose of this study is to examine the relationship between service quality and online shopping customer satisfaction in Indonesia. This study is a quantitative and cross-sectional study with a survey method. This study's online shopping customers consist of undergraduate and postgraduate students in the Accounting Department of Universitas Sumatera Utara. The study used Likert scale questionnaires distributed to 400 respondents, and 295 questionnaires were obtained for data analysis. The study found that service quality has a positive and significant relationship with customer satisfaction. The study reveals that the elevation of excellent service quality on online shopping is the best solution for online shopping vendors to obtain customer satisfaction.

**Keywords:** *Customer satisfaction, Online shopping, Service quality*

**JEL Classification:** M1, M2

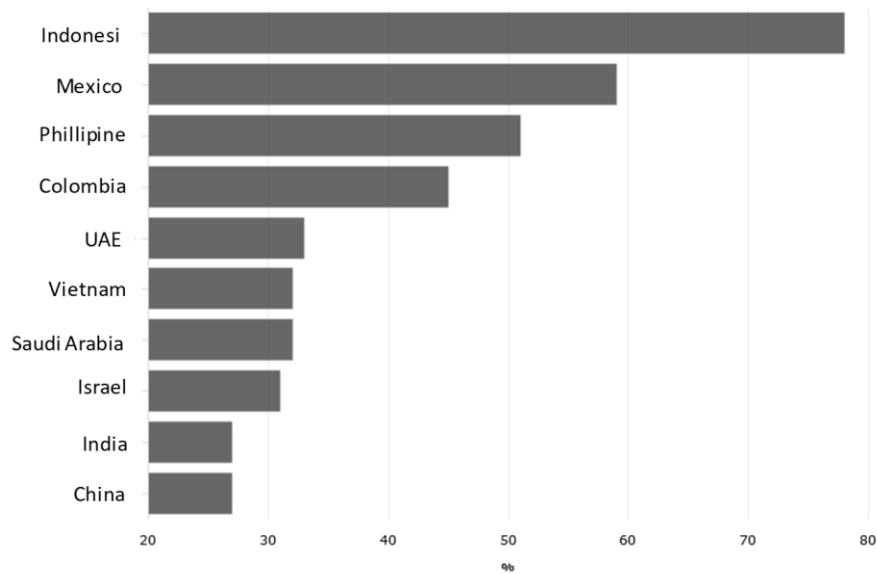
### INTRODUCTION

Nowadays, a company can't just rely on advertising to promote its business or run its operations conventionally, and it makes many companies use information technology to promote their business. The internet has become the right information and communication technology choice to help many companies worldwide. Thus, the company should follow these developments and continue to innovate in delivering the customer needs and improving the company (Ehsani & Ehsani, 2015; Risanty, Kesuma, Muda & Maulida, 2020).

Online shopping is one of the innovations made by utilizing the internet and at the same time becoming a lifestyle. Online shopping is electronic commerce between companies and their customers directly, without meeting in one place, and only through the internet. Various advantages that can be obtained from online shopping include fast transactions, product availability, free shipping, and affordable products (Pham & Ahammad, 2017; Risanty et al., 2020). Reedy, Schullo, and Zimmerman (2000) stated that online shopping could meet customer needs with online shopping activities.

In the context of Indonesia, online shopping has become a popular choice for acquiring goods and services. Online shopping in Indonesia is also growing very fast from year to year. According to the British research institute merchant machine, during 2018, Indonesia ranks among other countries with a growth of 78% in the list of top ten countries with the fastest-growing e-commerce in the world (Figure 1).





**Figure 1.** Top ten fastest growing e-commerce in the world

The trend indicates that online shopping in Indonesia is increasing and encouraging people to be more involved in online shopping. Moreover, it also shows a tendency to use online shopping continuously, which ultimately shows that customers are satisfied with online shopping services.

Customer satisfaction is the customer's response to products and services that meet their expectations (Griffin, 2005). Several factors can influence customer satisfaction, such as product quality, service quality, and price (Ngadino, Suharto & Farida, 2017; Razak, Nirwanto & Triatmanto, 2016; Jusoff & Hadijah, 2013; Gumussoy & Koseoglu, 2016).

The quality of service has a close relationship with customer satisfaction. Service quality provides customers with an opportunity to develop a strong relationship with the business (Afthanorhan, Awang, Rashid, Foziah & Ghazali, 2019). Griffin (2005) mentioned that many businesses assume that if the customer is satisfied with the service, the customer will become loyal and have a positive response to the business.

However, the toughest challenge in online shopping is ensuring and sustaining customer satisfaction (Zhou, Wang, & Shi, 2019). A strategy that focuses on services is critical in this dynamic environment (Al-dweeri, Ruiz Moreno, Montes, Obeidat, & Al-dwairi, 2019; Ehsani & Ehsani, 2015). A business should provide its customers with excellent service experiences to achieve their satisfaction, repurchase, and be loyal to the business (Gounaris, Dimitriadis & Stathakopoulos, 2010; Kitapci, Akdogan & Dortyol, 2014). Excellent service quality is required to achieve high levels of customer satisfaction, contributing to favorable behavioral intentions (Brady & Robertson, 2001; Senthilkumar, 2012).

The main purpose of this paper is to examine the relationship between the quality of service and the satisfaction of online shopping customers in Indonesia and examine the level of service quality and online shopping customer satisfaction. As follows, this paper is organized. The concept of service quality and customer satisfaction is presented in the next section. Next, the research methodology used in this study is outlined in section 3 and the result and discussions in section 4. Conclusions and recommendations are discussed in the last section 5 and section 6.

## **THE SERVICE QUALITY AND CUSTOMER SATISFACTION**

Kotler and Armstrong (2012) argue that people's needs tend to be limited but not limited to people's desires. The people's desire is a form taken from the needs of people after being influenced by the environment, culture, and individual personality. People tend to find and create objects that can fulfill their satisfaction. Hence, customer needs and desires are about meeting their satisfaction (Kotler & Armstrong, 2012).

A production system and product offering must satisfy customers (Ahn, Ryu & Han, 2004). When a customer is interested, satisfied, and repurchases the product and more other customers are also interested in the product, it will improve sales and profits of a business (Malik, Ghafoor & Iqbal, 2012).

There is a dynamic set of related technologies, applications, and business processes in online shopping. The method connects businesses and customers or certain communities through electronic transactions and electronically provides goods, services, and information (Ahn et al., 2004).

Service quality refers to the degree to which the disparity between the customers' expectations and reality for the services delivered (Zeithaml, Parasuraman & Malhotra, 2002). The dimension of the quality of online shopping services is the level of quality that effectively and efficiently facilitates customers in buying and selling products and services (Afthanorhan et al., 2019). Meanwhile, customer satisfaction is a total product performance compared to a series of customer requirements (Hill, Brierley & MacDougall, 1999). In addition, customer satisfaction is not an absolute concept but rather relative or dependent on what customers expect (Gounaris et al., 2010).

Service quality is directly connected to customer satisfaction since service quality is an indicator of customer satisfaction. Quality is a product and service characteristic that relies on meeting anticipated needs (Kotler & Armstrong, 2012). Moreover, customer satisfaction occurs when customer expectations for products and services follow their needs (Bobâlcă & Țugulea, 2016).

Meanwhile, Kotler & Armstrong (2012) suggest that customer satisfaction is essential for future purchasing behavior. Pham & Ahammad (2017) added that customer satisfaction is also a crucial factor in the growth of customer behavior. Intention to repurchase indicates the willingness of a person, based on their previous shopping experiences, to make another purchase from the same business (Filieri & Lin, 2017; Hellier, Geursen, Carr & Rickard, 2003). Satisfied customers will increase utilization and potential use of the service (Henkel, Houchaime, Locatelli, Singh, Zeithaml & Bitterner, 2006). Therefore, customer satisfaction and purchase behavior can be improved by providing excellent service quality (Cronin, Brady & Hult, 2000).

Several previous studies indicate a significant relationship between service quality and customer satisfaction (Blut, Chowdhry, Mittal & Brock, 2015; Hammoud, Bizri, & El Baba, 2018; Kitapci, Akdogan & Dortyol, 2014; Pham & Ahammad, 2017; Wolfenbarger & Gilly, 2003). Customers must be provided with high-quality service to be satisfied and have the intention to repurchase (Gao, 2011). In addition, by providing customers with the best service and a good shopping experience, they will be satisfied and loyal to the vendor (Gallarza, Arteaga, Chiappa & Saura-Gil, 2015; Gumussoy & Koseoglu, 2016).

Lee & Turban (2001) noted that online shopping requires trust between the online retailer and the customer and between the customer and the overall system where the transaction takes place. Therefore, service quality must cover significant parts of the online shopping system to support and elevate customer satisfaction and trust. Chek & Ho (2016) also find empirical evidence of a positive relationship between customer

service, trust, and purchase intention. Moreover, Alrubaiee & Alkaa'ida (2011) and Kim, Wang, & Roh (2020) state that the quality of service has a significant and positive impact on customer confidence and has an indirect positive impact on trust mediated by customer satisfaction.

**METHODS**

This study uses a quantitative and cross-sectional design by distributing a validated survey questionnaire. This study's online shopping customers consist of undergraduate and postgraduate students in the Accounting Department of Universitas Sumatera Utara who used online shopping applications. We used a questionnaire due to its advantages, such as ease of use, reaching certain respondents, and effectiveness for investigating online shopping behavior. We submit the questionnaire directly to accounting students. Out of 400 distributed, 295 questionnaires were obtained for data analysis. Several questionnaires were excluded because the questionnaire did not return incomplete and careless answers that would impact the estimation. We present the variables used in this study in Table 1—also, each variable's operational definition and the indicators and scales.

**Table 1.** Operational definition of variables

| Variables                             | Operational Definition                                                             | Indicators                                                                                            | Scale          |
|---------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------|
| Service Quality                       | Customer perceptions of the quality of service provided by online shopping vendors | 1. Reliability<br>2. Responsiveness<br>3. Assurance<br>4. Empathy<br>5. Competence                    | 5-point Likert |
| Online Shopping Customer Satisfaction | Perception of customer satisfaction with online shopping.                          | 1. Vendor's responsibility<br>2. Product availability.<br>3. features and transaction security system | 5-point Likert |

The data is processed by regression analysis. Before testing the hypothesis, the validity and reliability of the existing research instruments are first tested. Testing the validity of the construction is done by consulting the instrument with experts (expert judgment). Reliability test is the extent to which the measurement results using the same object will produce the same data. Classical assumption testing is also carried out to state the fit of the research model and can be continued with linear regression

**RESULT AND DISCUSSION**

Table 2 shows the demographic profile in this study, which is based on gender, 36% were male respondents, and a majority of respondents in this study were female, who is 64% of total respondents. Based on the education level, most respondents (56%) in this study were undergraduate, and 44% of respondents were postgraduate level. Based on the age, the majority of respondents (45%) in this study were between 18-21 years old, 41% of respondents were between 21-25 years old, and followed by 14% of respondents were between 26-30 years old. Thus, in this study, female students were the most active in online shopping transactions, and most undergraduate students do online shopping. Students between 18-21 years old are the most active in online shopping.

**Tabel 2.** Demographic profiles

| <b>Demographic Profiles</b> | <b>F</b> | <b>%</b> |
|-----------------------------|----------|----------|
| <b>Gender:</b>              |          |          |
| Male                        | 105      | 36       |
| Female                      | 190      | 64       |
| <b>Education Level:</b>     |          |          |
| Undergraduate               | 166      | 56       |
| Postgraduate                | 129      | 44       |
| <b>Age:</b>                 |          |          |
| 18-21                       | 133      | 45       |
| 21-25                       | 121      | 41       |
| 26-30                       | 41       | 14       |

In table 3, based on the validity test, it can be concluded that all constructs are valid and acceptable.

**Table 3.** Validity test

| <b>Variables</b>     | <b>Validity</b> | <b>Specification</b> |
|----------------------|-----------------|----------------------|
| Reliability          | .602            | Acceptable           |
| Responsiveness       | .607            | Acceptable           |
| Assurance            | .515            | Acceptable           |
| Empathy              | .622            | Acceptable           |
| Competence           | .521            | Acceptable           |
| Responsibility       | .643            | Acceptable           |
| Product availability | .615            | Acceptable           |
| Security system      | .535            | Acceptable           |

Table 4 shows that service quality constructs are .700 and online shopping customer satisfaction constructs are .562. It can be concluded that all instrument items are reliable.

**Tabel 4.** Reliability Test

| <b>Variables</b>                      | <b>Cronbach's Alpha</b> | <b>N</b> |
|---------------------------------------|-------------------------|----------|
| Service Quality                       | .700                    | 5        |
| Online Shopping Customer Satisfaction | .602                    | 3        |

Based on Table 5, it can be explained that: 1) most respondents select good on the services provided are reliable and error-free during access; 2) most respondents good at the services provided are responsive and fast; 3) most respondents answered good that the services provided are safe and secure; 4) most respondents answered good on the service quality can be adjusted according to user needs; 5) most respondents answered good on the service quality with competence and professional excellence

Students as online shopping customers expect the best service from online shopping providers—especially services related to reliable and error-free in accessing services. Fast response and transaction security is the most important service feature. According to respondents, a good customer service system will help the provider respond and serve each customer quickly and accurately (Afthanorhan et al., 2019). A good level of professionalism is also an important part of providing the best service to customers, and this is also an expectation for online shopping customers. Finally, adjustable services based on the customer needs are important in service quality because each customer's needs may differ. The provider may bridge these differences to satisfy customers (Malik et al., 2012). These results align with Disastra & Wulandari (2017)

and Hanny & Azis (2018), where reliability, responsiveness, assurance, empathy, and competence are some of the main focuses of online shopping customers.

**Table 5.** The Level of Service Quality

| Items                                                           | E  |      | G   |      | N  |      | P  |      | VP |     | Total |     |
|-----------------------------------------------------------------|----|------|-----|------|----|------|----|------|----|-----|-------|-----|
|                                                                 | F  | %    | F   | %    | F  | %    | F  | %    | F  | %   | F     | %   |
| The services provided are reliable and error-free during access | 55 | 18.6 | 131 | 44.4 | 77 | 26.1 | 26 | 8.8  | 6  | 2   | 295   | 100 |
| The services provided are responsive and fast.                  | 68 | 23.1 | 154 | 52.2 | 50 | 16.9 | 19 | 6.4  | 4  | 1.4 | 295   | 100 |
| The services provided are safe and secure                       | 68 | 23.1 | 154 | 52.2 | 50 | 16.9 | 19 | 6.4  | 5  | 1.4 | 295   | 100 |
| Service quality can be adjusted according to user needs         | 52 | 17.6 | 117 | 39.7 | 86 | 29.2 | 34 | 11.5 | 6  | 2   | 295   | 100 |
| Service quality has competence and professional excellence.     | 64 | 21.7 | 137 | 46.4 | 48 | 16.3 | 31 | 10.5 | 15 | 5.1 | 295   | 100 |

\* E (Excellent), G (Good), F (Fair), P (Poor), VP (Very Poor)

According to Table 6, it can be concluded that: 1) most respondents are very satisfied with the vendor's responsibility; 2) most respondents are very satisfied with the assurance of product availability; 3) most respondents are very satisfied with the features and transaction security system.

