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Fintech Peer-to-Peer Lending, E-Money and Indonesia's Economic Growth

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ABSTRACT: The adoption of modern technology has a very important role and impactful on economic growth. One of the trends in financial sector in Indonesia is the financial technology (fintech) which marks the era of modern technological innovation that is increasingly penetrating the financial sector**.** The growth of corporate investment supported by fintech, P2P lending and e-money has great potential to increase productivity, create new jobs, and ultimately, drive sustainable economic growth. In this context, growth in the distribution of fintech lending through P2P lending and fintech payments through e-money indicates an increase in investment that can have a significant impact on national income. This study aims to examine the influence of fintech P2P lending and e-money on Gross Domestic Product (GDP) as an indicator of economic growth in Indonesia. This study also considers several macroeconomic factors such as inflation and interest rates as control variables that can affect Indonesia's GDP. The results of the study show that Financial Technology, especially through the adoption of e-money, has a significant impact on economic growth in Indonesia. The test results indicate that the variables of P2P lending, e-money, inflation, and interest rates simultaneously have a significant effect on economic growth. The results of the study also show that the adoption of e-money accelerates the transaction process and improves economic efficiency. In contrast, P2P lending does not show significant influence. Research shows that the additional benefits of technology adoption, including P2P lending, are likely to decline as the penetration of such technologies in the economy increases. To improve the accuracy and relevance of the data used, it is recommended to perform a more detailed separation related to P2P lending data. In addition, extending the research period will allow the observation of the long-term impact of fintech, particularly P2P lending and e-money, on economic growth.

KEYWORDS: economic growth, financial technology, peer-to-peer lending, E-money, gross domestic product

I. INTRODUCTION

Economic growth refers to the process of increasing a country's long-term production capacity to meet the needs of economic goods for its population (Kuznets, 1973). There are three key factors that affect the economic growth of a society (Utami, 2022). First, capital accumulation, which involves new investments in land, equipment, and human resource development. This happens when funds are currently allocated to increase production in the future. Second, economic growth, followed by an increase in employment, is considered a positive boost for economic growth. As the domestic market grows, employment increases, human resources are more available, and other factors of production also increase. Third, technological advancements, which introduce more efficient ways of carrying out traditional tasks such as agriculture and manufacturing. To measure the increase or decrease in economic growth in Indonesia, the Gross Domestic Product (GDP) or Gross Regional Domestic Product (GDP) of a region can be used as a reference indicator (Rahardjo, 2013).

Neoclassical economic growth theory emphasizes that the development of production factors and technological advances are decisive factors in economic growth (Sukirno, 2001). This theory identifies three main elements that determine the stability of a country's economic growth, namely labor, capital, and technology. This concept is supported by (Schumpeter, 1934) which highlights the important role of innovation and new combinations in the production process as well as investment by entrepreneurs in strengthening the country's economy. In addition, (Solow, 1956) stated that economic growth is a series of activities that are sourced from people, capital accumulation, the use of modern technology, and results. Based on this description, it can be concluded that the adoption of modern technology has a very important role and is able to influence economic growth. One of the trends that is increasing in Indonesia is the presence of financial technology (fintech) which marks the era of modern technological innovation that is increasingly penetrating the financial sector. Financial technology or known as fintech is an innovation in the financial services industry that utilizes technology to develop products and services (Financial Services Authority). Fintech products are generally in the form of systems specifically designed to facilitate financial transactions with efficiency and precision. This concept includes the use of various technologies such as mobile applications, online platforms, and artificial intelligence to improve accessibility, speed, and security in carrying out various financial transaction mechanisms.

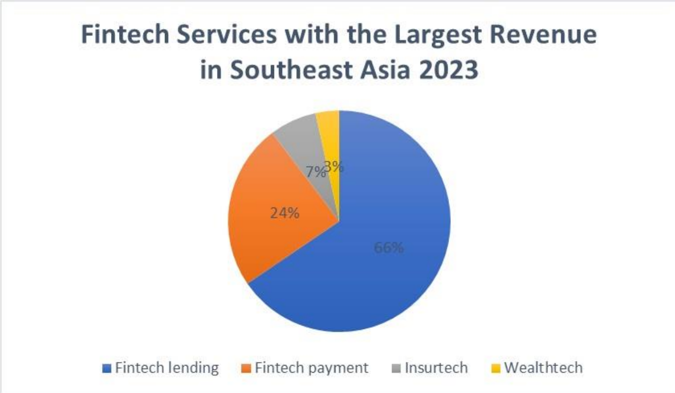

Figure 1. Fintech Services with the Largest Revenue in Southeast Asia 2023
Source: E-conomy SEA 2023

Based on the E-Conomy SEA 2023 report, revenue from fintech services in 2023 in Southeast Asia is estimated to reach around US$30 billion. The fintech lending (peer-to-peer lending) sector stands out as 5254the largest revenue, reaching US$19 billion or equivalent to 63.3% of the total fintech services revenue in Southeast Asia. Meanwhile, fintech payments (e-money) ranked second with revenue of US$7 billion in 2023, accounting for around 23.33% of the total fintech service revenue in the region (Annur, 2023).