**Table 6.** The level of online shopping customer satisfaction

| Items                                                       | CS |      | VS  |      | MS |      | SS |      | NAS |     | Total |     |
|-------------------------------------------------------------|----|------|-----|------|----|------|----|------|-----|-----|-------|-----|
|                                                             | F  | %    | F   | %    | F  | %    | F  | %    | F   | %   | F     | %   |
| Satisfied with the vendor's responsibility                  | 66 | 22.4 | 152 | 51.5 | 53 | 18   | 20 | 6.8  | 4   | 1.4 | 295   | 100 |
| Satisfied with the assurance of product availability.       | 64 | 21.7 | 96  | 32.5 | 92 | 31.2 | 32 | 10.8 | 11  | 3.7 | 295   | 100 |
| Satisfied with the features and transaction security system | 52 | 17.6 | 151 | 51.2 | 55 | 18.6 | 26 | 8.8  | 11  | 3.7 | 295   | 100 |

\*CS (Completely Satisfied), VS (Very Satisfied), MS (Moderately Satisfied), SS (Slightly Satisfied), NAS (Not at All Satisfied)

In general, online shopping customers are very satisfied with their transactions. Particularly, online shopping customers are very satisfied with the vendor's responsibilities by providing a product warranty system, delivery guarantee, and the vendor's ability to respond to any customer complaints. Customer satisfaction is very high in terms of the availability of products, and this is part of the vendor commitment by providing the latest product details and availability information. Online shopping customers are also very satisfied with the payment system in online shopping, where they give flexibility in payment methods and payment facilities, both cash, and credit. The vendors provide flexible payment systems and cooperate with leading banks and e-wallet vendors to provide security and convenience in payment transactions. These

results align with Hanny & Azis (2018), Ngadino et al. (2017), and Razak et al. (2016), where most consumers are satisfied with the vendor's responsiveness, product availability, features, and transaction security system.

According to Table 7, the t-count value of this variable is 3.863, with a significant level of 0.00. This means that service quality has a positive and significant effect on customer satisfaction.

**Table 7.** Coefficients analysis

| Model           | Unstandardized |            | Standardized | t     | Sig. |
|-----------------|----------------|------------|--------------|-------|------|
|                 | B              | Std. Error | Beta         |       |      |
| (Constant)      | .233           | .481       |              | .484  | .629 |
| Service Quality | .149           | .038       | .231         | 3.863 | .000 |

The result indicates that excellent service quality to online shopping customers will elevate customer satisfaction. Moreover, service quality which consists of reliability, responsiveness, assurance, empathy, and competence, plays an important role in delivering excellent online shopping services. In addition, excellent service quality and proper service features will improve online shopping customer satisfaction. Thus, service quality can be an essential factor to increase online shopping customer satisfaction.

The results of this study are consistent with Al-dweeri et al. (2019), Baker & Crompton (2000), Gallarza et al. (2015), Gumussoy & Koseoglu (2016), Hammoud et al. (2018), Kim et al. (2020), and Zhou et al. (2019). These studies found a positive and significant relationship between online service quality and customer satisfaction. Hence, online shopping vendors' excellent quality of service will improve customer satisfaction (Baker & Crompton, 2000).

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

Indonesia has become one of the fastest-growing countries in electronic commerce, and this encourages online shopping vendors to compete in service and provide the best services and products. The student is an active online shopping customer and has become a significant part of online shopping development in Indonesia. The study investigates the relationship between service quality and online shopping customer satisfaction based on accounting students' perceptions at the Universitas Sumatera Utara.

The results show that a good level of online shopping service quality. Meanwhile, online shopping customer satisfaction is at a very satisfactory level. These results indicate that a good level of service quality is an advantage for online shopping vendors. Online shopping vendors will get positive feedback on customer satisfaction and become loyal customers. In the end, a high level of customer satisfaction can increase the volume of online shopping sales.

This study shows that online service quality has a positive and significant relationship with online shopping customer satisfaction based on accounting students' perceptions at the Universitas Sumatera Utara. Findings reveal that the excellent quality of online shopping services will elevate online shopping customer satisfaction. The study indicates that excellent service quality is an important indicator in achieving high customer satisfaction in online shopping.

The study support and confirm the concept of customer satisfaction and its relationship to service quality in online shopping. This study also supports previous

studies that state a positive and significant relationship between service quality and online shopping customer satisfaction. Thus, to elevate customer satisfaction, the quality of service must be improved.

This study implies that the quality of services strongly influences online shopping customer satisfaction. Thus, online shopping vendors may consider the level of responsibility, product availability, and features, and transaction security systems to increase customer satisfaction. Likewise, vendors can use reliability, responsiveness, assurance, empathy, and competence to improve the quality of their services and ultimately achieve customer satisfaction.

### **Recommendations**

Online shopping is related to the rapid development of information and networking technology. Thus, it is necessary to include indicators that can assess the rapid development of the technology. Moreover, it is recommended to examine vendor satisfaction, especially with the quality of services and systems to serve their customers.

Online shopping vendors should continue to develop the best service and transaction security features. Vendors may also provide innovations and promotional programs to attract customers' interest and improve their satisfaction. It is necessary to provide understanding and education to all online shopping customers, especially among students, regarding the proper and safe use of online shopping service facilities.

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## Contribution of conventional bank lending for agricultural sector in Indonesia

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|---------------------------------|-------------------------|------------------------|-------------------------|--------------------------|
| DOI:<br>10.22437/ppd.v9i4.13095 | Received:<br>15.06.2021 | Revised:<br>06.09.2021 | Accepted:<br>25.10.2021 | Published:<br>31.10.2021 |
|---------------------------------|-------------------------|------------------------|-------------------------|--------------------------|

### Abstract

This study examines the determinant contribution of conventional bank lending for the agricultural sector in Indonesia. The analysis method used in this research is the Vector Correction Model (VECM). The results showed that in the short term, there was no significant effect of the Non-Performing Loan (LogNPL), GDP of Agricultural Sector (LogPDB), and Agricultural Sector Credit Interest Rates (SBK). However, there is an effect of the LogNPL and LogPDB on the conventional bank lending for the agricultural sector in the long term. The LogNPL has a significant positive effect on the contribution of conventional bank lending to the agricultural sector. While the LogPDB has a significant negative effect on the contribution of conventional bank lending for the agricultural sector. The Impulse Response Function (IRF) analysis results show that shocks to the LogNPL respond negatively in the long run, shocks to the LogPDB respond positively in the long run, and shocks to the SBK respond negatively in the long run by conventional bank lending for the agricultural sector. Through the analysis of FEVD (Forecast Error Variance Decomposition), it is known that the biggest contribution to conventional bank lending for the agricultural sector is agricultural credit and GDP.

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**Keywords:** *Agriculture lending, Credit interest rate, Non-performing loan*

**JEL Classification:** Q11, Q13, Q14

### INTRODUCTION

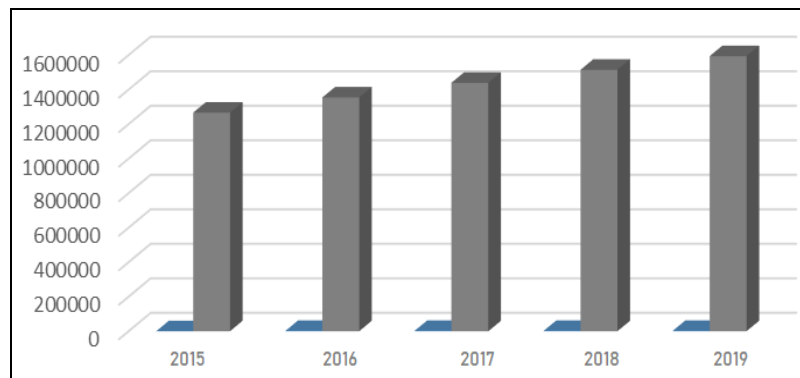
One of the important sectors in supporting the Indonesian economy is agriculture. Due to Indonesia's natural and geographical conditions, which consists of various islands and part of the Indonesian population works as farmers. Apart from having an important role in national development, the agricultural sector also contributes positively to GDP (Mughits & Wulandari, 2016). The agricultural sector's Gross Domestic Product (GDP) grew in the second quarter of 2020. This increase occurred amid a contraction in business sector growth due to the Covid-19 pandemic. The Central Statistics Agency (BPS) noted that the GDP of the Indonesian agricultural sector in the second quarter of 2020 grew by 2.19% on an annual basis. The coronavirus pandemic affects the agricultural sector like other sectors because humans can delay travel but cannot delay food needs. So that makes this sector very potential even in pandemic conditions. This also happened during the 1998 crisis when this sector grew

amidst economic shocks.

The experience of the monetary crisis that occurred in 1998 has made all parties aware that the agricultural sector has a strategic role and a very large role as an engine that drives, dampens shocks, and supports the national economy. Based on real GDP, the agricultural sector has recovered to pre-crisis levels since 1999 or four years faster than the aggregate economy, which recovered in 2003. The agricultural sector is also key to poverty alleviation, food security, and job creation. The agricultural sector is still a mainstay in creating wide employment opportunities (Panekenan, Rumagit, & Paulus, 2017).

The role of the agricultural sector, in addition to being a major source of foreign exchange earning, is also the source of life for most of the Indonesian population. The agricultural sector absorbs the most labor when viewed from the number of people working. Agricultural development is an absolute prerequisite for improving the community's standard of living. It is reflected in government policies where agriculture is still a top priority (Sayifullah & Emmalian, 2018). For developing countries like Indonesia, the agricultural sector is the main sector and contributes to the GDP (Tsakok & Gardner, 2007; Todaro & Smith, 2012; Fitri et al., 2015).

The GDP of the agricultural sector from year to year also shows an increase by the data on the GDP of the agricultural sector for the last 5 years starting from 2015 to 2019 taken from the website Ministry of Agriculture (Kementan RI) as seen in Figure 1.



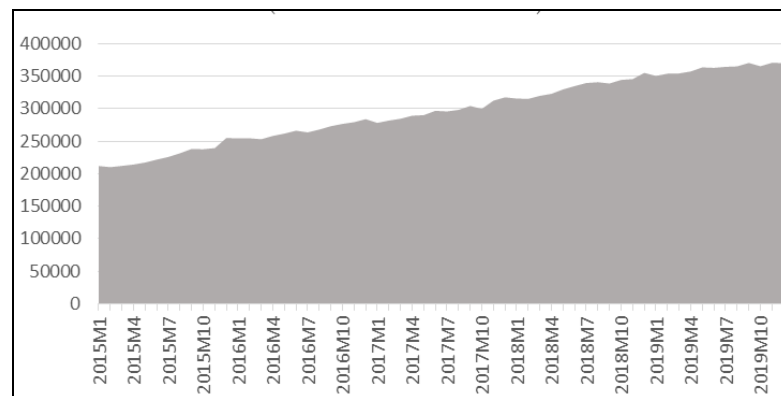
**Figure 1.** Agriculture sector GDP in 2015-2019 (billion rupiahs)

As a sector that plays a strategic role in development, namely as an absorber of labor, contribution to the GDP, sources of foreign exchange, industrial feedstocks, sources of food and nutrition, as well as driving the movement of other real economic sectors (Enu, 2014; Sertoğlu, Ugural, & Bekun, 2017; Rusliyadi & Libin, 2018). However, the agricultural sector still has several problems, one of which is the lack of capital for farmers and business actors in agriculture. To overcome this problem, the banking sector, in theory, has great potential as a support for agricultural financing, which is a formal financial intermediary institution (Ashari, 2009).

Lending in the agricultural sector has a significant role in the growth of GDP in the agricultural sector (Jayusman, 2019). His research stated that bank lending has a positive effect on the GDP of the agricultural sector. For this reason, it is necessary to encourage the banks, especially the BPR, BPD, and BRI, which exist in rural areas, further to enhance their role in lending in the agricultural sector, to encourage growth in the agricultural sector. In addition, the government can also expand credit assistance in the form of real government assistance programs to farmers with easier terms and relatively low-interest rates.

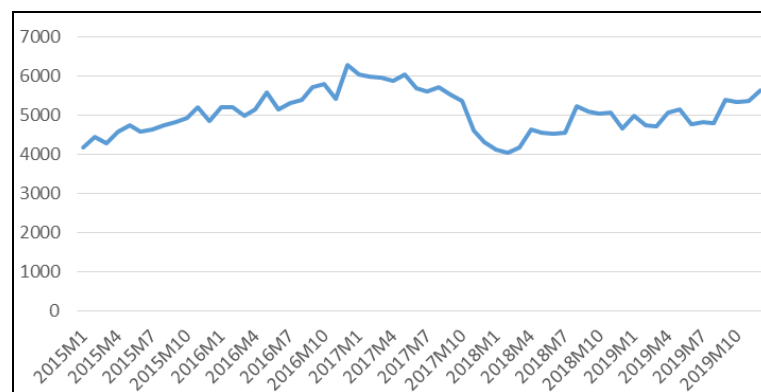
Panekenan (2017) stated that banking in North Sulawesi Province has great

potential in financing the agricultural sector. Banking financing in North Sulawesi Province for the agricultural sector increases every year. The increased lending in the agricultural sector every year means that the public trusts banks to help strengthen the business capital of agricultural actors in the form of loan provision. In developing agriculture to be even better, financial institutions such as banks are needed to support agricultural business activity capital in the form of credit. Judging from the Indonesian banking statistics, credit to the agricultural sector has recently shown a positive trend, although, in certain months, it has decreased slightly, as seen in Figure 2.



**Figure 2.** Agricultural credit in 2015-2020 (billion rupiahs)

On the other hand, agricultural sector credit and GDP growth increase every year. Still, non-performing loans in the agricultural sector show fluctuating numbers, ranging from 2015 to 2019, of course, which must be watched out for by the banking sector. Many NPLs illustrate a low return on credit or an increasing number of bad loans. The Indonesian Financial Services Authority page in Indonesian Banking Statistics shows that the agricultural sector's non-performing loans are illustrated in Figure 3.



**Figure 3.** Agricultural sector non-performing loans 2015-2019 (billion rupiahs)

The health quality of bank assets can be measured through NPLs. Asset quality is an assessment of the condition of bank assets and the adequacy of credit risk management. Based on Bank Indonesia Regulation Number 6/23 / DPNP, if a bank has an NPL of more than 5 percent, the bank is declared unhealthy. NPL reflects loan risk. The higher the NPL level, the greater the lending risk borne by banks. Due to high NPLs, banks will be very selective and careful in channeling their credit. It is feared that there is potential for an uncollectible loan (Pratiwi & Hindasah, 2014). However, based on research conducted by (2017), Non-Performing Loans had no significant effect on lending issued by the bank.

Based on the background, the authors are interested in raising this issue. This study aims to determine what factors can influence the contribution of sectoral lending distributed by conventional banking in Indonesia for the agricultural sector. Then this study also aims to determine the response received by conventional bank lending for the agricultural sector in Indonesia to shocks that occur in each variable in the long run through Impulse Response Function (IRF) analysis. And to determine the contribution of the influence of each variable on conventional bank lending for the agricultural sector in Indonesia through the analysis of Forecast Error Variance Decomposition (FEVD). So this research is expected to increase the contribution of conventional bank credit to the agricultural sector given the importance of capital to support the success of Indonesian agriculture.

Previous research found that the contribution of Islamic bank financing to the agricultural sector in Indonesia can be seen through several economic indicators, including Islamic banking, monetary and macroeconomic indicators. In the short term, the variables that significantly influence the contribution of Islamic bank financing to the agricultural sector in Indonesia are the rupiah exchange rate variable against the dollar and the SBIS return variable. While in the long term, the variables that significantly influence the contribution of Islamic bank financing to the agricultural sector in Indonesia are the number of third-party funds (DPK) and Non-Performing Financing (NPF) for the agricultural sector (Mughits & Wulandari, 2016).

Urep (2017) found that the agricultural sector banking credit has a positive and significant effect on the GRDP of the agricultural sector. It means that the greater the bank credit that is given will impact increasing the output and value of GRDP in the agricultural sector in West Kalimantan Province.

The role of government spending, especially in the agricultural sector, has a positive influence on the GDP of the agricultural sector in Indonesia. For this reason, it is hoped that government spending in the agricultural sector needs to be increased. It is recommended for the government that this expenditure be utilized optimally and efficiently by prioritizing financing towards improvement and maintenance of the agricultural sector to support the smooth running of economic activities, especially in the GDP of the agricultural sector. Sayifullah (2018) also found this fact in his study.

According to Ashari (2009), agricultural financing provided by banks is still low due to the high risks of Non-Performing Loan, the complexity of the loan submission process, poor management of agricultural businesses, and limited banking competence in agricultural financing. Research conducted by (Kusumawati, Nuryartono, & Beik, 2018) found that determinant financing and credit of the construction sector in Indonesia are Third Party Funds, Construction Sector GRDP, GDP per capita, and the percentage of problem financing.

Panekenan et al. (2017) found that banks in North Sulawesi Province have great potential for financing in the agricultural sector. The increase in credit in the agricultural sector means that the public increasingly trusts banks to help strengthen the capital of agricultural business actors in terms of providing loans.

## **METHODS**

This study uses secondary data from January 2015 to December 2019. The data was obtained from the official website of the Financial Services Authority, namely Indonesian Banking Statistics and the website of the Ministry of Agriculture of the Republic of Indonesia. The variable used is the GDP of the Agricultural Sector. The data is obtained from the website of the Ministry of Agriculture. The data obtained is

data from years which are then interpolated into monthly data. Next is Agricultural Credit data, Non-Performing Loan data, and credit interest rate data obtained from the official website of the Financial Services Authority in the Indonesian Banking Statistics.

Data analysis in this research used Vector Error Correction Model (VECM). Engle and Granger first popularized this method to correct short-term versus long-term disequilibrium. VECM is a Vector Auto-Regressive (VAR) planned for use on non-stationary data known to have cointegrating relationships. The existence of cointegration in the VECM model makes the VECM model called a restricted VAR. The assumption that must be met in a VECM analysis is that all variables must be stationary in the same order/degree. This is indicated by the residual character of white noise, which has zero mean, constant variance, and no correlation between the dependent variables. The stationarity test aims to identify a unit root in research variables using the Augmented Dickey-Fuller (ADF) test. The existence of cointegration or long-term relationships in the model must also be considered. The presence of this cointegration can be detected using the Johansen or Engel-Granger method. If the variables are not cointegrated, standard VAR can be applied which results will be identical to OLS (Ordinary Least Square). However, if the test proves that there is a cointegration vector, VECM can be applied (Hutabarat, 2017). The test steps include data stationarity test, VAR model stability, optimal lag determination, cointegration test, analysis of Vector Error Correction Model (VECM), Impulse Response Function (IRF), Forecast Error Variance Decomposition (FEVD).

**Table 1.** Operational definition of variables

| Variables                                       | Definition                                                                                                                                                                                                                                            |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Agricultural Credit (LogCP)                     | Total agricultural sector credit extended to the public. Agricultural credit is given by executing banks to business actors in the agricultural sector to meet financing for working capital, or business needs to accelerate production or business. |
| Non-Performing Loan (LogNPL)                    | Summation of loans classified as substandard, doubtful, and loss as stipulated by Bank Indonesia regarding Earning Assets Quality.                                                                                                                    |
| GDP of Agricultural Sector (LogPDB)             | The total monetary or market value of all finished goods and services produced within the borders of a country in a given period. In this study, the GDP used is the GDP of the agricultural sector.                                                  |
| Agricultural Sector Credit Interest Rates (SBK) | A price to be paid by the debtor to the bank for a loan in the agricultural sector that has been given.                                                                                                                                               |

The mathematical equations used in this study are as follows:

$$\Delta \text{Log}(CP)_t = \beta_0 + \sum_{i=0}^n \beta_{2i} \Delta \text{Log}(NPL)_{t-1} + \sum_{i=0}^n \beta_{3i} \Delta \text{Log}(PDB)_{t-1} + \sum_{i=0}^n \beta_{4i} \Delta \text{SBK}_{t-1} + \beta_{5i} ECT_{t-1} + \varepsilon_t$$

Information :

- $\Delta \text{Log}(CP)$  = Agriculture Lending
- $\text{Log}(NPL)_t$  = Non Performing Loan
- $\text{Log}(PDB)_t$  = Gross Domestic Product of Agriculture
- $\text{SBK}_t$  = Credit Interest Rate
- $\alpha_{ni}$  = Constant
- $\varepsilon_t$  = Error Coefficient
- $i, n$  = Optimum lag
- $ECT$  = Error correction term or disequilibrium error

## RESULTS AND DISCUSSION

### Stationarity test

One of the important things to remember when analyzing using time series is the condition of the data that is stationary. The meaning of stationery data is when a time sequence data has an average and tends to move towards the average. If the estimation is carried out using data that is not stationary, it will give spurious regression results, according to Gujarati (Hutabarat, 2017). Using Augmented Dickey-Fuller (ADF) test with five percent alpha and data in this research stationary at the first difference level. The results of the stationarity test can be seen in the following table:

**Table 2.** Stationarity test result

| Variables | ADF Value  |        | ADF Value  |        |
|-----------|------------|--------|------------|--------|
|           | Level      | Prob.  | First      | Prob.  |
| LogCP     | -1.343.919 | 0.6032 | -1.047.868 | 0.0000 |
| LogNPL    | -2.313.192 | 0.1713 | -9.226.411 | 0.0000 |
| LogPDB    | -0.485132  | 0.8861 | -8.973.308 | 0.0000 |
| SBK       | -1.943.557 | 0.3105 | -1.190.116 | 0.0000 |

Based on the unit root test result, all the variables in this study were stationary at the first difference with probability 0.0000 percent smaller than the five percent alpha level as presented in the table above.

### Lag length test

The optimal lag length in the VAR system is also carried out to eliminate the autocorrelation problems. So that by using optimal lag, it is expected that autocorrelation problems can be avoided. The optimum lag can be determined by utilizing some information, namely using Akaike Information Criterion and Schwarz Criterion (SC), Likelihood Ratio (LR), Final Prediction Error (FPE), or Hanna-Quin Criterion (HQ).

**Table 3.** Optimum lag test results

| Lag | LogL     | LR        | FPE       | AIC        | SC         | HQ         |
|-----|----------|-----------|-----------|------------|------------|------------|
| 0   | 455.3227 | NA        | 1.17e-12  | -16.11867  | -15.97400* | -16.06258* |
| 1   | 475.2142 | 36.23089* | 1.02e-12* | -16.25765* | -15.53431  | -15.97721  |
| 2   | 488.8890 | 22.95408  | 1.12e-12  | -16.17461  | -14.87259  | -15.66982  |
| 3   | 500.5093 | 17.84555  | 1.34e-12  | -16.01819  | -14.13751  | -15.28905  |

In Table 3, it can be seen that the optimum lag test results state that the optimal lag is at lag 1 by looking at the most asterisks.

### VAR stability test

The stability test of the VAR system needs to be run first before performing further analysis. The Impulse Response Function and Forecast Error Decomposition will be invalid if the VAR estimation is unstable.

**Table 4.** VAR stability test results

| Root      | Modulus  |
|-----------|----------|
| -0.460040 | 0.460040 |
| -0.425694 | 0.425694 |
| -0.332791 | 0.332791 |
| -0.126348 | 0.126348 |

Based on Table 4, it can be seen that the VAR model is stable because the greatest

modulus value is less than one and is at the optimal point, so it can be said that the model is in the optimal position and the VAR model is stable.

**Cointegration test**

A cointegration test is performed when the data is stationary at the first difference to see the possibility of cointegration between research variables. Cointegration is a combination of linear relationships of non-stationary variables, where all of these variables must be integrated into the same order or degree, with no cointegration relationship. The analysis is carried out using the VAR difference method (VAR with all stationary variables at different levels). If there is a cointegration relationship, VECM analysis can be performed.

This cointegration test can be done using the Engle-Granger test or the Johansen test. The cointegration test itself is one of the methods used to determine whether there is a long-term relationship and balance between the variables that are stationary at the first difference level. Based on the table below, it can be seen that all variables have cointegration because the probability is smaller than alpha by 5 percent. Apart from using probability and real level comparisons, long-term information can also be determined through criteria based on trace statistical values. Suppose a trace statistic is greater than a critical value (five percent). In that case, alternative hypotheses are accepted, and thus can be seen how many equations are integrated into the system can be seen. Based on the table below, the cointegration test result can be seen from the trace statistic value greater than the critical value of five percent.

**Table 5.** Cointegration test results

| Hypothesized<br>No. of CE(s) | Eigenvalue | Trace<br>Statistic | 0.05<br>Critical Value | Prob.** |
|------------------------------|------------|--------------------|------------------------|---------|
| None *                       | 0.683947   | 151.4641           | 47.85613               | 0.0000  |
| At most 1 *                  | 0.468318   | 85.80884           | 29.79707               | 0.0000  |
| At most 2 *                  | 0.416623   | 49.80134           | 15.49471               | 0.0000  |
| At most 3 *                  | 0.284509   | 19.08282           | 3.841466               | 0.0000  |

**VECM estimation method**

The VECM estimation results will obtain a short and long-term relationship between agricultural lending, non-performing loans, agricultural GDP, and credit interest rates. Agricultural Credit becomes the dependent variable in this estimate, while other variables become the independent variable. The VECM results to see the long-term and short-term effects of the dependent variable on the independent variable can be seen in the table.

In the table, it can be seen the results of the VECM method in the short and long term. In the short term, the VECM results show an error correction of 0.146050, which is statistically significant. Correction of errors means that the disequilibrium will be corrected by 0.146050 percent to return to its long-term equilibrium in the following month.

Based on the table, it can be concluded that in the term, none of the variables in the study significantly affect conventional banking credit for the agricultural sector in Indonesia. However, in the long term, several variables significantly influence conventional bank lending for the agricultural sector in Indonesia. The Non-Performing Loan (LogNPL) variable and GDP for agriculture (LogPDB) are among them. In this study, Non-Performing Loan (LogNPL) variable has a significant positive effect on conventional bank lending for the agricultural sector of 0.195175. It means that when



there is an increase in the variable Non-Performing Loans by one percent, it will increase conventional banking credit for the agricultural sector by 0.195175 percent.

**Table 6.** Factors affecting long-term agricultural credit

| Variables | Coefficient | T-Statistic | Information<br>(T-Table= 2.00324) |
|-----------|-------------|-------------|-----------------------------------|
| LogNPL    | 0.195175    | [ 2.37623]  | Significant                       |
| LogPDB    | -1.751240   | [-3.34141]  | Significant                       |
| SBK       | 0.018803    | [ 0.34872]  | Not significant                   |
| C         | 6.008009    |             |                                   |

**Table 7.** Factors affecting agricultural credit in the short term

| Variables       | Coefficient | T-Statistic | Information<br>(T-Table=2.00324) |
|-----------------|-------------|-------------|----------------------------------|
| CointEq1        | -0.146050   | [-2.26359]  | Significant                      |
| D(LOG(CP(-1)))  | -0.216801   | [-1.49195]  | Not significant                  |
| D(LOG(NPL(-1))) | 0.020850    | [ 0.59156]  | Not significant                  |
| D(LOG(PDB(-1))) | -0.142783   | [-0.87480]  | Not significant                  |
| D(SBK(-1))      | 0.003523    | [ 0.14881]  | Not significant                  |
| C               | 0.014079    | [ 4.60311]  | Significant                      |

It shows that when there is an increase in the ratio of bad loans in the agricultural sector, the contribution of conventional bank lending for the agricultural sector also increases because more lending is distributed to farmers. The results of this study are different from the results found by Haryanto & Widyarti (2017), who found that NPLs had no significant and positive effect on lending. Other research conducted by Pratiwi & Hindasah (2014) found that NPL is negative and significant at the 5% significance level. His research stated that the higher the NPL, the greater the credit risk is borne by the banking sector. Due to high NPLs, banks will be very selective and careful in channeling their credit. It is feared that there is potential for uncollectible credit.

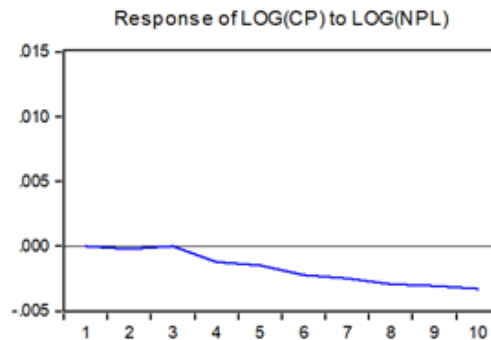
Meanwhile, the agricultural sector's GDP (LogPDB) had a significant negative effect on conventional banking credit for the agricultural sector by 1.751240 percent. These results conclude that when there is an increase in the GDP of the agricultural sector in the long run by one percent, it will result in a decrease in conventional banking credit for the agricultural sector by 1.751240 percent.

It shows when the GDP of the agricultural sector increase, which means the welfare of farmers increases, farmers in developing their business do not depend on loans given by banks anymore. So conventional bank lending for the agricultural sector decreases. The results of this study are different from the research conducted by Ramelda (2017), who found that GDP has a positive effect on lending.

**Impulse Response Function (IRF)**

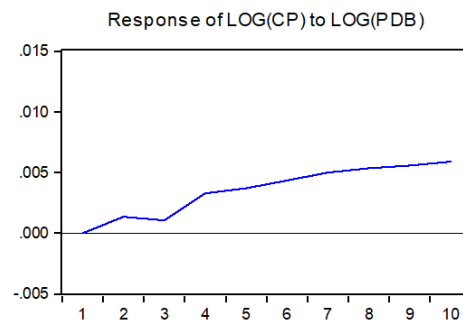
IRF (Impulse Response Function) analysis will explain the impact of shocks (shocks) on one variable on other variables, which in this analysis is not only short-term but can be analyzed for several horizons in the future as long-term information. In this analysis, one can see the long-term dynamic response of each variable if there is a certain shock of one standard error in each equation. The Impulse Response Function analysis also determines how long this influence lasts. IRF aims to see the responses of each variable due to changes in the shock of a particular variable. In this study, shocks will be seen in the Non-Performing Loan (LogNPL) variable, agricultural sector GDP

(LogPDB), and Credit Interest Rate (SBK) against conventional banking credit for the agricultural sector.



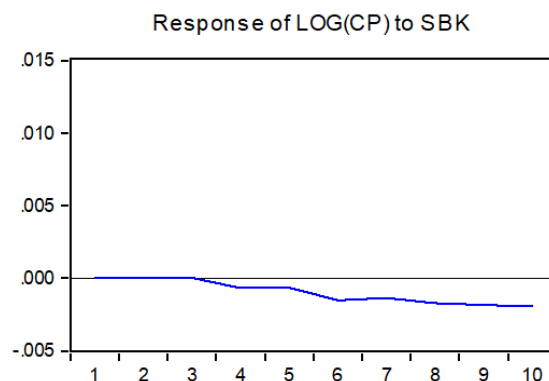
**Figure 5.** Response of agriculture loan to non-performing loan

Figure 5 shows the response received by conventional banking credit for the agricultural sector in Indonesia from shocks that occurred in the Non-Performing Loan (LogNPL) variable, which responded negatively in the long term with a standard deviation of -0.000248 in the second period. This negative response continues until the next period, as seen in the figure. In the third to last period, the negative response is getting bigger with a standard deviation in the last period of -0.003301.



**Figure 6.** Response of agriculture loan to the GDP of agriculture

Figure 6 is a shock response that occurs in the agricultural sector GDP (LogPDB) variable to conventional banking credit for the agricultural sector in Indonesia, which has a positive response in the long term. In Figure 6, agricultural credit responded positively to shocks to the GDP variable starting from the first period with a standard deviation of 0.001333 in the second period. In the 5th period, the standard deviation was 0.003684. Until the 10th period, the shock is getting bigger. It can be seen from the standard deviation value of 0.005875.



**Figure 7.** Response of agriculture loan to interest rate

Figure 7 shows how the response of agricultural credit to shocks that occur in the variable lending rate (SBK). Conventional banking credit for the agricultural sector initially responded positively to the shocks that occurred in the SBK variable. However, the positive response received did not last long. It can be seen in the figure that before the 4th period, a positive response turned into a negative response with a standard deviation value in the fourth period of -0.000686. This negative response lasted until the 10th period with a standard deviation of -0.001943.

**Analysis of Forecast Error Variance Decomposition (FEVD)**

The Forecast Error Variance Decomposition analysis aims to measure the number of contributions each independent variable has on the dependent variable. Table 8 shows how the Forecast Error Variance Decomposition (FEVD) analysis results, the equation for the amount of lending extended by conventional banking to the agricultural sector in Indonesia. In the first period, the diversity of agricultural credit fluctuations was dominated by agricultural financing by one hundred percent, continued until the end of the period with decreasing contributions.