Fintech lending or peer-to-peer lending (P2P lending) is a lending and borrowing service in rupiah currency that is carried out based on information technology and is directly carried out between lenders (creditors/lenders) and borrowers (debtors/borrowers) (Financial Services Authority). The growth of fintech lending can be seen from the increase in the number of fintech lending companies every year. As of October 9, 2023, the total number of fintech lending providers that have been registered and licensed with the Financial Services Authority is 101 companies. In addition, the increase in loan distribution in each period is also a 5254positive sign that indicates the development of 5254the fintech lending industry. Loan disbursement in Indonesia reached IDR 20.53 trillion in August 2023. This amount increased by 0.78% compared to the previous month, which reached Rp20.37 trillion.

Fintech payment in the form of electronic money (e-money) is a means of payment that has several characteristics, namely issued based on the value of money that has been deposited in advance to the issuer, the value of money is stored electronically in a server or chip media, used as a means of payment to merchants who are not the issuer of the electronic money, and the value of electronic money managed by the issuer is not considered as a deposit in accordance with the law that regulates banking (Bank Indonesia Regulation). According to data from Bank Indonesia (BI), in August 2023, the value of shopping transactions using e-money nationally reached IDR 38.5 trillion. Compared to August 2018, there was an increase of more than 880% in the value of shopping transactions using e-money in August 2023. This shows a significant increase in the use of e-money by Indonesia consumers in the last five years.

According to economic theory (Keynes, 1936), national income is influenced by several key factors, such as household consumption, investment, government spending, and international trade through exports and imports. Corporate investment, as a key driver of business development, requires quick and easy access to additional funds. Innovative financial solutions such as fintech, P2P lending, and e-money are present as an answer to these needs. Through the online platform provided, companies can access loans directly from investors or conduct financial transactions with high efficiency. Thus, companies can obtain additional funds without being tied to the complicated and lengthy process of traditional banks. With this speed and convenience, companies can accelerate business expansion, increase investment in operations or innovation, and expand market share. This statement is supported by the results of research (Lv & Xiong, 2021) which states that the investment efficiency of companies is positively related to the level of fintech. In addition, (Sun & Zhang, 2023) also states that the use of financial technology (fintech) makes the company's investment process more efficient and has the same long-term impact 5254. And as fintech develops, its role is increasingly dominant in improving the efficiency of company investment. The positive impact is not only felt by the company, but also by the country's economy as a whole. The growth of corporate investment supported by fintech, P2P lending and e-money has great potential to increase productivity, create new jobs, and ultimately, drive sustainable economic growth. In this context, growth in the distribution of fintech lending through P2P lending and fintech payments through e-money indicates that increased investment can have a significant impact on national income. One of these significant growths can be measured by the value of Gross Domestic Product (GDP).

Related to this context, there are several previous studies that raise similar discussions, namely the influence of fintech, P2P lending and e-money on GDP as a 5255sign of economic growth in Indonesia. The results of the study (Fisabilillah & Hanifa, 2021) state that the use of fintech P2P lending has a positive and significant impact on economic growth. This indicates that the faster the growth of P2P lending in Indonesia, the stronger the positive impact on the Indonesia economy. In addition, (Pramaisshella & Fisabilillah, 2022), his research shows that P2P lending has a significant positive impact on Indonesia's GDP, with an influence coefficient of 55%. The results of the study (Sitompul, 2022) confirm that in a sustainable manner, there is a relationship between e-money, the amount of money in circulation, and the exchange rate to economic growth. Where e-money and the amount of money in circulation have a positive and significant impact on economic growth. But on the other hand, (Suwarni, 2021) emphasized that the increase in the volume of e-money transactions does not have a positive impact on Indonesia's economic growth.

Based on the background and several related previous studies, this study examines the influence of fintech P2P lending and e-money on GDP as a 5255sign of economic growth in Indonesia. This study also considers several macroeconomic factors such as inflation and interest rates as 5255the same variables that are able to affect Indonesia's GDP. This is based on the results of research (A. Hakim, 2023) which shows that inflation and interest rates have a significant effect on economic growth in Indonesia, both individually and when they are 5255linked.

II. LITERATURE REVIEW

Economic Growth

Economic growth is the continuous development of a country or region's ability to produce goods and services needed by its population. This growth is characterized by a continuous increase in national output, followed by technological advancements, as well as adaptations in the necessary institutional structures, attitudes, and ideologies (Jhingan & Guritno, 2016). Until now, there have been various developments in the theory of economic growth. The following is an explanation of some theories of economic growth (Sukirno, 2006):

Neoclassical Economic Growth Theory

According to the Solow-Swan theory, the economic development of a country depends on factors of production such as the number of population, available labor capacity, the level of investment in capital, and the degree of technological advancement that has been achieved. Solow emphasized that in the process of economic growth, technological advances have a role that cannot be ignored, because their ability to encourage productivity and innovation has a significant impact on the rate of economic growth of a country (Hasan et al., 2020). This theory also indicates that there are two main elements that have a significant influence on economic growth, namely increasing the value of Gross Domestic Product (GDP) and technological advances (Suwarni, 2021).