**Table 8.** Variance decomposition

| Period | S.E.     | LOG(CP)  | LOG(NPL) | LOG(PDB) | SBK      |
|--------|----------|----------|----------|----------|----------|
| 1      | 0.013784 | 100.0000 | 0.000000 | 0.000000 | 0.000000 |
| 2      | 0.016594 | 99.33109 | 0.022420 | 0.645079 | 0.001411 |
| 3      | 0.018515 | 99.14586 | 0.018225 | 0.834761 | 0.001154 |
| 4      | 0.020802 | 96.37314 | 0.371974 | 3.145326 | 0.109565 |
| 5      | 0.022708 | 93.80365 | 0.750313 | 5.271047 | 0.174986 |
| 6      | 0.024803 | 90.53395 | 1.453875 | 7.490920 | 0.521257 |
| 7      | 0.026810 | 87.32464 | 2.112710 | 9.858130 | 0.704522 |
| 8      | 0.028822 | 84.18516 | 2.865341 | 11.97698 | 0.972519 |
| 9      | 0.030766 | 81.48337 | 3.509152 | 13.79531 | 1.212167 |
| 10     | 0.032686 | 78.99104 | 4.129058 | 15.45278 | 1.427125 |

In the second period, the contribution of other variables has started to emerge where LogNPL contributed 0.02 percent, LogPDB variable contributed 0.65 percent, the SBK variable contributed 0.00 percent. In the fifth period, agricultural credit contributed 93.80 percent to its fluctuation. The role of other variables such as LogNPL of 0.75 percent, the LogPDB variable contributed an increasing contribution of 5.27 percent and the SBK variable of 0.17 percent. Then in the last period, namely the tenth period, the contribution of Agricultural credit (LogCP) to its fluctuations decreased by 78.99 percent, the LogNPL variable was 4.12 percent, the LogPDB variable contribution increased by 15.45 percent, and the SBK variable was 1.43 percent. So it can be seen from the table below that the largest contribution to the agricultural lending variable is shown by the agricultural sector GDP (LogPDB) variable of 15.45 percent.

**CONCLUSIONS AND RECOMMENDATIONS**

**Conclusions**

The results of the VECM estimation carried out, in the short term, none of the research variables affected the contribution of conventional bank lending for the agricultural sector. Meanwhile, in the long term, the contribution of conventional bank lending is influenced by non-performing loans and GDP.

Results of the IRF shocks that occur in the non-performing loan, negative response in the long term starts from the first to the last period. Shocks that occur in the

agricultural sector GDP have a positive response in the long term by agricultural credit. Agricultural credit began to respond positively to shocks to the GDP from the first to the end of the period.

Meanwhile, agricultural credit initially responded positively to the shocks that occurred for the credit interest rate. However, the positive response received did not last long. Towards the fourth period, has positive response turned into a negative response. This negative response lasted until the 10th period. Results of the FEVD analysis show that the variable that most influences agricultural credit is dominated by the variable itself by 100 percent in the first period and continues to decline in the following period until the end of the period. Another variable that contributed significantly was the GDP of the agricultural sector, followed by the non-performing loan and the credit interest rate.

### Recommendations

Indonesia's geographical conditions that support the agricultural sector, the government should pay great attention to improving this sector. With the government's attention, such as increasing the amount of credit in the agricultural sector and providing other assistance that directly or indirectly affects farmer production, it is hoped that this sector will be able to progress in the Indonesian economy if it is managed properly.

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## Community participation in the *Kampung KB* Program in Jambi Province

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| DOI:<br>10.22437/ppd.v9i4.11129 | Received:<br>26.11.2020 | Revised:<br>21.03.2021 | Accepted:<br>27.09.2021 | Published:<br>31.10.2021 |
|---------------------------------|-------------------------|------------------------|-------------------------|--------------------------|

### Abstract

*Kampung Keluarga Berkualitas (Kampung KB)* is one of the development programs to create quality families in Indonesia. *Kampung KB* is a village-level regional unit with integration and convergence in implementing empowerment and strengthening of family institutions in all its dimensions to improve the quality of human resources, families, and communities. The growth of *Kampung KB* in Jambi Province shows the high government's attention to this program to improve the quality of life of its people. However, the *Kampung KB*'s success in improving the community's quality of life is largely determined by the level of community participation itself. This study analyzes the factors that influence community participation in the *Kampung KB* Program in Jambi Province. This study uses primary data obtained through target group respondents in *Kampung KB* in Jambi Province. Data were analyzed using descriptive statistics and a binary logit regression model. The study results found that the overall level of community participation in the *Kampung KB* Program was moderate. The level of community participation was significantly related to education, length of stay at the location, and distance from house to the place of activity.

**Keywords:** *Community participation, Kampung KB, Quality of life*

**JEL Classification:** I15, I18, J13

### INTRODUCTION

*Kampung Keluarga Berencana (Kampung KB)* is a National Population and Family Planning Board program or Badan Kependudukan dan Keluarga Berencana Nasional (BKKBN) which aims to improve the quality of life of the community at the citizenship association or Rukun Warga (RW), hamlet, or equivalent level through the Family Planning and Family Development Population program as well as other related sector development in realizing small families quality. In its implementation, the targets of this program are fertile age couples, older people, adolescents, families with children under five years of age (toddlers), families with teenagers, and families with elderly family members.

Indonesia has 14.536 *Kampung KB* have been formed, which are spread across all provinces in Indonesia. This number has almost doubled compared to the initial conditions of the declaration 2016 of 7.449 *Kampung KB* (Ramadhan, 2019; BKKBN, 2019). This growth also occurred in Jambi Province from 53 *Kampung KB* at the

beginning to 202 *Kampung KB* in 2019, which have spread across all districts/cities in Jambi Province. (Rahman, 2019; BKKBN, 2019).

The growth of *Kampung KB* in Jambi Province shows the high government's attention to this program to improve the quality of life of its people. However, the *Kampung KB*'s success in improving the community's quality of life is determined not only by the attention of the government, the synergy of the relevant ministries, working partners, and stakeholders but also largely determined by the level of community participation. Community participation, in this case, includes community participation from various target groups and at various stages, starting from planning activities, implementing, benefit to evaluating activities.

Although relatively limited, studies on the level of community participation in the village family planning program and the factors that influence it have been carried out in several regions in Indonesia. These studies include (Bintang, 2017) in Gianyar Regency; (Sarah & Bukhari, 2018) in Banda Aceh; (Ali et al., 2019) in Mataram, (Muliawaty & Maharto, 2019) in Cirebon and (Rahman & Indrawadi, 2019) in Padang. However, a study regarding this matter has never been carried out in Jambi Province. Therefore, this research is important to do in Jambi Province to support the achievement of the *Kampung KB* program to improve the quality of life of the people in this area.

In particular, this study aims to analyze community participation in the *Kampung KB* Program in Jambi Province. Second, the factors influence community participation in the *Kampung KB* Program in Jambi Province.

## LITERATURE REVIEW

### *Kampung KB*

*Kampung KB* is an integrated development program and is integrated with various other development programs. The programs implemented in the *Kampung KB* are oriented to population programs and are integrated, family planning, family development, and related sector development (BKKBN, 2015). This program was inaugurated on January 14, 2016, by the President of the Republic of Indonesia. The general objective of *Kampung KB* is to improve the community's quality of life through population programs, family planning, family development, and related sector development in the context of realizing quality small families. The specific objectives are to increase the number of modern active family planning participants, increase family resilience through the Toddler Family Development program, Youth Family Development, Elderly Family Development, and the Youth Counseling Information Center, and raise awareness community about insightful development (BKKBN, 2015).

The target groups of the *Kampung KB* are: (1) family, (2) teenagers, (3) older people, (4) fertile age couples, (5) families with toddlers, (6) families with teenagers, (7) elderly families, and (7) sector targets according to their respective fields of work. The executor-related sector field officers, village/sub-district level Family Welfare Development, rural community institutions (PPKBD and Sub PPKBD), community leaders (traditional leaders/figures religion in the village), and cadres.

### Community participation

Community participation is defined as the willingness to contribute, involvement, and community support both directly and indirectly in government programs (Tampi et al., 2020; Rofiq, 2018; Afiat et al., 2018; Sumaryadi, 2005). Cohen & Uphoff (1980) divide community participation into four stages, namely: (1) participation in decision-making; (2) participation in implementation; (3) participation in benefits; and (4) participation in evaluation.

On the other hand, in the context of the level of participation, Arnstein (1969) in (Nanda et al., 2018) divides it into eight levels, namely: First, manipulation where people are only gathered to ask for approval (signatures) without discussing the plan that should be discussed. In other words, at this level, there is a manipulative agenda. Second, therapy, where the community is asked to explain the problem, but the government does not solve the problem as promised. Third, to inform where there is only one-way communication from the government to the community at this level. Fourth is a consultation where the community has been allowed to earn income at this level, but there is no guarantee that this opinion is taken into account. Fifth, it is reassuring that the poor are already involved in an activity, but the legitimacy and appropriateness of advice remain with the power holders. Seventh, power is delegated, where the community has dominated decision-making at this level. Finally, citizen control, where the activities are fully controlled by the community at this level. Furthermore, of the eight levels, according to Arnstein (1969) (Nanda et al., 2018), it can be divided into three groups of levels, namely non-participation (manipulation and therapy), tokenism (informing, consultation, and placation), and citizen power (partnership, delegated power, and citizen control).

### **Factors affecting community participation**

Community participation in the *Kampung KB* program is community participation in various activities in the *Kampung KB*, such as attending child development consultations, participating in Tapos (*Taman Posyandu*), participating in elderly health consultations, participating in elderly gymnastics, following socialization on family planning, participating in contraceptive use activities all of which are included in the activities of *Bina Keluarga Balita (BKB)*, *Bina Keluarga Lansia (BKL)*, and family planning safaris.

Previous research has shown the low level of community participation in the *Kampung KB* program (Rizal & Yulini, 2016; Bintang, 2017; Rahman & Indrawadi, 2019; Ali et al., 2019; Muliawaty & Maharto, 2019). Various factors influence community participation, both internal factors from within the individual and external factors that affect individual behavior.

This research is focused on internal factors that influence community participation. Research (Sarah & Bukhari, 2018) in Banda Aceh found that gender, occupation, education, and length of stay affected community participation in *Kampung KB*. Research (Suroso et al., 2014) related to development planning in Gresik Regency shows that age, education level, and type of work have a significant relationship with the level of community participation. Wijayanti's research (2011) related to the level of community participation in the Telaga Village CSR program found that the level of income and the number of family burdens did not significantly affect

A person's spare time to be involved in organizations or activities in the community is also influenced by the type of work. Many busy residents with their main work or daily activities are less interested in attending meetings, discussions, or seminars (Budiharjo & Sujarto, 2009). The results of other studies show that internal factors, including willingness in the form of attitudes and motivation and abilities in the form of knowledge, skills, and experiences possessed by individuals, have a significant influence on community participation (Lokita, 2011; Mardikanto & Soebiato, 2013).

### **METHODS**

This research used primary data collected from respondents in the target group of *Kampung KB* in Jambi Province. The population in this study were all target groups of



*Kampung KB* in Jambi Province consisting of Fertile Age Couples, older people, adolescents, families with children under five years of age (toddlers), families with adolescents, and families with elderly family members.

Sampling using the stratified two-stage sampling method, namely: The first stage, selecting two samples of *Kampung KB*. The selection was carried out by purposive sampling, namely by selecting one family planning village with a low level of community participation and one family planning village with a high level of community participation. The determination of the *Kampung KB* was discussed with the BKKBN as the agency responsible for the main activities. Based on this, Menguepeh Village, Tengah Ilir District, Tebo Regency and Lingkar Selatan Village, Paal Merah District, Jambi City were designated as research locations. The second stage, selecting a sample of 5 percent of the target population at the research location. Sampling was done by stratified random sampling based on the target group in the *Kampung KB*.

Based on this, the number of samples according to the research location and the target group is given in Table 1.

**Table 1.** Distribution of *Kampung KB* respondents by type of program participated/targeted in Jambi Province in 2020

| Target Group               | Location          |                         |
|----------------------------|-------------------|-------------------------|
|                            | Menguepeh Village | Paal Merah Sub-District |
| Fertile age couple         | 10                | 21                      |
| Elderly people             | 5                 | 2                       |
| Teenagers                  | 11                | 10                      |
| Toddler Family Development | 6                 | 15                      |
| Elderly Family Development | 5                 | 15                      |
| Youth Family Development   | 5                 | 12                      |
| UPPKS                      | 8                 | 9                       |
| Total                      | 50                | 84                      |

Data collection instruments using a questionnaire. Through a questionnaire, community participation was measured from the decision-making stage to the evaluation of activity results. The number of activities involves the respondent's participation in planning *Kampung KB* activities. Community involvement is assessed by attendance at planning meetings, activeness in meetings, and decision-making control. Respondents' answers are measured using a Likert scale of 1 - 5. The accumulated value of the Likert scale is used as the value of the respondent's level of participation. Data were analyzed using descriptive statistics.

Furthermore, to analyze the factors that influence the level of community participation in *KB* village activities/programs using a binary logit regression model with the following equation:

$$Y = \beta_0 + \beta_{1D1}X_{1D1} + \beta_{1D2}X_{1D2} + \beta_2X_2 + \beta_{3D1}X_{3D1} + \beta_{3D2}X_{3D2} + \beta_{4D1}X_{4D1} + \beta_{4D2}X_{4D2} + \beta_{5D1}X_{5D1} + \beta_{5D2}X_{5D2} + \beta_{6D1}X_{6D1} + \beta_{6D2}X_{6D2} + ei$$

Y = Participation rate, where 0 = low, 1 = medium/high

X1 = Age, with basic category =< 24 years old

X1D1 1 = if age 25 – 44 years, 0 = Others

X1D2 1 = if age >= 45 years, 0 = Others

X2 = Gender, as a dummy variable with criteria 1 = Male, 0 = Female

X3 = Formal education with basic category elementary school

X3D1 1 = If junior high school, 0 = Others

X3D2 1 = If high school and university, 0 = Others

X4 = Main activity with basic category of work

X4D1 1 = If it's a housekeepers, 0 = Others

X4D2 1 = If school/other, 0 = Other

X5 = Length of stay, with the basic category “new” (less than 2 years)

X5D1 = medium ( 2 – 4 years)

X5D2 = old (more than 4 years)

X6 = Distance from house to the place of activity, with the basic category "close" distance

X6D1 = medium distance

X6D2 = long distance

The distance from the house to the place of activity is measured in meters. Considering that the research areas have different characteristics, the grouping is also divided into:

For Mengupeh Village, Tengah Ilir District, Tebo Regency

- Close category, if the distance from the house to the place of activity is less than 1000 meters
- Medium category, if the distance from the house to the place of activity is between 1000 meters to 2000 meters
- Remote category, if the distance from the house to the place of activity is more than 2000 meters

For South Lingkar Village, Paal Merah District, Jambi City

- Close category, if the distance from the house to the place of activity is less than 200 meters
- Medium category, if the distance from the house to the place of activity is between 200 meters to 400 meters
- Remote category, if the distance from the house to the place of activity is more than 400 meters

## RESULTS AND DISCUSSIONS

### Level of community participation in the *Kampung KB* Program

Overall, community participation in the *Kampung KB* Program is medium (average score is 2–3). Based on the stages, community participation in the decision-making and evaluation stage is low (average score is below 2). At the implementation stage, it is in the medium category, and at the stage of benefit-participation is high-category (average score is above 3).

The low level of community participation in development programs, especially decision-making, aligns with research by Lutpi (2016) and Herman (2019). However, the results of this study differ from the findings of Saepudin et al. (2018) and Widodo (2018), which show high community participation in the planning stage. It should be understood that the activeness of the community in conveying ideas or ideas in the planning stage reflects that the community has understood and understood the problems or constraints of development.

Furthermore, the low community participation in development programs, especially at the evaluation stage, aligns with Wahyuni & Manaf's (2016) research. However, the findings of this study are different from the research findings of Saepudin et al. (2018).

**Table 2.** Community participation in the *Kampung KB* Program based on participation stages

| Stages                     | Frequency | Percent | Average | Category |
|----------------------------|-----------|---------|---------|----------|
| <b>Decision making</b>     |           |         |         |          |
| Low                        | 71        | 52.99   |         |          |
| Moderate                   | 59        | 44.03   | 1.88    | Low      |
| High                       | 4         | 2.99    |         |          |
| <b>Implementation</b>      |           |         |         |          |
| Low                        | 44        | 32.84   |         |          |
| Moderate                   | 77        | 57.46   | 2.20    | Moderate |
| High                       | 13        | 9.70    |         |          |
| <b>Benefit</b>             |           |         |         |          |
| Moderate                   | 101       | 75.37   | 3.02    | High     |
| High                       | 33        | 24.63   |         |          |
| <b>Evaluation</b>          |           |         |         |          |
| Low                        | 85        | 63.43   | 1.84    | Low      |
| Moderate                   | 41        | 30.60   |         |          |
| High                       | 8         | 5.97    |         |          |
| <b>Total Participation</b> |           |         |         |          |
| Low                        | 43        | 32.1    |         |          |
| Moderate                   | 86        | 64.2    | 2.24    | Moderate |
| High                       | 5         | 3.7     |         |          |

**Determinants of the level of community participation in the *Kampung KB* Program in Jambi Province**

**Overall model fit test**

Overall Model Fit Test is given in Table 3. Based on the Omnibus Test of Model Coefficients, the Chi\_Square statistical value is 25,733 with a significance probability (p) = 0.007. Thus, it can be concluded that the independent variables in the model jointly affect the level of community participation in KB village activities/programs. Based on the Hosmer and Lemeshow test, the Chi-Square value was 7.489 with a p-value of 0.485. Because Chi\_Square is not significant (p > 0.05), it can be concluded that the predicted probability corresponds to the observed probability. In other words, there is no difference between the model and the data, so that the model can be said to be fit.

**Table 3.** Overall model fit test for community participation model

|                                    | Chi-square | df | Sig. |
|------------------------------------|------------|----|------|
| Omnibus Test of Model Coefficients | 25,733     | 11 | ,007 |
| Hosmer and Lemeshow Test           | 7,489      | 8  | ,485 |

Furthermore, the 2 x 2 classification table (Table 4) shows how well the model classifies cases into two groups, both low and medium/high participation levels. The overall prediction accuracy is 72.4 percent, while the prediction accuracy for the low participation rate is 34.9 percent, and the medium/high participation rate is 90.1 percent. In other words, the accuracy of this model in predicting the probability of moderate/high participation rates is relatively greater than that of low participation rates.

**Table 4.** Classification table for community participation model

| Observed           | Predicted |             | Percentage correct |
|--------------------|-----------|-------------|--------------------|
|                    | Category  |             |                    |
| Category           | Low       | Medium/High |                    |
| Low                | 15        | 28          | 34,9               |
| Medium/High        | 9         | 82          | 90,1               |
| Overall percentage |           |             | 72.4               |

**Model coefficient estimation and partial hypothesis testing**

The model coefficients' estimation and the model's partial hypothesis testing are given in Table 5. Based on Table 5. shows that of the six variables in the model, three variables, namely age, gender, and main activity, have no significant effect on the level of community participation in the *Kampung KB* program. This means no difference in community participation between age groups, gender, or main activities.

There is no effect of age on the level of participation, in line with the findings of Septiandari et al. (2015), Ristiana et al. (2020). However, the results of this study are different from those of Suroso et al. (2014) and Wahyuni & Manaf (2016). There is no effect of gender on the level of participation in line with the research findings of Septiandari et al. (2015) and Ristiana et al. (2020). Furthermore, the main activity (type of work) on participation differs from the research findings of Suroso et al. (2014).

Regarding education, it can be seen that both X3\_D1 (junior high school education) and X3\_D2 (high school education and above) variables show a significant effect. It means that there is a difference in the level of participation between those with junior high school education and lower high school education and those with elementary school education and below (as the basic category).

The influence of education on the level of participation is in line with the research of Septiandari et al. (2015), Alhafidh & Sunaryo (2015), and Suroso et al. (2014). However, the results of this study are different from the research findings of Ristiana et al. (2020) and Wahyuni & Manaf (2016).

The odds ratio value shows that those with a junior high school education have a 3,454 times (higher) probability of actively participating (medium/high category participation) than those with elementary school education and below. Furthermore, the odds ratio value shows that those with high school education and above have a 3,202 times (higher) probability of actively participating (medium/high category participation) than those with elementary school education and below.

Only the variable X5\_D1 (long stay in the medium category) has a significant effect on the length of stay. In contrast, the variable X5\_D2 (the length of stay in the old category) has no significant effect. This shows a difference in the length of stay in the medium category to the length of stay in the new category. On the other hand, there is no difference in the duration of living in the "old" category with the length of stay in the new category. The non-effect of the length of stay is different from the research findings of Suroso et al. (2014) and Ristiana et al. (2020).

Based on the odds ratio, it shows that those who live in the medium category have a 2.858 times (higher) probability of actively participating (medium/high category participation) than those who are new to living in the area (as the base category).

Furthermore, related to the distance of the house from the place of activity, it shows that the variables X6\_D1 (medium distance) and X6\_D2 (long-distance) have a significant effect. This means that there is a difference in participation between those

who live in the medium category and those who live in the far category and those who live near the category (as the basic category).

**Table 5.** Parameter estimation of community participation model

|          | B      | S.E. | Wald  | df | Sig. | Odds ratio | Information                                |
|----------|--------|------|-------|----|------|------------|--------------------------------------------|
| X1       |        |      | .441  | 2  | .802 |            | Age                                        |
| X1_D1    | -.210  | .713 | .087  | 1  | .768 | .811       | 25 - 44                                    |
| X1_D2    | .190   | .785 | .059  | 1  | .808 | 1.210      | >= 45                                      |
| X2       | -.443  | .600 | .546  | 1  | .460 | .642       | Gender                                     |
| X3       |        |      | 5.598 | 2  | .061 |            | Education                                  |
| X3_D1    | 1.240  | .656 | 3.574 | 1  | .059 | 3.454      | Junior High School                         |
| X3_D2    | 1.164  | .538 | 4.678 | 1  | .031 | 3.202      | High School                                |
| X4       |        |      | 1.097 | 2  | .578 |            | Main activity                              |
| X4_D1    | .277   | .570 | .236  | 1  | .627 | 1.319      | household matter                           |
| X4_D2    | -.518  | .687 | .568  | 1  | .451 | .596       | School/Other                               |
| X5       |        |      | 5.203 | 2  | .074 |            | Length of stay                             |
| X5_D1    | 1.050  | .485 | 4.682 | 1  | .030 | 2.858      | Medium                                     |
| X5_D2    | -.121  | .815 | .022  | 1  | .882 | .886       | Old                                        |
| X6       |        |      | 5.286 | 2  | .071 |            | Distance from house to a place of activity |
| X6_D1    | -1.312 | .604 | 4.719 | 1  | .030 | .269       | Medium distance                            |
| X6_D2    | -1.414 | .711 | 3.950 | 1  | .047 | .243       | Long distance                              |
| Constant | .735   | .989 | .553  | 1  | .457 | 2.086      |                                            |

The odds ratio value shows that those who have a house in the medium category from the place of activity have a 0.269 times (lower) probability of actively participating (medium/high category participation) than those who live in a close category. Furthermore, the odds ratio value shows that those who live in the long-distance category have a 0.243 times (lower) probability of actively participating (medium/high category participation) than those who live in the short distance category.

**CONCLUSIONS AND RECOMMENDATIONS**

**Conclusions**

The study results found that the overall level of community participation in the *Kampung KB* Program was moderate (average score was between 2-3). Based on the stages, community participation in the decision-making and evaluation stages is categorized as low (average score is below 2), at the implementation stage, it is categorized as a medium, and at the stage of benefit-participation is a high category (average score is above 3).

Furthermore, based on the analysis of the binary logit regression model, it was found that the factors that significantly influence the level of community participation are education, length of stay, and distance from house to the place of activity.

**Recommendations**

To make the programs in *Kampung KB* successful, it is necessary to increase community participation at various stages of activities. Increased community participation can be done through increased socialization of the *Kampung KB* programs, particularly related to the stages carried out and the program's benefits for family welfare.

**ACKNOWLEDGMENTS**

This study's financial support was provided by a grant from the Faculty of Economics and Business, Universitas Jambi, in 2020

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## The underground economic activity and the desire for corruption in the border region (study of Bengkayang District, West Kalimantan)

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| DOI:<br>10.22437/ppd.v9i4.12871 | Received:<br>19.05.2021 | Revised:<br>13.09.2021 | Accepted:<br>19.10.2021 | Published:<br>31.10.2021 |
|---------------------------------|-------------------------|------------------------|-------------------------|--------------------------|

### Abstract

Underground economic activity is a situation that needs particular and ongoing attention. This tendency is detrimental to municipal income and is associated with corrupt behaviors and taxation. The purpose of this investigation is to identify and assess the practices of the underground economy, as well as the potential for corrupt conduct and tax evasion. The analytical tool was perhaps a qualitative method with a chosen strategy to identify knowledge sources (respondents) with subjects such as liquor producers, coffee shops, and street food vendors in the Bengkayang border area. The data collection method was carried out using a triangulation approach, namely an in-depth interview, observation, and recording/documentation. The data analysis approach was conducted using data reduction, data presentation, and verification. This study suggests that the presence of corrupt activity in collecting bribes and offering bribes is carried out in cash without going through an automated money processing mechanism such as giving false receipts. Increasing the level of corruption in society will contribute to an increase in the velocity of money. The need for massive surveillance of individuals and the introduction of Penta helix elements to shape synergies between actors and to start integrating and developing electronic/digital structures in any financial activity using the e-government system.

**Keywords:** *Corruptive activity, Tax evasion, Underground economy*

**JEL Classification:** E26, E61, H27, J30, O17

### INTRODUCTION

National income is among the indicators used to assess a country's economic growth. It is intended that by correctly calculating national income, it would contribute to society, which is linked to which sectors contribute to society's development and which sectors need to be improved to support the growth of that business. Underground economic activities are prevalent in various countries, both developed and developing. Economic activities are carried out both legally and illegally, and they are not accounted for in the estimate of national income/GDP. (Schneider & Hametner, 2014). During 2001-2013, Indonesia's underground economic growth was 8.33 percent of GDP. As a result, there is a possible revenue deficit of Rp. 11,172.86 billion, or around 1% of



GDP, covers the market output of legitimate and illicit products and services that are exported or purchased illegally (Samuda, 2016).

The findings of Feige's (1990) study of the underground economy are classified into four groups: (1) the illegal economy: the business activity that violates the law, such as the sale of stolen items, enslavement, smuggling, bribery, drug trafficking, and drug trafficking. (2) the unreported economy: failure to submit income to the appropriate tax authority, (3) an unrecorded economy: a lack of statistical information on government income; and (4) an informal economy: commercial players who earn money without a business license, an employment agreement, or a loan from an official financial institution. (Azwar & Mulyawan, 2017).

Measuring the scale of the underground economy is a difficult task that requires a high level of precision. Optimal fiscal policy in terms of tax collection and administration must be more positive and pro-economic actors for them to become registered business actors and contribute to GDP, which can enhance the income tax subsidies policy of the SME (Small and Medium Enterprises) industry. (Asaminew, 2010). Underground economic activity is defined as an enterprise that generates revenue outside the knowledge of the tax authorities with the intent of evading taxes. It involves the informal sector and the black market, also known as the illegal market. It requires a distinct approach in its execution because the two markets have different implications (Kanao et al., 2010).

A variety of social cognition problems increase the sluggishness of Indonesian SMEs. This social cognition is formed from cultural understanding provided by the Indonesian government and residents via media. Market participants have perception-related flaws, such as systems philosophy, structuralism, and social learning. Due to the inadequacies of Indonesian SMEs, collaborative research based on a philosophical approach to science is required. The low growth rate of SMEs in Indonesia is due to a lack of understanding among business players about how to build a business while considering social aspects such as salaries by government policy, employee health, acceptable business practices, and employees should be adequately rewarded. (Panjaitan et al., 2020).

The parallel market arose due to too strict government regulations and prohibitions on items entering the market. The unregulated sector market is unlawful with the permissible allocation of sales and market share in the revenue. However, the manufacturing and distribution of items on the black market is illegal and violates state law. Small business units, self-employed personnel, unregistered firms, access to minimal credit facilities, and positions in border and peripheral regions are examples of informal sector descriptors (Faal, 2003).

According to Lofchie (1989) in Wardiyanto (2009), tax management policies frequently fail (unsuccessful implementation), problems often emerge due to the poor expertise of professionals, bureaucrats, and civil servants in tax matters and the indiscipline of business players, mistrust of state agencies, the existence of disputes between government workers and the dominant group and the indiscipline of government officials themselves in the execution of the promises they have created (Pravasanti, 2018). In terms of achieving general equilibrium, fiscal policy commitment through moderate tax cuts and constant tight supervision will reduce the amount of underground economic activity and boost the regional economy, thus increasing regional government fiscal revenues (Orsi et al., 2014). The high level of tax pressures

imposed on business players, the cash supply level, and unemployment add to increased tax avoidance activity (Amoh & Adafula, 2019).

The findings of the research conducted by Blanchard (2006) explain that the approach of raising tax rates is intended to raise the amount of government revenue, but this move will lead to future tax deviations, so that there is a disincentive to the population in carrying out economic activities; on the other hand, increasing tax rates will enable people to enter the underground economy (Azwar & Mulyawan, 2017). Increased underground economic growth will cause problems with poor fiscal decentralization policies and low wages due to knowledge of paying low taxes, particularly growing regional economic growth per district (Kanao et al., 2010). The general public's perception of performers in the underground economy is that they are slum, filthy, and disorderly and that the space they occupy is irregular. Well-ordered trade facility also dominates some public spaces, making these business actors feel unorganized, particularly pleasant street vendors. (Schneider, 2014).

On the labor aspect, job restrictions have forced this economic sector to expand and become a possibility for underground economic actors whose sole goal is to live. The underground economy market is distinguished by its relatively small size of operation, reliance on local resources, time and space diversity, and relatively simple accessibility. (Herlina wa ode, 2015). This characterizes the underground economy segment, namely the relatively limited size of operation, local resource reliance, time and location versatility, and relatively simple accessibility (Tanzi & Fund, 2014).

There is indeed a positive correlation between the extent of corruption and the actions of underground economic players, as demonstrated by the amount of money in circulation in a limited context (currency). From a monetary standpoint, the circulation of currency that cannot be calculated against the measurement of GDP can be counterproductive to state and regional revenues; this should be of concern to both central and state governments (Strapuc & Hlaciuc, 2019). High levels of corruption diminish public confidence in government authorities, influencing tax evasion and increasing underground economic activity. (Marè et al., 2020). Bribery and suspected acts of corruption are expanding in the underground economy, emphasizing the importance of more efficient and consistent law enforcement (Marliza Mohamed, 2012).

Because of the complicated governmental demands, underground economic actors take different methods in all sectors and seek protection to keep their business running. (Ouédraogo, 2017). To foresee and plan for the issue of underground economic cybercrime, the government must be prepared to take decisive action relating to underground economic operations by partnering with industrial organizations engaging in digital technology. (An & Kim, 2018). The significance of an integrated framework between scientific disciplines, particularly law and crime, with an integrated approach to the actions of underground economic actors and bribery behavior. (Andreev et al., 2018)

To date, the activities of Indonesia's underground economic actors have not been established and specified; therefore, it is critical to conduct a continuous analysis to devise policies that apply to the circumstances that respond to the conditions of economic actors in each area of Indonesia. Some claim that the underground economy promotes de-industrialization and social isolation, as seen by a reduction in social and individual liberties, which leads to social inequality and poverty. (Chotim et al., 2019). The quantity of underground economic activity will be lowered by making it simpler for micro and small businesses to access the global market. (Hoang, 2020).