The General Theory

According to The General Theory introduced by John Maynard Keynes in 1936 through the book The General Theory of Employment, Interest and Money, there is a view that national income is composed of several important factors, namely household consumption, investment levels, government spending, and export and import activities. Therefore, the expansion in the flow of funds through the distribution of loans through peer-to-peer (P2P lending) platforms, which indicates investment growth, has the potential to affect overall national income. One of the indicators used to measure national income is the value of Gross Domestic Product (GDP) (Keynes, 1936). Thus, increased investment through P2P lending can have an impact on changes in GDP values, reflecting overall economic growth.

Financial Technology

The National Digital Research Centre (NDRC) in Dublin, Ireland, defines financial technology (fintech) as "innovation in financial services" that utilizes modern technology. This includes various financial transactions such as payments, investments, borrowing funds, transfers, financial planning, and financial product comparisons (L. Hakim & Hapsari, 2022). These innovations marked a significant change in the way humans interacted with the financial system, with technology being the main axis that provided these services. According to (Hanafi, 2011), fintech refers to the application of technology in the financial sector, which includes various fields such as payments, insurance, investment management, deposits and loans, capital raising, and market provision. The World Economic Forum defines fintech as the use of innovative technology in the financial sector. These innovations involve the use of technology to create new methods in the financial sector, such as savings and loan services, investments, and electronic payments (Winarto, 2020).

Fintech Peer-to-Peer Lending

Fintech is described as the use of technology in an effort to improve financial and banking services by startups or startups, by using the latest software, internet, and technology (Hidayat et al., 2020). Fintech is also defined as a new model in financial services developed through information technology innovation (Hsueh & Kuo, 2017). Of the various service options offered by fintech, investment through P2P lending has become one of the most demanded by the public, with a significant impact on the financial sector (Pramaisshella & Fisabilillah, 2022). Innovations in these investment methods provide reliable, cost-efficient, and safe options to support business growth, while providing investors with the opportunity to earn favorable returns (Wardhana et al., 2023). P2P lending is an innovation that applies information technology in the financial sector that allows investors and borrowers to transact loans and funding directly through various platforms such as mobile applications or websites (Financial Services Authority). Fintech loans are money lending services that use information technology as the basis (LPMUBTI). The direct ability to provide loans between lenders (creditors) and borrowers (debtors) offered by fintech loans is a crucial feature in an effort to expand accessibility to financial services for all levels of society (Financial Services Authority, 2016). Where this is also closely related to efforts to increase financial inclusion in Indonesia (Financial Services Authority, 2021). Its importance and relevance for the financial market in Indonesia is very large, especially for people who have not been able to access formal financial services (Institute for Development of Economics and Finance, 2019). This is also supported by research conducted (Suryono et al., 2021) which states that P2P lending is a breakthrough that specifically helps most people who sometimes have difficulty accessing conventional banking products due to various constraints, including limited information, difficult qualification requirements, and the lack of banking facilities in their surrounding environment. Monitoring the adoption rate of online loan services can be measured through the value of online loan distribution in a certain period. This value is a key indicator to assess how widely online lending facilities, such as P2P lending, are used by the public to support their financial needs. The higher the value of the online loan distribution, the greater its contribution in helping the community to get access to the necessary funding.

The 2013-2016 World Health

Fintech is the result of a collaboration between financial services and technological innovation. Fintech has changed the business paradigm from the initially conventional one, where payments require face-to-face meetings and the use of cash, to a more modern model (Bank Indonesia, 2018). Bank Indonesia Regulation No. 19/12/PBI/2017 describes financial technology as the use of technology in the financial system that produces new products, services, technologies, or business models, which can affect monetary stability, financial system stability, and the efficiency and security of the payment system (Bank Indonesia, 2017). With the advancement of the increasingly modern era, fintech can be a safer alternative considering that the use of cash is increasingly vulnerable to security threats in the transaction process. Threats such as theft, robbery, and counterfeiting of money have driven the evolution of payment systems. Physical money exchanges are often inefficient because they are large and heavy, leading to problems that require solutions (Wardhana et al., 2023). One of the solutions offered is the use of e-money, which helps to increase the security of using money as a medium of exchange (Palinggi & Allolinggi, 2019). Digital payments provide convenience and practicality to the community, which affects changes in the way people conduct transactions (Suharni, 2018). This technological development has encouraged the emergence of innovations and electronic-based non-cash payment solutions, such as debit cards, credit cards, and e-money (Pramono et al., 2006). Payment methods involving cash or checks are considered non-digital payments, while digital payments refer to the use of payment cards such as debit, credit, or prepaid cards, account instructions, Electronic Fund Transfer (EFT), e-money, virtual currencies, as well as payments made directly to digital accounts (Tan, 2004). The Bank for International Settlement (BIS) defines e-money as "stored-value or prepaid products in which a record of the funds or value available to a consumer is stored on an electronic device in the consumer's possession" (Hidayati et al., 2006). According to (Suharni, 2018) electronic money is basically a form of cashless money, whose value comes from the value of money that has been previously deposited to the issuer and stored electronically in media such as servers or chip cards. Electronic money acts as a means of non-cash payment to sellers who are not the issuer of the e-money. Today, financial transactions can be carried out efficiently and without a physical presence. Using fintech platforms allows for faster and more effective payments in seconds. According to research (Suseco, 2016), it is stated that the adoption of e-money has the potential to experience significant growth in low-income countries as well as middle-income countries. The development of e-money is predicted to be in line with the increase in economic activity on a wider scale (Sitompul, 2022). Monitoring the development of e-money can rely on the value of electronic money transactions in a certain period as the main indicator. This value provides an overview of the extent to which e-money technology is adopted by the public in meeting daily payment needs. The higher the transaction value, the greater the use of e-money in daily payment activities.

The Relation between Economic Growth and Financial Technology

Within the framework of the Neoclassical Economic Growth Theory, the role of technological progress in driving productivity and innovation is highly emphasized. Solow emphasized that economic growth cannot be separated from technological advancements, which significantly affect the value of the Gross Domestic Product (GDP) and the rate of economic growth of a country. In today's era, there are various types of technology that are developing, such as information technology, communication, finance, and many others. However, this research focuses on explaining the relationship between Financial Technology (fintech) and economic growth. Fintech is defined as the use of innovative technologies in the financial sector, which creates new methods in the financial sector such as savings and loan services, investments, and electronic payments. In order to understand the implications, the study uses P2P lending and e-money as a medium to describe fintech.

Along with that, The General Theory also emphasizes the factors that make up national income, namely household consumption, investment, government spending, and export-import activities. Thus, the expansion in investment through loan distribution through P2P lending platforms has the potential to affect overall national income. Investment through P2P lending has become a widely preferred option by the public, with a significant impact on the financial sector. The direct ability to provide loans between creditors and debtors is a key feature in expanding accessibility to financial services for all levels of society, which is in line with efforts to increase financial inclusion in Indonesia. In addition, fintech has changed the business paradigm from a conventional model that requires face-to-face meetings and the use of cash to a more modern model. The use of e-money has significant growth potential, especially in countries with low and middle income levels. The growth of e-money is predicted to be in line with the increase in economic activity on a wider scale.

However, it is important to remember that economic growth is not only influenced by technological factors. In examining the influence of P2P lending and e-money on economic growth, of course, there are control variables that also affect economic growth, which in this study are inflation and interest rates. Although the value of inflation and interest rates is considered constant in this study as an attempt to rule out the influence of other variables on economic growth, it is important to recognize that both have a significant role in determining economic stability. Research (Fadilla & Purnamasari, 2021) states that inflation affects Indonesia's economic growth which is measurable through Gross Domestic Product (GDP). In addition, (Luhfiana et al., 2022) also emphasized that the influence of inflation on Indonesia's economy is influenced by an increase in demand for goods, an increase in production costs, an abundance of money supply in the community, and an unsmooth distribution process, which ultimately causes both good and bad impacts of inflation. Likewise, interest rates, which have a significant impact especially in encouraging low-interest investment, ultimately contribute to increased economic growth. Nonetheless, the study considers inflation and interest rates to be constant to focus attention on the influence of P2P lending and e-money on economic growth.

Research (Maulana & Wiharno, 2022) confirms that P2P lending can account for as much as 71.69% of Indonesia's economic growth. In addition, the results of the study (Fisabilillah & Hanifa, 2021) show a significant positive impact on Indonesia's economic growth, with a contribution of 68.18%. The study emphasizes that P2P lending has a significant positive influence on economic growth, indicating that rapid growth in the P2P lending industry in Indonesia can have a positive impact on the country's economy. This shows that innovation in P2P lending has the potential to create inclusive development. The World Bank also emphasized that a 1 percent increase in financial inclusion facilities could result in an increase of 0.03 percent in GDP per capita.