The predicted findings utilizing the consumption-rate growth indicator, larger than economic growth, with an approximate outcome of 40% of GDP, reveal that corporate activities do not pay taxes, dishonest behaviors, or concealed companies that do not contribute significantly to GDP. (Nizar, 2015). The findings of the research carried out by Faal (2003) from a monetary approach have clarified that the importance of the underground economy in Guyana from 1964 to 2000 with a rate of change in the tax burden could change the market for currency by introducing a major tax component.

Measurement of the scale of the underground economy gives rise to demand variable currency-M1 (monetary money) due to the implementation of Tanzi's standard model of demand for money (Samuda, 2016). In theory, the bank interest rate would negatively influence the demand for money, which implies that if the demand for money falls, the public decides to store money in the form of a deposit. (Kristianto, 2019). Furthermore, when society decides to use the money for commercial operations rather than save in the form of investments on the idea that the return on benefits is larger if the funds are utilized for business, even if the interest rate on the deposit grows, is a different matter (Furuoka & Munir, 2014).

The findings of this study will examine the government's underhanded activities in the Bengkayang Region. They investigated the underground economy to determine how participants perceive replacing a time-honored method with newer modern technology and the impact on regional growth when contributions are not by such protocols. This study aims to determine the extent of engagement of underground economic players in the local economy. Many examples of corruption at the provincial level in West Kalimantan have been reported in the media. (Korupsi, 2019). The researchers are exploring the demographics of the border area using a phenomenological analysis approach.

## **METHODS**

This study uses a qualitative phenomenological methodology, which describes stimuli understood holistically by research participants in a spontaneously formed descriptive relational type. This research closely examines their firm's behavior, events, and the person/corporate procedures. Triangulation was employed to collect evidence, including in-depth interviews, participatory observation, and recording in a natural context appropriate for the community and research area.

The study was carried out in the Bengkayang Region of West Kalimantan Province (the research location in the Bengkayang traditional market), where characteristics were not yet optimal. Business actors remained conservative, particularly in understanding business actors' contributions to regional growth, proper retribution/tax payment procedures, and convenience by utilizing a new technological infrastructure to reduce the possibility of extortion on those organizations. Researchers gathered this information from informants who did not want their names published (Table 1).

The process used to choose key informants was purposeful, identifying sites and persons/groups, such as street sellers (both legal and illicit), coffee shops, and booze manufacturers and producers in various areas (Creswell, 2014). The assessment included eight main respondents: two coffee shops, two street vendors, two alcohol makers, and two groceries, all of whom had only a passing knowledge of taxes as a regional contribution. Illegal taxes on business players for regional cleanliness and stability do not provide proof of probable wrongdoing.

**Table 1.** Research respondents

| Name | Type of Business  |
|------|-------------------|
| A1   | Coffee Shop 1     |
| A2   | Coffee Shop 2     |
| A3   | Street Vendor 1   |
| A4   | Street Vendor 2   |
| A5   | Liquor producer 1 |
| A6   | Liquor producer 2 |
| A7   | Grocery Store 1   |
| A8   | Grocery Store 2   |

*Note: Name does not match identity*

The process of data analysis was carried out in three stages: data reduction, data presentation, and data verification to derive conclusions (Miles et al., 2014).

## RESULTS AND DISCUSSION

### Respondent characteristics

The underground economy is a tough phrase to measure. Still, with some information on the features of the economic players, it is possible to describe the real circumstances that exist directly in the Bengkayang region as the research target. Researchers used Cresweel's intentionally select strategy to select respondents, which would be a procedure in which researchers actively and deeply arrange the participants and location (documentation or visual material) of the analysis to better understand the issue under review, with group members ranging in size from three (3) to fifteen (15) persons (Creswell, 2014).

Respondent conditions and characteristics show that business actors have an academic qualification profile of Junior High School (SMP) and Senior High School (SMA), that wages paid by the employer are less than the regional minimum wage in the Bengkayang area, that entrepreneurs do not provide social security benefits to workers, all respondents do not have a Taxpayer Identification Number (NPWP), that workers work more than eight hours per day, and that market players do not engage in entrepreneurial social welfare programs.

### Underground economy activities

An explanation of the facts and economic activities occurring under the surface regarding levies and taxes / illegal business licenses is shown in Table 2.

**Table 2.** Data on information relating to taxes and licenses

| Name | Retribution                                                                                                                                                                               | Taxes / License                                                                                                                                                                                           |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A1   | There is also no alteration in the payment of the trashes retaliation; simply pay, and the storage area is constantly unclean. NPWP isn't necessary, and retribution is only a formality. | There is just no socializing on the subject of NPWP and government business licenses; there is a need for socialization on NPWP and Business Licenses and the benefits of these taxes and NPWP knowledge. |
| A2   | Overlying due to payments, select economic actors are excluded from paying payments compared to all business agents.                                                                      | NPWP is deemed unnecessary or necessary since there is little profit because, whatever much the firm appears to be in breach of the law, the business is not stable (moving)                              |

| Name | Retribution                                                                                                                                                                                                                                                                                                                                                                   | Taxes / License                                                                                                                                                                        |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A3   | Officers' support contributions are used as defensive funds.                                                                                                                                                                                                                                                                                                                  | NPWP And according to persons engaged, it is neither required nor beneficial.                                                                                                          |
| A4   | Players in the food industry are separated from coffee shops by a 10% effectiveness to sales.                                                                                                                                                                                                                                                                                 | NPWP He considers it unnecessary and ineffective.                                                                                                                                      |
| A5   | The payments charged are voluntary donations made without any pressure from the organization involved, and the fees paid are for personal use only, not for official usage. The average security deposit for a company operator is between \$200,000 and \$300,000 per individual. Every month, a commitment is made, with security teams consisting of two to three persons. | They argue that NPWP and enterprise licenses are unnecessary because tiny businesses that are not considered are side businesses of authorities and members of the board of directors. |
| A6   | Unscrupulous sources have already revealed the benefit of giving defense money in the event of a raid.                                                                                                                                                                                                                                                                        | Enterprise licenses do not exist since Long's government appears burdensome and bureaucratic.                                                                                          |
| A7   | Officials' support contributions are used as defense funds.                                                                                                                                                                                                                                                                                                                   | NPWP He considers it pointless and counterproductive.                                                                                                                                  |
| A8   | While there is a raid, the apparatus will issue a warning, and the payments will be made directly to the Agency, not to the Agency.                                                                                                                                                                                                                                           | NPWP He considers it unnecessary and ineffective.                                                                                                                                      |

*Source: primary data in the form of in-depth interviews at the research location*

The term "underground economy" refers to any sort of economic operation that is not recognized and does not contribute to establishing a gross national product. (Badulescu, 2011). There are four types of underground economies: illegal, unreported, unrecorded, and informal. The illegal economy is defined as economic violate human rights or contradicts applicable legal rules; the unreported economy is defined as economic growth that receives money but does not disclose it to tax authorities; and the unrecorded economy is defined as an economic activity that is not reported to tax authorities but should be registered but is not measured in official statistics as well as unofficial economic activity (Feige, 1990).

This study included interviews with underground economy players, which included grocery stores, street sellers, coffee shops, and liquor makers, as represented by two business actors, to determine the underground economy's contribution to the regional economy of the border area. According to the findings of the interviews, the majority of respondents stated that the motivation for starting a company was to make money, which meant that the community maintained a grocery store, market stalls, coffee cafes, and liquor manufacturers to make ends meet.

According to the interviews, most informants stated that the motivation for starting a company was to earn a profit. The community maintained a grocery store, street stalls, coffee cafes, and beer vendors to make ends meet. The report's findings revealed that the working hours enforced were by applicable regulations. That equates to more than eight hours of work every day. This term alludes to a business controlled by the informant that violates applicable regulations, most notably those governing set working hours. This term alludes to a corporation controlled by the informant that violates applicable rules, most notably those governing set working hours. Each source stated that all grocery store owners, street sellers, coffee shops, and alcohol vendors lack

NPWP or social security in terms of business licenses. The respondents provided many arguments for their business's lack of NPWP and social welfare, as indicated by the subsequent grocery shop traders:

*"That there's no politic socializing on the issue of NPWP and enterprise licenses; government socialization on NPWP and business permits, as well as the incentives of these taxes and a knowledge of NPWP, is required." (Grocery Store No. 1)*

*The third rationale is that you don't need to experience the impact of acquiring an NPWP on your firm; hence you don't require one, as explained in the following line.*

*"NPWP is thought to be unnecessary or necessary since there is no profit and the firm is now believed to violate the law; the business is not permanent." (Grocery Store No. 2)*

*"NPWP is nothing more than a catchphrase" (Street Vendor 1).*

*"NPWP and company licenses are not considered as important by small enterprises or board members, who assume that only large corporations require them" (Coffee shop 1).*

Another reason corporate players have stated their opposition to an NPWP is the extensive and long-standing bureaucracy. One of the following business actors stated this.

*"All business restrictions are the result of bureaucracy" (Coffee shop 2).*

Using an NPWP in the name of a firm by a business performer is one of the markers that the business they manage is authentic. However, there is a requirement that there be no socializing of the necessity of NPWP for companies, such that business players find it difficult to get NPWP and regard NPWP as unnecessary to justify business actors' ongoing engagement in the underground economy.

It's also represented in Rothenberg (2016)'s research on the informal economy sector in Indonesia, which found that economic actors in the informal sector or the underground economy will live in an illegal position because they will not suffer any losses as a result of their enterprises' illegal status. Ultimately, the underground economy practiced by these small businesses will be a drain on both the regional and national economies. (Montenegro, 2010).

According to the research informant, these underground economy dealers pay fees to conduct their enterprises in economic output. The charge in question is for a washing machine and a security deposit. Some sources, however, claim that these funds are discretionary contributions intended for people rather than the right official. It is expressed in the paragraph that follows (Williams, 2015). It is also explained by (Rothenberg et al., 2016) that the engagement of unbridled businesses in the underground economy may have a negative impact on tax revenue, market mechanisms, and productivity. According to the research informant, these shadow economy dealers are likely to conduct their enterprises in economic impact. The price includes a cleaning fee and a safety cost. (Williams & Horodnic, 2017). This behavior may have a negative impact on the regional economy, income, and the ability for corruption within the apparatuses. The higher the level of corruption in a place, the more underground economic actors in that sector. (Wiseman, 2015). This is demonstrated in the following example:

*"The freely donated and for private use gifts include safety in the range of Rp.200 to Rp.300 thousand." The payment is provided monthly, and the security troops who*

*arrive are only two or three people." (Coffee shop No. 1)*

*"When an incident occurs, it is preferable to pay the ransom rather than take preventative steps" (Coffee shop 2).*

*"If the equipment sends you a warning while in an incident, the money does not go into the agency's wallet." (Liquor producer No. 2)*

*"Because they involve the local surveillance state, we don't dare to disagree with them, so we pay them, so they don't take over (Liquor Maker 1)*

A qualitative research approach is being conducted to better understand the role of the underground economy in the regional economy of the 3T (outermost, in front, and least developed) region. The term "underground economy" refers to all sorts of economic activity that are not registered and do not contribute to forming a gross national/regional product, much less to the regional economy, and are used for personal gain (Strapuc & Hlaciuc, 2019). Let's look at the market situations of underground economic players amid the economic problems caused by the Covid-19 epidemic. We can see that business actors may still survive, even though many large-scale and respectable business actors have experienced deficits in other circumstances. It is expressed in the statement below.

*"As during crisis, price of raw materials rose but purchasing rates remained low." (Vendor on the street No. 1)*

*" I even serve alcohol and order and import it from neighboring towns, but no one knows about it." (Coffee shop No. 2)*

*"Wine production fluctuates according to demand, with 2,000 to 3,000 kilos of wine selling for Rp.25,000 every week." (Producer of liquor no. 1)*

Depending on this, it is possible to demonstrate that underground business owners can manage a firm even in bad circumstances. Overall, the qualitative study findings indicate that underground economy players can help the economy of the border area by contributing to the government. It matches Rasbin's (2013) research conclusions, which found that the underground economy accounted for 8.33 percent of Indonesia's GDP from 2001 to 2013. The potential for tax losses is likewise quite large, topping 1% of Indonesia's average quarterly GDP.

### **Research implication**

To assist in identifying the underground economy. It is critical first to investigate the underground economy, which encompasses the complexities of its relations, identifies the characteristics of the actors involved, and identifies the practices, rules of engagement, values, and culture that govern economic ties between underground economic entities. (Dermawan, 2010). The acceptability of politics allows for tax evasion and unethical behavior enhancement. Political interference and corruption foster a cultural culture in which coercive authorities are rendered useless. (Nurunnabi, 2019). The study of corruption is dominated by public administration and sociology.

On the other hand, economists have done much research on the subject. According to Transparency International, corruption is "the misuse of delegated power for personal benefit." While the cost of corruption has long been examined, there is little evidence that it influences inflation. The connection between corruption and inflation was studied for twenty nations between 1995 and 2015. The estimates show that high levels of corruption enhance inflation rates and that there is a unidirectional causal relationship between corruption and inflation in 10 nations. (Ozsahin & Ucler, 2017).

While corruption and incompetent courts will violate ethical principles and have other undesirable repercussions, they should not be allowed to exacerbate social inequality. Furthermore, while the quality of the judiciary has a positive image, it may be the absolute opposite. However, we must emphasize that corruption and method are explained to impact long-term growth, which is why accountability and fighting corruption would result in actual prosperity for the whole community. By essence, whether the comparably wealthy avoid corruption by shifting consumption to other nations or by engaging in unethical tactics to conceal income and consumption from traditional measurements would impact the quality of national balance statistics. Furthermore, distributional changes cannot assess whether corruption and systemic transparency influence social mobility levels. In other words, the demand distribution has altered. Still, it is impossible to predict how probable it is that people and families would fall into a specific distribution segment. When contemplating legislative initiatives to eliminate bribery and improve judicial openness, it is necessary to take caution: unforeseen implications on the distribution margins may need to be addressed deliberately. (Berggren & Bjørnskov, 2020).

The importance of reducing allegations of bribery, corruption, and criminal abuse with the assistance of honest security services and a member of society. The study's findings indicate that underground economy entrepreneurs do not have an NPWP, which indicates that the firm they run is not licensed with the tax authorities and creates a burden on local government tax collections. Business actors do not have to register a firm because they lack competence legally, do not feel it is required, and the tax authority's complicated legality regulation. As a result, undeveloped regions that should profit from underground commercial activities conducted by corporate players have become a burden. Municipal governments must immediately begin gathering data and establishing initiatives to allow underground economic players to operate the economy and partake in informal economic activity legitimately. It will raise municipal tax income, which will stimulate regional economic growth. Socialization, assistance, and community preparation for key information required for regional progress are critical. (Ozsahin & Ucler, 2017). The scheme that must be implemented imposes social punishments in the form of yearly reporting on corruption occurrences and repayment for monies that have been utilized twice as much. National policy enforcement is conceivable if regional dynamics and the magnitude of corruption instances are considered. There is a need for stronger penalties for corruption offenders since Indonesian legislation has always conflicted with human rights and extremely dynamic political interests.

## **CONCLUSION AND RECOMMENDATION**

### **Conclusion**

According to the findings of this study, the functioning of the underground economy is the total of probable acts of corruption occurring within entities and the amount of income tax raised. Increasing the number of corrupt activities inside the organization may increase the supply of money due to financing the corruption-related deficit. In this regard, a rise in the quantity of income tax collected can likewise increase the revenue collected. Corruption in Indonesia increased last year, as did the amount of income tax collected. As a result, the money supply, the amount of cash possessed by the public, and the demand for deposits in the rupiah currency, have increased. The growth in government capital implies more money accessible to the community to do business.