Similarly, the findings of the study (Fisabilillah & Hanifa, 2021) show that P2P lending has a positive impact on the Indonesia economy. The important role of P2P lending in providing access to loans for MSMEs and investment through the platform is believed to encourage increased income in various economic sectors. Therefore, the growth of P2P lending is believed to have a positive impact on Indonesia's economic condition, which can be measured through an increase in Gross Domestic Product (GDP). Based on the results of the study (Wahyono et al., 2022), every 1% increase in P2P lending is estimated to increase GDP by 0.653%. Research (Pramaisshella & Fisabilillah, 2022) also shows that P2P lending has a significant positive impact on Indonesia's GDP, with a contribution of 0.547711 or 55%. These findings confirm that the rapid growth in loan distribution through P2P lending will have a positive impact on Indonesia's GDP. This is also proven where in 2018, the development of P2P lending in less than two years has provided added value of more than Rp 25 trillion to Indonesia's GDP and boosted growth in the economic sector (Adhinegara et al., 2018). The results of the study (Institute for Development of Economics and Finance, 2019) also support this statement, where P2P lending has a positive impact on economic growth, contribution to GDP, job creation, poverty reduction, and inequality reduction. The increase in lending through fintech contributed to national economic growth of 0.45%, which is equivalent to the achievement of around Rp60 trillion in GDP. In addition, the impact of P2P lending is also reflected in the absorption of labor, which has succeeded in providing job opportunities to 362,000 people. Its important social effects can also be seen from the reduction of the number of poor people by 177,000 people, as well as the reduction in the inequality rate by 0.01.

As a country with a relatively small and open economy, Indonesia has experienced a significant impact due to the increasing use of electronic-based payment instruments or e-money. This change has the potential to reduce the demand for cash in the community. As a result, there has been a decline in interest rates in the financial markets as people prefer to use non-cash payment methods, allowing them to deposit funds electronically at participating banks (Mankiw, 2009). This creates a situation where borrowing costs become more competitive, spurring consumption and investment which in turn gives a boost to national economic growth. So that the use of e-money has a positive impact on economic growth in the long term (Sitompul, 2022). In full, the study shows that in a longer period, there is a relationship between factors such as the use of e-money, the amount of money in circulation, and the exchange rate to the economic development of a country. In this context, both the use of e-money and the amount of money in circulation show a positive and significant influence on economic growth.

III. RESEARCH METHODOLOGY

Multiple Regression

Table 1. Multiple Regression Result

	Coefficients
Constant	2.522
PTP	-.808
IN	42.186
INF	7311896.034
CS	13637785.60

PE = 2.522 - 0.808PTP + 42.186EM + 7311896.034INF + 13637785.60SK + ε

PE = economic growth (with Gross Domestic Product indicator)

PTP = fintech peer-to-peer (P2P) lending

EM = fintech e-money

INF = inflation

SK = interest rate

ε = error

Classical Assumption Test

Normality Test

Table 2. Normality Test Results

Kolmogorov-Smirnov Test	
N	25
Asymp. Sig. (2-tailed)	.200
Result	Approved

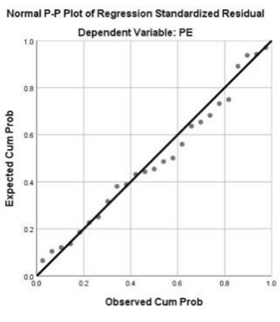

Figure 2. Plot Data of Normality Test Results

Based on Table 2., the value of sig. > 0.05 and the plot data follows a diagonal line, then it fails to reject H0, which states that the distributed data is normal.

Multicollinearity Test

Result Approved

Table 3. Multicollinearity Test Results

Variance Inflation Factor		
	BRIGHT	Tolerance
PTP	1.129	.886
IN	1.089	.918
INF	1.244	.804
CS	1.279	.782

Based on Table 3., the VIF value of all variables < 10 and the tolerance value of all variables ≥ 0.1, then it fails to reject H0, which states that there is no multicollinearity between independent variables.

Heterokedasticity Test

Table 4. Heterokedasticity Test Results

	Mr.
PTP	.376
IN	.632
INF	.716
CS	.773
Result	Approved

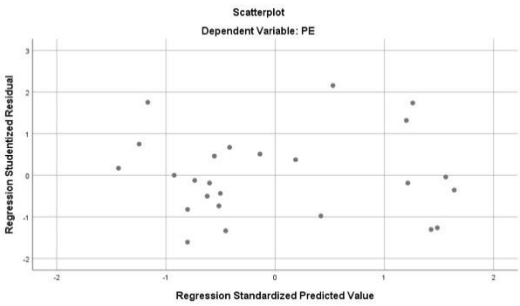

Figure 3. Scatterplot Heterokedasticity Test Results

Based on Table 4., the value of sig. all variables > 0.05 and residual are randomly distributed, thus failing to reject H0, which states that there is no heterokedasticity in the regression model.

Uji Autokorelasi

Table 5. Autocorrelation Test Results

Durbin-Watson	1.604
Result	Approved

Based on Table 5., Durbin Watson's value is 1,604. The du value was obtained through the Durbin Watson table with the criteria N = 25 (number of observations) and K = 2 (number of independent variables), so that the du value was obtained at 1.5494. While the value (4 - du) is 2.4506. The Durbin Watson value is between the du and 4-du values or du < d < 4-du, thus failing to reject H0, which states that there is no autocorrelation in the regression model.