## Recommendation

The government is advised to establish a digitally networked framework between government agencies and authorities involved in payment activities, such as taxes, fees, commercial transactions, and the implementation of e-government. So that the public has more access to governance under the supervision of a specific government performance management organization focused on transparency, accountability, speed, responsiveness, and openness.

In addition, the need for the introduction of Penta helix elements to shape synergies between actors and to start integrating and developing electronic/digital structures in any financial activity using the e-government system

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# The influence of imports, foreign exchange reserves, external debt, and interest rates on the currency exchange rates against the United States Dollar in Southeast Asia Countries

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|---------------------------------|-------------------------|------------------------|-------------------------|--------------------------|
| DOI:<br>10.22437/ppd.v9i4.12706 | Received:<br>26.04.2021 | Revised:<br>15.09.2021 | Accepted:<br>22.10.2021 | Published:<br>31.10.2021 |
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## Abstract

This study aims to analyze the effect of imports, foreign exchange reserves, foreign debt, and interest rates on the currency exchange rates against the United States Dollar in Southeast Asia countries. The study results found that from 2010 to 2017, the currency exchange rates against the United States Dollar in Southeast Asian countries tended to weaken (depreciate). The highest growth in the exchange rate against the United States dollar was in Indonesia, while the lowest was in Singapore. Foreign exchange reserves negatively affect foreign debt, and imports positively affect countries' exchange rates in the Southeast Asia region against the United States dollar. On the other hand, interest rates do not show a significant effect.

**Keywords:** *Currency exchange rate, Foreign exchange reserves, Foreign debt, Imports, Interest rates*

**JEL Classification:** F41, F43, F62

## INTRODUCTION

Currency exchange rates are related to government policies, especially monetary authorities. Dornbusch et al. (2018) show that unexpected monetary policy shocks can occur disproportionately and produce large fluctuations in currency exchange rates (overshooting effect). The economic crisis in 1998 had a significant impact on the economies of Asian countries, including the Southeast Asian region. The decline in the value of the currencies of Southeast Asian countries against the United States dollar had a significant impact on changes in macroeconomic variables such as swelling foreign debt, rising prices of imported goods so that economic growth also decreased.

Fluctuations in currency exchange rates for countries in Southeast Asia are highly dependent on factors that influence them, both internal and external. In a free market, changes in Currency exchange rates depend on several factors that affect the supply and demand for foreign exchange. The demand for foreign exchange is related to imports and foreign debt payment. In contrast, the supply of foreign currency depends on the availability of foreign exchange reserves.

Foreign exchange is required to make payment transactions abroad (imports). The higher the income growth rate (relative to other countries), the greater the country's

ability to import, the greater the demand for foreign exchange. Foreign Currency exchange rates tend to increase, and currency prices will experience a decline. Likewise, an increase in inflation will increase imports and reduce exports. It will further increase the demand for foreign exchange (Nopirin, 1997).

Currently, countries in Southeast Asia do not have a single currency like countries in Europe. Each country has a different currency. Therefore, changes in the currency exchange rates of countries in the Southeast Asia region will impact both in the short and long term the country's macroeconomic indicators and the countries in the region.

Various studies on the impact of macroeconomic variables on currency exchange rates have been carried out in various countries. Benazic & Kersan-Skabic (2016) in Croatia found a stable co-integration relationship between the observed variables (ratio between total loans, FDI inflows, consumer prices, and external debt), whereby an increase in the majority of variables leads to an exchange rate appreciation.

Kilicarslan (2018), in Turkey, found that an increase in domestic investment, money supply, and trade openness increases the real effectiveness of exchange rate volatility, while an increase in foreign direct investment, output, and government spending also reduces the real effective exchange rate volatility. On research in Nigeria, Hassan et al. (2017) revealed that net foreign assets and interest rates positively and statistically significantly impact exchange rate volatility while fiscal balance, economic openness, and oil prices have a positive and statistically insignificant impact on exchange rate volatility. Adusei & Gyapong (2017) in Ghana concluded that inflation, annual GDP growth rate, and total external debt are significant predictors of Currency exchange rates.

In Malaysia, Khin et al. (2017) showed a significant and positive short-term relationship between the exchange rate and the consumer price index. In addition, there is also a significant and negative short-term relationship between the exchange rate and the money supply. Mpofo (2016), in his study in South Africa, found that output volatility, commodity prices, money supply, and foreign exchange reserves significantly affect the exchange rate. Alagidede & Ibrahim (2017) in Ghana show that the output is the most important driver of exchange rate fluctuations in the short run. In the longer term, exchange rate volatility is significantly affected by government spending and growth in the money supply and terms of trade shocks, FDI flows, and domestic output movements in Ghana.

Cevik et al. (2016) show a high level of exchange rate volatility, especially in emerging market economies. It was also found that the variable "soft power" has a statistically significant effect on exchange rate volatility between countries in 115 countries. Oaikhenan & Aigheyisi (2015) in Nigeria show that government spending, interest rate movements affect the exchange rate. Insah & Chiaraah (2013) in Ghana revealed a positive relationship between government spending and exchange rate volatility, while the money supply, domestic and foreign debt are negatively related to exchange rate volatility. Ajao & Igbokoyi (2013) show that real Currency exchange rates, trade openness, government spending, and real interest rates positively impact exchange rate volatility in Nigeria.

Based on this, this study also aims to examine the impact of macroeconomic variables on currency exchange rates by expanding the study area not only to one country but to six countries in the Southeast Asia region, namely Indonesia, Malaysia, Thailand, Vietnam, the Philippines, and Singapore. The selection of the six countries, considering data availability for the study variables. Furthermore, the macro variables studied include the variables of Imports, Foreign Exchange Reserves, Foreign Debt, and Interest Rates.

**METHODS**

The data used in this study is data from 2010 – 2017 in six countries in the Southeast Asian region. The data is sourced from the Asian Development Bank (ADB). The analytical tool used is the multiple regression model of panel data, with the following model:

$$CER_{it} = \beta_0 + \beta_1 IM_{it} + \beta_2 ED_{it} + \beta_3 FER_{it} + \beta_4 SIR_{it} + \varepsilon$$

Where:

CER: Currency exchange rates of countries in Southeast Asia against the United States dollar

IM : Import

ED : External Debt

FER: Foreign exchange reserves

SIR : Savings interest rate

i : Cross-section (Indonesia, Malaysia, Singapura, Thailand, Vietnam, Filipina)

t : 2010 to 2017

$\varepsilon$  : Error term

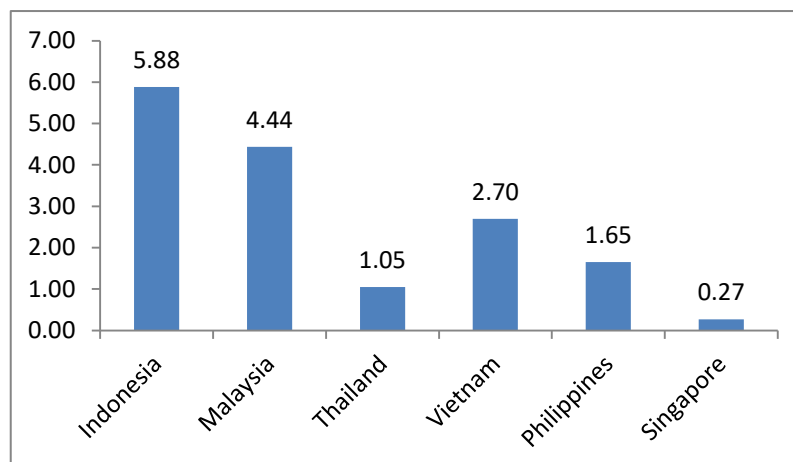
There are three methods of estimation approach that are commonly used: Common Effect Model (CEM), Fixed Effect Model (FEM), Random Effect Model (REM). The Chow test selects the best model between the fixed effect model and the Ordinary Least Square. Hausman's test selects the best model between the random and fixed-effects models. If the results of the two previous tests are obtained in one test or even both tests, accept  $H_0$ , a Lagrange Multiplier (LM) test is carried out, also known as the Breusch-Pagan Random Effect. This test selected the best analysis technique between the common and random effect models (Baltagi, 2005).

**RESULTS AND DISCUSSIONS**

**Developments in currency exchange rates, foreign exchange reserves, imports, interest rates, and foreign debt**

*The current exchange rate*

The currency exchange rate is one of the most important prices in an open economy because it is determined by the balance between supply and demand that occurs in the market. The current exchange rate growth of countries in Southeast Asia region is given in Figure 1.



Source: Asian Development Bank (processed data)

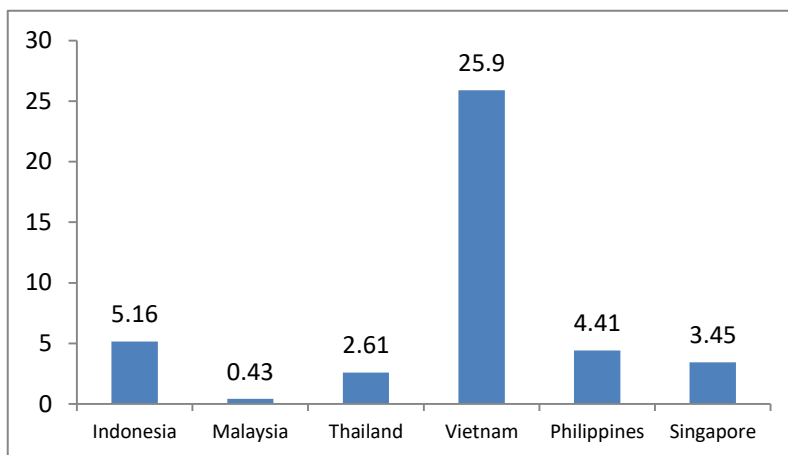
**Figure 1.** The currency exchange rate of countries in Southeast Asia, 2010 - 2017

During the 2010 – 2017 period, the currency exchange rates of Southeast Asian countries against the United States Dollar tended to weaken (depreciate). The highest depreciation occurred for the Indonesian currency, which was shown by the highest growth of the country's currency exchange rate against the United States dollar (5.88 percent per year). On the other hand, the lowest depreciation is for the Singapore currency. The Singapore dollar tends to be relatively stable, with the exchange rate growth against the United States dollar only 0.27 percent per year.

In Indonesia, the rupiah weakening began at the end of the Suharto presidency and peaked due to the economic crisis that hit Indonesia in 1997-1998. From 2010 to 2017, the main cause of the weakening of the exchange rate was increased foreign debt, increased imports, and the budget deficit.

**The foreign exchange reserves**

The foreign exchange reserves are reserves in foreign currency units maintained by the central bank to meet financial obligations due to international transactions (reserve currency). The development of foreign exchange reserves of countries in the Southeast Asia region is given in Figure 2.



Source: Asian Development Bank (processed data)

**Figure 2.** The foreign exchange reserves of countries in Southeast Asia, 2010 - 2017

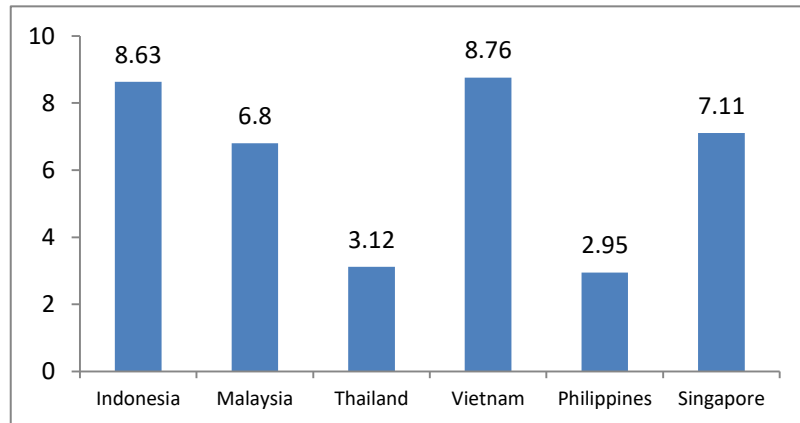
Among the countries in the Southeast Asia Region, Vietnam has the highest growth in terms of foreign exchange reserves. During 2010 – 2017, Vietnam's foreign exchange reserves grew by 25.90 percent. On the other hand, Malaysia has the lowest growth in terms of foreign exchange reserves.

The rapid increase in Vietnam's foreign exchange reserves is due to the country's ability to transform from one of the poorest countries to one of the most successful countries in managing development. The country's success began in the late 1980s. Vietnam can move the economy to meet the domestic market and be oriented to the global market.

**External debt**

Most developing countries in the Southeast Asia region require substantial funds to realize national development. The government must manage sources of development financing from available alternatives, both domestically and internationally. If the domestic savings stock is insufficient, one way to obtain capital injections is to attract Foreign Direct Investment (FDI) and External Debt.

The foreign debt of countries in Southeast Asia is given in Figure 3.



Source: Asian Development Bank (processed data)

**Figure 3.** External debt of countries in Southeast Asia, 2010 - 2017

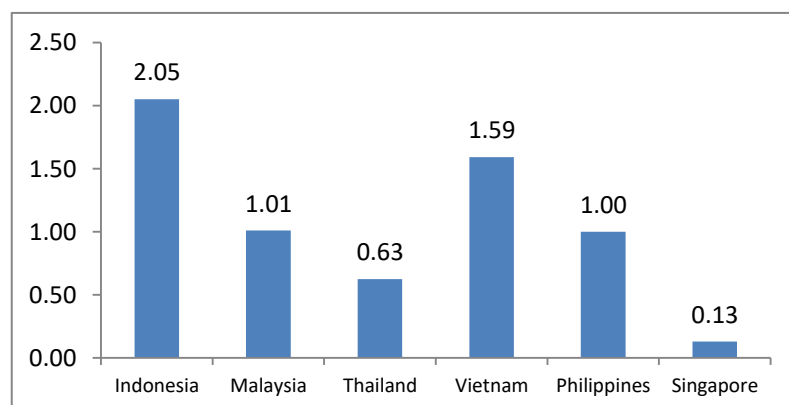
Vietnam is also a country with the highest foreign debt growth among countries in the Southeast Asian Region. The average growth of Vietnam's foreign debt reached 8.76 percent per year. On the other hand, the Philippines has the lowest foreign debt growth, only 2.95 percent per year.

Foreign debt has an impact like two different sides of a coin. Without foreign debt, developing countries will not grow their countries faster. On the other hand, inappropriate foreign debt management will cause developing countries to face payment difficulties and uncontrollable burdens. In the case of Vietnam, despite experiencing rapid debt growth, the risk of Vietnam having difficulty repaying its foreign debt is estimated to be relatively small because, at the same time, the country's foreign exchange reserves are also growing rapidly.

### **Interest Rate**

Interest rate policy is one of the monetary policies to regulate the money supply and maintain the stability of the exchange rate. Changes in interest rates will affect investment in foreign securities. Investors who interact globally will look for countries with favorable interest rates. The rise and fall of foreign investment will affect the country's currency exchange rate.

The average interest rates of countries in the Southeast Asia Region during 2010 – 2017 are given in Figure 4.



Source: Asian Development Bank (processed data)

**Figure 4.** Interest rates of countries in Southeast Asia, 2010 - 2017



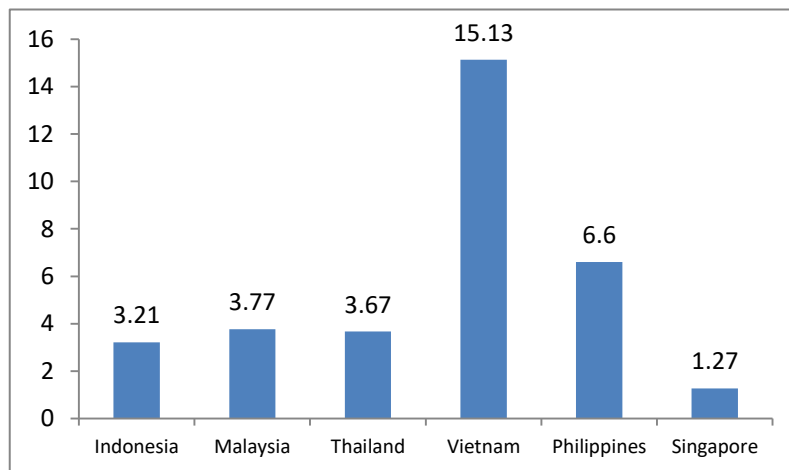
Singapore has the lowest average interest rate in the Southeast Asia region, with 0.13 percent. On the other hand, Indonesia has the highest average interest rate of 2.05 percent. The low-interest rate in Singapore will certainly increase the interest of investors to invest in this country. On the other hand, high-interest rates in Indonesia will reduce investors' interest in investing in Indonesia.