Hypothesis Test

Coefficient of Determination

Table 6. Coefficient of Determination Results

R	.984
R Square	.968
Adjusted R Square	.961

Based on Table 6., the Adjusted R-Square (R^2) value is 0.961, meaning that the independent variable can explain 96.1% of the variation in the dependent variable and the remaining 3.9% is explained by other factors that are not included in the regression model. The Adjusted R-Square (R^2) value close to 1 indicates that the influence of independent variables on dependent variables is getting stronger.

Test T

Table 7. T Test Results

	Mr.	Result
PTP	.590	Not significant
IN	.000	Significant

Based on Table 7., the value of sig. PTP > 0.05, then it failed to reject H0, which states that fintech peer-to-peer (P2P) lending partially has no significant effect on economic growth in Indonesia. While the value of sig. EM ≤ 0.05, then reject H0, which states that fintech e-money partially has a significant effect on economic growth in Indonesia.

Test F

Table 8. Test Result F

ANOVA	
Mr.	.000
Result	Significant

Based on Table 8., the value of sig. ≤ 0.05, then reject H0, which states that financial technology (peer-to-peer lending and e-money), inflation, and interest rates together have a significant effect on economic growth in Indonesia.

IV. DISCUSSION

The results of this study emphasize that Financial Technology (fintech), especially through the adoption of e-money, has a significant impact on economic growth in Indonesia. The F test shows a significance value of 0.000, which indicates that independent variables such as P2P lending, e-money, inflation, and interest rates together have a significant influence on economic growth. This is consistent with the Neoclassical Economic Growth Theory which emphasizes the importance of technological advancement in increasing productivity and innovation. Robert Solow, in his growth model, recognizes that technology is a key driver of long-term economic growth.

In today's digital era, fintech such as e-money facilitates faster, safer, and more efficient transactions. E-money allows people to make payments and fund transfers more easily and quickly, reduce transaction costs, and increase financial inclusion. This indicates that more people will be able to participate in economic activities, which in turn will encourage economic growth. According to The General Theory, this directly increases consumption and investment, two crucial components of national income. With the ease of access and speed of transactions offered by e-money, people are more likely to make purchases and investments, thereby increasing the circulation of money in the economy.

Partially, the results of the study through the T test revealed that e-money has a significant influence with a significance value of 0.000 on economic growth, which shows that the adoption of e-money accelerates the transaction process and increases economic efficiency. This is in line with the findings of the study (Sitompul, 2022) which states that the use of e-money contributes to reducing cash demand, lowering interest rates, increasing the competitiveness of borrowing costs, and encouraging consumption and investment. With the adoption of e-money, people are more likely to store funds electronically, which has implications for increasing banking liquidity and reducing borrowing costs, thereby spurring economic growth. The study also shows that in the long term, there is a positive correlation between the use of e-money, the amount of money in circulation, and economic growth. E-money not only facilitates daily transactions but also improves overall economic stability and efficiency. The use of e-money allows for faster and safer transactions, as well as reduces transaction costs which in turn improves economic efficiency and accelerates the rate of economic growth.

Research (Sadigov et al., 2020) also shows that the higher the level of digitalization in society (such as the use of mobile phones or the internet for financial transactions, digital payments, and online shopping), the higher the GDP per capita achieved. This shows that digitalization has a crucial role in driving economic growth by increasing accessibility, efficiency, and innovation in various sectors of the economy. With the increasing digitalization, people and businesses can conduct transactions more efficiently, reduce operational costs, and increase global competitiveness. This strengthens the argument that investment in digital infrastructure and information technology education is a strategic step to improve a country's economic welfare.

In contrast, P2P lending did not show a significant influence partially with a significance value of 0.590. Research (Bu et al., 2022) states that in the early stages of adoption, fintech, including P2P lending, does not have a significant direct impact on economic growth. This is due to several factors, such as uneven technology across sectors and existing regulatory challenges. Immature or poorly coordinated regulations in some countries can slow down the growth and adoption of fintech.

The concept of the law of marginal decline is also relevant in this context. Research shows that the additional benefits of technology adoption, including P2P lending, are likely to decline as the penetration of such technologies in the economy increases. This means that after the initial stage of adoption that provides large benefits, additional P2P lending adoption provides relatively smaller benefits to economic growth. An already saturated market or limitations in the development of supporting infrastructure and regulations can also affect its broader impact on the economy as a whole.

While fintech in general improves the efficiency of the financial system and access to financial services, this impact may be more pronounced in other sectors such as digital payments or online investment than in P2P lending. P2P lending tends to be more focused on individual or small business credit, which allows for more inclusive financial access but may not have a major direct impact on economic growth in the early stages of adoption. Considering that the research time span from 2018 to 2024 only covers six years after fintech began to develop in 2016 (Kristina, 2021). This short time is not enough to observe the long-term impact of P2P lending on economic growth. Significant changes in the economy typically take longer to materialize, especially when it involves the adoption of new technologies and changes in financial behavior.

In addition, research (Cevik, 2024) also concluded that P2P lending, although innovative, does not have a significant impact on overall economic growth. The study used banks' z-scores to measure banks' financial stability, where higher z-scores indicate greater stability and healthier financial conditions. Research found that fintech activities, including P2P lending, have a negative impact on banks' z-scores.

P2P lending has different characteristics compared to traditional lending, including higher risk due to risk concentration and reliance on data-driven algorithms for credit decision-making. These algorithms are not always accurate in assessing borrowers' creditworthiness, increasing the likelihood of default and creating uncertainty in the financial system, ultimately affecting the overall stability of banks.

When all fintech instruments, including P2P lending and digital capital raising, add up, the impact on financial stability remains negative. This shows that while fintech offers innovation and increased access to financial services, the risks inherent in fintech business models can affect overall financial stability, and this increase in access is not enough to address the risks arising from fintech activities.

The study (Junarsin et al., 2021) also found an inverted U-shaped relationship between credit from fintech and Gross Regional Domestic Product (GRDP), which means that at some point, an increase in credit from fintech can begin to negatively impact economic growth. Despite the potential contribution, fintech credit, including P2P lending, can reach a level where the impact is no longer positive. The results of the threshold dynamic panel analysis show that the total P2P lending credit has a threshold of 109% of GRDP, consumer credit of 117% of GRDP, and productive credit of 113.1% of GRDP. These figures are below the threshold value, and only total credit and productive credit have a significant contribution to economic growth. This shows that the overall contribution of P2P lending has not reached its optimal level and, therefore, has not had a significant impact on economic growth.

To determine the optimal proportion of credit, both productive and consumptive that needs to be channeled by fintech, a non-linear regression was used which found that the optimal proportion for productive credit is 60%, while for consumption it is 40%. Currently, the proportion of productive credit is 26% and for consumption is 74%. This disparity shows that P2P lending is channeled more for consumption than for productive activities that support economic growth. Therefore, this suboptimal credit distribution reduces the potential contribution of P2P lending to economic growth.

Further analysis shows that the optimal credit disbursement outside Java is 13.73% and in Java is 86.27% of total loans. The actual proportion of loans outside Java is currently slightly lower, at 13.57%. The greater credit focus in Java shows that the potential for equitable economic growth throughout Indonesia has not been fully realized. This imbalance can limit the positive impact of P2P lending on overall national economic growth. Indonesia's fintech industry, including P2P lending, is still in the early stages of development. While there is potential to contribute to economic growth, the impact has not been significant due to various constraints, including regulations, public awareness, and infrastructure that has not been fully developed. This adds to the reason why P2P lending has not had a significant influence on economic growth.

The Adjusted R-Square (R^2) of 0.961 in this regression model indicates that 96.1% of the variation in economic growth can be explained by the variables of fintech, inflation, and interest rates. This figure shows that the model used is very strong in explaining the factors that affect economic growth. Although inflation and interest rates were considered constant in this study, the residual influence of both remained significant. Research (Fadilla & Purnamasari, 2021) and (Luhfiana et al., 2022) confirm that inflation affects economic growth through the mechanism of increasing demand for goods and services and production costs.

Controlled inflation will encourage price stability and people's purchasing power, which in turn contributes to increased consumption and investment. When inflation is at a moderate level, consumers tend to feel more confident in spending, as they are not worried about significant price increases. This encourages more purchases of goods and services, which increases overall economic activity. In addition, producers can better plan production, avoid unexpected spikes in production costs, thereby improving efficiency and economic output. Conversely, high inflation can reduce purchasing power and suppress consumption. When the price of goods and services rises significantly, consumers become more cautious in spending, which can reduce the total demand in the market. This can lead to a decline in production and slower economic growth. Additionally, high inflation can increase borrowing costs as interest rates tend to rise to offset rising prices, reducing investment in new businesses and projects. Likewise, lower interest rates will encourage investment, which in turn increases economic growth. Low interest rates make borrowing costs cheaper for businesses and individuals, encouraging to take out loans for investment in new ventures, business expansion, or property purchases. These investments in turn create jobs, increase incomes, and encourage consumption, all of which contribute to faster economic growth.

Broadly speaking, these findings emphasize the importance of fintech innovation as the main driver of economic growth in Indonesia. E-money shows a more direct and significant impact than P2P lending. E-money has proven to play a significant and significant role in improving financial inclusion, transaction efficiency, and accessibility to financial services. With the increasing use of e-money, more individuals and businesses across the country can access financial services easily and securely. This directly increases participation in the formal economy, which has a positive impact on overall economic growth.