**Import**

Import activities have the main objective of meeting domestic needs. Import activities will increase the potential of a country in obtaining raw materials, goods, and services for a certain type of product that is limited in number or cannot be produced domestically. It will be able to support the stability of the country indirectly.

Import activities have various benefits, including obtaining goods or services that cannot be produced domestically, obtaining supplies of raw materials, obtaining more advanced technology, controlling inflation, and the state can focus more on producing certain goods or services. However, despite having various benefits, imports also have a negative impact. Imports will cause a loss of competitiveness between domestic and imported products, both in price and quality. Uncontrolled imports will also reduce the country's foreign exchange reserves, which will likely plunge into a deficit.

Import growth of countries in Southeast Asia is given in Figure 5.



Source: Asian Development Bank (processed data)

**Figure 5.** Import countries in Southeast Asia, 2010 - 2017

Vietnam has the highest import growth among countries in the Southeast Asian region, with a growth rate of 15.13 percent per year. The high growth of Vietnam's imports implies the rapid increase in consumption in Vietnam, the increase in upper-middle-class families, and the increasing number of the younger generation. On the other hand, Singapore has the lowest import growth, only 1.27 percent per year.

**Determinants of currency exchange rates for countries in the Southeast Asia Region**

Based on the Chow test, Hausman test, and LM test, the common effect model is the best model for analyzing currency exchange rates in countries in the Southeast Asian region. The currency exchange rate model is given in Table 7.

**Table 1.** Models of exchange rates for countries in the Southeast Asia Region

| Variable           | Coefficient | Std. Error            | t-Statistics | Prob.    |
|--------------------|-------------|-----------------------|--------------|----------|
| C                  | 2700,096    | 2950,804              | 0.915037     | 0.3653   |
| CER?               | -0.165320   | 0.023602              | -7.004504    | 0.0000   |
| ED?                | 0.022003    | 0.011561              | 1.903231     | 0.0637   |
| IM?                | 0.091642    | 0.017847              | 5,134996     | 0.0000   |
| SIR?               | 1742,394    | 1261,462              | 1.381250     | 0.1743   |
| R-squared          | 0.664747    | Mean dependent var    |              | 5382.200 |
| Adjusted R-squared | 0.633560    | SD dependent var      |              | 8227,544 |
| SE of regression   | 4980,483    | Akaike info criterion |              | 19,96277 |
| Sum squared resid  | 1.07E + 09  | Schwarz criterion     |              | 20.15769 |
| Log-likelihood     | -474,1066   | Hannan-Quinn criter.  |              | 20,03643 |
| F-statistics       | 21,31530    | Durbin-Watson stat    |              | 0.172125 |
| Prob (F-statistic) | 0.000000    |                       |              |          |

The model shows that foreign exchange reserves have a significant negative effect on the exchange rate of ASEAN countries' currencies against the United States dollar. An increase in foreign exchange reserves will appreciate the currency exchange rate, and conversely, a decrease in foreign exchange reserves will depreciate the currency exchange rate. This finding is in line with the research by Mpofu (2016), which found that foreign exchange reserves have a significant effect on the exchange rate

Foreign debt and imports have a significant positive effect on currency exchange rates. The positive effect of imports and foreign debt shows that these two variables must be controlled to prevent currency exchange rate depreciation. The significant effect of foreign debt on currency exchange rates is in line with the research findings of Benazic & Kersan-Skabic (2016) in Coatia, Adusei, and Gyapong (2017) in Ghana and Mpofu (2016) in South Africa. The significant effect of imports on currency exchange rates is in line with research by Benazic & Kersan-Skabic (2016) in Croatia, and several studies in Ghana (Adusei & Gyapong, 2017; Alagidede & Ibrahim, 2017; Ajao and Igbokoyi (2013)

The model shows that of the four variables that affect the currency exchange rates of ASEAN countries, only interest rates do not have a significant effect. The findings of this study are different from the findings of previous studies, which showed a significant effect of interest rates on currency exchange rates (Ajao & Igbokoyi, 2013; Hassan et al., 2017; Oaikhenan & Aigheyisi, 2015)

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

The highest depreciation occurred for the Indonesian currency, which was shown by the highest growth of the country's currency exchange rate against the United States dollar (5.88 percent per year). On the other hand, the lowest depreciation is for the Singapore currency. The Singapore dollar tends to be relatively stable, with the exchange rate growth against the United States dollar only 0.27 percent per year.

Of the four variables studied, only interest rates do not affect countries' exchange rates in the Southeast Asia region. Foreign exchange reserves have a negative effect, while foreign debt and imports positively affect currency exchange rates.

### Recommendations

To control the currency exchange rate, the government and the private sector are advised to control the rate of imports and foreign debt. If complete data is available for further research, this research should be extended to all countries in the Southeast Asian region. Further research is also suggested to add other macroeconomic variables which theoretically are suspected to affect currency exchange rates.

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## APPENDIX

**Table 2.** Currency exchange rates, foreign exchange reserves, imports, interest rates, and external debt in Indonesia, 2010 - 2017

| Year    | Exc. Rate (Rp) | Growth (%) | Forg. Exc. Rsv. (Million US \$) | Growth (%) | Debt (Million US \$) | Growth (%) | Interest (%) | Import (Million US \$) | Growth (%) |
|---------|----------------|------------|---------------------------------|------------|----------------------|------------|--------------|------------------------|------------|
| 2010    | 9090           |            | 89970                           |            | 198269               |            | 3.9          | 135663                 |            |
| 2011    | 8770           | -3.52      | 103611                          | 15.16      | 219620               | 10.76      | 2.3          | 177436                 | 30.79      |
| 2012    | 9387           | 7.03       | 105907                          | 2.21       | 252556               | 14.99      | 1.8          | 191691                 | 8.03       |
| 2013    | 10461          | 11.44      | 93427                           | -11.78     | 265453               | 5.10       | 1.9          | 186629                 | -2.64      |
| 2014    | 11865          | 13.42      | 106073                          | 13.53      | 292971               | 10.36      | 1.8          | 178179                 | -4.52      |
| 2015    | 13389          | 12.84      | 100626                          | -5.13      | 308221               | 5.20       | 1.7          | 142695                 | -19.91     |
| 2016    | 13308          | -0.60      | 110931                          | 10.24      | 316431               | 2.66       | 1.5          | 135653                 | -4.93      |
| 2017    | 13381          | 0.54       | 124143                          | 11.91      | 352250               | 11.31      | 1.5          | 156925                 | 15.68      |
| Average |                | 5.88       |                                 | 5.16       |                      | 8.63       | 2.05         |                        | 3.21       |

Source: Asian Development Bank

**Table 3.** Currency exchange rates, foreign exchange reserves, imports, interest rates, and external debt in Malaysia, 2010 - 2017

| Year    | Exc. Rate (Rp) | Growth (%) | Forg. Exc. Rsv. (Million US \$) | Growth (%) | Debt (Million US \$) | Growth (%) | Interest (%) | Import (Million US \$) | Growth (%) |
|---------|----------------|------------|---------------------------------|------------|----------------------|------------|--------------|------------------------|------------|
| 2010    | 3.22           | -          | 102325                          | -          | 133800               | -          | 0.94         | 164730                 | -          |
| 2011    | 3.06           | -4.96      | 128964                          | 26.03      | 144898               | 8.29       | 1.08         | 187645                 | 13.91      |
| 2012    | 3.09           | 0.98       | 134940                          | 4.63       | 193880               | 33.80      | 1.04         | 196588                 | 4.76       |
| 2013    | 3.15           | 1.94       | 130492                          | -3.29      | 188795               | -2.62      | 1.01         | 206125                 | 4.85       |
| 2014    | 3.27           | 3.80       | 111765                          | -14.35     | 196587               | 4.12       | 1.03         | 208920                 | 1.35       |
| 2015    | 3.91           | 19.57      | 91429                           | -18.19     | 190951               | -2.86      | 1.06         | 176051                 | -15.73     |
| 2016    | 4.15           | 6.13       | 91194                           | -0.25      | 200364               | 4.92       | 1            | 178101                 | 1.16       |
| 2017    | 4.3            | 3.61       | 98938                           | 8.49       | 204371               | 1.99       | 0.96         | 206745                 | 16.08      |
| Average | -              | 4.44       | -                               | 0.43       | -                    | 6.80       | 1.01         | -                      | 3.77       |

Source: Asian Development Bank

**Table 4.** currency exchange rates, foreign exchange reserves, imports, interest rates, and external debt in Thailand, 2010 - 2017

| Year    | Exc. Rate (Rp) | Growth (%) | Forg. Exc. Rsv. (Million US \$) | Growth (%) | Debt (Million US \$) | Growth (%) | Interest (%) | Import (Million US \$) | Growth (%) |
|---------|----------------|------------|---------------------------------|------------|----------------------|------------|--------------|------------------------|------------|
| 2010    | 31.69          | -          | 165656                          | -          | 106358               | -          | 0.5          | 185121                 | -          |
| 2011    | 30.49          | -3.78      | 165200                          | -0.27      | 109943               | 3.37       | 0.9          | 229137                 | 23.77      |
| 2012    | 31.08          | 1.93       | 171106                          | 3.57       | 134257               | 22.11      | 0.7          | 250453                 | 9.30       |
| 2013    | 30.73          | -1.12      | 159022                          | -7.06      | 137353               | 2.30       | 0.6          | 249577                 | -0.34      |
| 2014    | 32.48          | 5.69       | 149064                          | -6.26      | 135292               | -1.50      | 0.8          | 227895                 | -8.68      |
| 2015    | 34.25          | 5.44       | 149291                          | 0.15       | 129654               | -4.16      | 0.5          | 201790                 | -11.45     |
| 2016    | 35.3           | 3.06       | 164148                          | 9.95       | 121497               | -6.29      | 0.5          | 195103                 | -3.31      |
| 2017    | 33.94          | -3.85      | 194048                          | 18.21      | 128814               | 6.02       | 0.5          | 227194                 | 16.44      |
| Average | -              | 1.05       | -                               | 2.61       | -                    | 3.12       | 0.625        | -                      | 3.67       |

Source: Asian Development Bank

**Table 5.** Currency exchange rates, foreign exchange reserves, imports, interest rates, and external debt in Vietnam, 2010 - 2017

| Year    | Exc. Rate (Rp) | Growth (%) | Forg. Exc. Rsv. (Million US \$) | Growth (%) | Debt (Million US \$) | Growth (%) | Interest (%) | Import (Million US \$) | Growth (%) |
|---------|----------------|------------|---------------------------------|------------|----------------------|------------|--------------|------------------------|------------|
| 2010    | 18613          | -          | 12054                           | -          | 44902                | -          | 3            | 83378                  | -          |
| 2011    | 20510          | 10.19      | 13128                           | 8.90       | 53886                | 8.00       | 3            | 104438                 | 25.25      |
| 2012    | 20828          | 1.55       | 25161                           | 91.65      | 61577                | 14.27      | 2.2          | 111680                 | 6.93       |
| 2013    | 20933          | 0.50       | 25481                           | 1.27       | 65452                | 6.29       | 1.3          | 129294                 | 15.77      |
| 2014    | 21148          | 1.02       | 33801                           | 32.65      | 72430                | 10.66      | 0.8          | 144824                 | 12.01      |
| 2015    | 21698          | 2.60       | 27879                           | -17.52     | 77827                | 7.45       | 0.7          | 175784                 | 21.37      |
| 2016    | 21935          | 1.09       | 36167                           | 29.72      | 86952                | 11.72      | 0.93         | 185292                 | 5.40       |
| 2017    | 22370          | 1.98       | 48693                           | 34.63      | 79069                | -9.06      | 0.81         | 220869                 | 19.20      |
| Average | -              | 2.70       | -                               | 25.90      | -                    | 8.76       | 1.59         | -                      | 15.13      |

Source: Asian Development Bank

**Table 6.** Currency exchange rates, foreign exchange reserves, imports, interest rates, and external debt in the Philippines, 2010 - 2017

| Year    | Exc. Rate (Rp) | Growth (%) | Forg. Exc. Rsv. (Million US \$) | Growth (%) | Debt (Million US \$) | Growth (%) | Interest (%) | Import (Million US \$) | Growth (%) |
|---------|----------------|------------|---------------------------------|------------|----------------------|------------|--------------|------------------------|------------|
| 2010    | 45.11          | -          | 53991                           | -          | 65358                | -          | 1.6          | 60193                  | -          |
| 2011    | 43.31          | -3.99      | 65700                           | 21.68      | 66114                | 1.15       | 1.6          | 66159                  | 9.91       |
| 2012    | 42.23          | -2.49      | 71656                           | 9.06       | 69372                | 4.92       | 1.3          | 67886                  | 2.61       |
| 2013    | 42.45          | 0.52       | 73792                           | 2.98       | 66202                | -4.56      | 0.8          | 68014                  | 0.18       |
| 2014    | 44.4           | 4.59       | 70260                           | -4.78      | 78559                | 18.66      | 0.6          | 70976                  | 4.35       |
| 2015    | 45.5           | 2.47       | 72352                           | 2.97       | 80623                | 2.62       | 0.7          | 73355                  | 3.35       |
| 2016    | 47.49          | 4.37       | 71853                           | -0.68      | 77319                | -4.09      | 0.7          | 91427                  | 24.63      |
| 2017    | 50.4           | 6.12       | 71598                           | -0.35      | 78833                | 1.95       | 0.7          | 92839                  | 1.54       |
| Average | -              | 1.65       | -                               | 4.41       | -                    | 2.95       | 1            | -                      | 6.6        |

Source: Asian Development Bank

**Table 7.** Currency exchange rates, foreign exchange reserves, imports, interest rates, and external debt in Singapore, 2010 - 2017

| Year    | Exc. Rate (Rp) | Growth (%) | Forg. Exc. Rsv. (Million US \$) | Growth (%) | Debt (Million US \$) | Growth (%) | Interest (%) | Import (Million US \$) | Growth (%) |
|---------|----------------|------------|---------------------------------|------------|----------------------|------------|--------------|------------------------|------------|
| 2010    | 1,364          | -          | 223678                          | -          | 228263.9             | -          | 0.14         | 310879                 | -          |
| 2011    | 1,271          | -6.75      | 260656                          | 16.53      | 305192.9             | 33.70      | 0.11         | 361618                 | 16.32      |
| 2012    | 1,297          | 2.02       | 256922                          | -1.43      | 306556               | 0.44       | 0.13         | 345472                 | -4.46      |
| 2013    | 1,251          | -3.59      | 270484                          | 5.27       | 307582.4             | 0.33       | 0.1          | 373081                 | 7.99       |
| 2014    | 1,267          | 1.27       | 254562                          | -5.88      | 301440.3             | -1.99      | 0.11         | 366301                 | -1.81      |
| 2015    | 1,375          | 8.52       | 245721                          | -3.47      | 310645.3             | 3.05       | 0.14         | 297035                 | -18.90     |
| 2016    | 1,382          | 0.50       | 244366                          | -0.55      | 343549.2             | 10.59      | 0.14         | 282022                 | -5.05      |
| 2017    | 1,381          | -0.07      | 277813                          | 13.68      | 356180.7             | 3.67       | 0.16         | 324024                 | 14.89      |
| Average | -              | 0.27       | -                               | 3.45       | -                    | 7.11       | 0.13         | -                      | 1.27       |

Source: Asian Development Bank



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