Given the huge influence of fintech on key components of the economy such as consumption and investment, encouraging the development of the fintech sector through supportive regulations and adequate infrastructure is crucial to achieving sustainable and inclusive economic growth in Indonesia. Proper regulation can create an environment conducive to fintech innovation and growth, while adequate infrastructure ensures that digital financial services are accessible to all levels of society, including those in remote areas.

This is in line with the general view in the literature that technological advancements, including fintech, are a key factor in accelerating the rate of economic growth and creating a more dynamic economy. Fintech not only improves the efficiency of the financial system but also paves the way for the innovation of new financial products and services that are more affordable and easy to use. The use of e-money and other fintech platforms allows people to better manage their finances, reduce transaction costs, and increase confidence in the financial system. As such, fintech has great potential to address some of the economic challenges faced by developing countries, such as low financial inclusion and limited access to financial services.

V. CONCLUSION AND RECOMMENDATION

This study aims to examine the significant influence of fintech, especially P2P lending and e-money, on economic growth in Indonesia. The results show that overall, fintech, inflation, and interest rates together have a significant influence on economic growth in Indonesia, with a significance value of 0.000 based on the F test. Partially, e-money is proven to have a significant influence on economic growth with a significance value of 0.000, which indicates that the adoption of e-money accelerates the transaction process and improves economic efficiency. These findings are in line with the Neoclassical Economic Growth Theory which emphasizes the importance of technological advances in driving productivity and innovation. The use of e-money facilitates faster, safer, and more efficient transactions, as well as increases financial inclusion, ultimately driving economic growth. According to The General Theory, the increase in consumption and investment resulting from the use of e-money increases the circulation of money in the economy, strengthening economic growth.

In contrast, P2P lending did not show a significant partial effect on economic growth, with a significance value of 0.590. Factors such as uneven technology adoption and regulatory challenges appear to be the main culprits. While P2P lending can improve access to financial services for individuals and small businesses, its impact on economic growth has not been significant at this early stage of adoption. P2P lending also carries a higher risk to financial stability, which can affect bank stability and overall economic growth. In addition, the existence of disparities shows that P2P lending is more channeled for consumption than for productive activities that support economic growth. This suboptimal credit distribution reduces the potential contribution of P2P lending to economic growth.

The findings of this study have important implications for various parties. For the government, the results of this study provide a strong foundation to formulate policies that support the development of the fintech sector, especially e-money, which has been proven to have a significant positive impact on economic growth. Supportive policies and adequate infrastructure will facilitate innovation and strengthen the fintech ecosystem in Indonesia. For fintech companies, these findings provide valuable insights to direct business strategies, identify new opportunities in the use of e-money, and increase their contribution to economic growth. This research also emphasizes the importance of overcoming the obstacles faced by P2P lending to maximize its potential contribution to the economy.

Broadly speaking, this study confirms that fintech, especially e-money, plays an important role in improving financial inclusion, transaction efficiency, and economic growth in Indonesia. With the wider development and adoption of fintech, especially in underserved areas, as well as supportive regulations, fintech has great potential to become a key driver of sustainable and inclusive economic growth in Indonesia. The results of this study support the view that technological advancement, including fintech, is a key factor in accelerating the pace of economic growth and creating a more dynamic economy. Innovations in fintech not only improve the efficiency of the financial system but also pave the way for new financial products and services that are more affordable and accessible to the wider community.

This study found that P2P lending did not show a significant influence on Indonesia's economic growth partially. This is due to several factors such as uneven technology adoption and complex regulatory challenges. In addition, the use of P2P lending is more channeled for consumption than for productive activities that support economic growth. This disparity reduces the potential contribution of P2P lending to optimal economic growth. This research was also conducted in a relatively short period, namely from 2018 to the first quarter of 2024. This short time is not enough to observe the long-term impact of fintech on economic growth. Significant impacts in the economy typically take longer to materialize, especially when it involves the adoption of new technologies and changes in people's financial behavior. In addition, this study uses limited control variables, covering only inflation and interest rates. In fact, there are many other factors that can affect economic growth, such as the unemployment rate, foreign investment, and others. This limitation can reduce the accuracy of research results in isolating the influence of fintech on economic growth.

To improve the accuracy and relevance of the data used, it is recommended to perform a more detailed separation related to P2P lending data. A more in-depth analysis can help identify whether the funds channeled through P2P lending are used for consumption or productive activities. This approach can provide a clearer picture of the contribution of P2P lending to economic growth. In addition, extending the research period will allow the observation of the long-term impact of fintech, particularly P2P lending and e-money, on economic growth. With longer periods, researchers can identify more stable trends and changes and measure impacts more comprehensively. Adding a wider range of control variables in the study will also help in understanding the influence of various factors on economic growth. Variables such as the unemployment rate, foreign investment, and others should be considered to provide more accurate research results. This approach will help better identify the influence of fintech and provide deeper insights into how various factors interact and influence economic growth.

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