The Relationship Effect of Digital Finance on Financial Stability

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Abstrak

Untuk mencapai tujuan finansial inklusi, yaitu meningkatkan pertumbuhan ekonomi dan kesejahteraan masyarakat, sebagian besar dimungkinkan oleh keuangan digital. Dengan meningkatnya perdagangan elektronik (e-commerce) dan teknologi finansial (fintech), pembayaran digital-salah satu komponen utama keuangan digital-menjadi semakin penting. Selain keuntungan-keuntungan tersebut, terdapat kekhawatiran bahwa keuangan digital dapat memperburuk risiko sistemik dan merusak stabilitas sistem keuangan. Tujuan dari penelitian ini adalah untuk memastikan bagaimana variabel-variabel risiko berhubungan dengan stabilitas keuangan dan hubungan keuangan digital. Selama sepuluh tahun (2010 hingga 2019), 120 sampel data panel digunakan dalam penelitian ini dengan menggunakan Model Regresi Linier Berganda dan Moderating Regression Analysis (MRA). Peningkatan risiko sistematis akan mengurangi efek menguntungkan dari keuangan digital terhadap stabilitas keuangan, karena hasil penelitian menunjukkan bahwa risiko pasar dapat mengurangi manfaat keuangan digital terhadap stabilitas keuangan.

Kata kunci: Keuangan Digital, Pembayaran Digital, Risiko Sistematis, Stabilitas Keuangan, Inklusi Keuangan

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INTRODUCTION

Financial inclusion is now a goal that all nations must meet as it is thought to have a favorable effect on societal welfare and economic progress. Researchers are therefore interested in these new topics, which include studies and conversations about the significance of financial inclusion for social welfare and economic growth (Pazarbasioglu et al., 2020; Durai & Stella, 2019; Akinwale et al., 2018; Ozili, 2018; Bruhn & Love, 2014; Cardona et al., 2013; Beck et al., 2007).

Every member of the community must have access to a range of high-quality, cost-effective, and efficient financial services in order for there to be financial inclusion. By making financial services products more accessible to the general public, we may further reduce economic and social inequality in the society and spur economic growth, all of which are projected to boost community welfare. Digital finance, or financial products and services that use internet technology to make it easier for people to directly access various forms of payments, shopping, savings, and investments, including loan and credit facilities, is one way to work toward this financial inclusion target. The payment facility is the aspect of these digital financial components that is developing the fastest and has the biggest impact on reaching

financial inclusion goals. Thus, we shall concentrate on digital payment services in this study. The majority of nations began introducing digital payments through non-cash or payment electronification initiatives, which eventually evolved into integrated digital payment instruments. The substantial expansion of online stores (e-commerce) and the existence of financial technology (fintech) have accelerated the usage of digital payment systems as one of the primary components of digital finance. Although this requirement is highly beneficial in reaching the goal of financial inclusion, its potential effects on financial stability have drawn criticism from a number of sources, including academics and monetary authorities. It is hoped that expanding the use of digital payments as the primary component of digital finance and promoting financial inclusion won't negatively affect the financial stability that the monetary authority is always required to uphold, but rather that it will be able to assist authorities in doing so. Researchers have been drawn to this area by the persistent concerns over the detrimental effects of digital money on financial stability (Pazarbasioglu et al., 2020; Nelson, 2019; Ozili, 2018; Nelson, 2018). In relation to the concern about the detrimental effects, as well as a new factor—risk factors—that has surfaced in relation to the discussion of how digital finance affects financial stability. Since the significance of this risk factor has not received much attention in previous research on the subject, it will be taken into account as a moderating variable in this study on the impact of digital finance on financial stability. Therefore, this research on the impact of digital money on financial stability is distinct and current.

METHODOLOGY

1. Financial Stability

Bank Indonesia defines financial system stability as a condition that allows the national financial system to function effectively and efficiently and is able to withstand internal and external vulnerabilities, so that the allocation of sources of funding or financing can contribute to growth and national economic stability. There is no standard definition for financial stability or financial system stability (BI, 2020). A stable financial system, in the opinion of the World Bank, can effectively allocate resources, evaluate and manage financial risks, keep employment levels near the natural rate of the economy, and prevent relative price movements of real or financial assets that could jeopardize monetary stability or employment levels (World Bank, 2020). According to BI (2020), the financial system is made up of people, non-financial businesses, financial markets, financial institutions, and financial infrastructure that collaborate to support and/or provide financing for economic growth. The difficult global business environment has pushed banks all over the world to be creative and use alternative delivery channels like Internet banking and mobile banking. This relationship between digital finance and financial system stability is tied to financial infrastructure (Redda & Surujlal, 2017). People may now more easily access many forms of payments, savings, credit, and even investments thanks to internet technology. Because of its convenience, there has been a rise in the demand for finance, which is good for the economy. However, if the expansion in financing is attained by lowering loan conditions, using a lot of leverage, and having insufficient collateral value, this might have a direct impact on financial stability (Utari et al., 2012). According to Nelson (2018), the health of the payment system is crucial for financial stability, hence growing payment service activities will also have an effect on it. There are numerous measures of financial stability, and while banks are not the only financial institution in the financial system, they are by far the most important. As a result, the majority of measures of financial stability focus on measures of the health of the banking industry. Micropru- dential indicators are the means by which the internal bank is evaluated as an indicator. Conversely, an evaluation of macroeconomic indicators—sometimes referred to as micro-prudential indicators—is also conducted. Despite going by various names, including

the Banking Stability Index, Financial Stress Index (FSI), Financial Stability Index, Monetary Conditions Index (MCI), Financial Conditions Index (FCI), and the Financial Stability Condition Index (FSCI), several monetary authorities and governments have actually developed an index as a measure of the stability of the financial system. Since the FSI data is unavailable for this study, data on the proportion of loans available or the growth of bank loans will be used to measure the financial system stability in Indonesia,

which also has a Financial Stability Index (FSI).

2. Digital Finance

Researchers and industry professionals continue to define digital finance differently, and governments and monetary authorities also have differing definitions of the term. These definitions include the classification of payment data, some of which are still integrated with electronic transactions (PBI, 2018; Ramli, 2020). Financial services provided through mobile devices, desktop computers, the internet, mobile wallets, e-wallets, credit cards, and debit cards are together referred to as digital finance (Manyika et al., 2016; Durai & Stella, 2019). Digital financial services are defined as financial services (like payments, remittances, and credits) that are accessed and sent via digital channels, such as mobile devices and pre-existing instruments (like debit and credit cards) that are primarily offered by banks (Pazarbasioglu et al., 2020). Meanwhile, digital finance, as defined by Ozili (2018), is any combination of infrastructure, technology, services, and/or products that allow people and businesses to access credit, savings, and payment facilities online without having to go to bank branches or deal directly with financial service providers. The most recent technical advancements have led to the inclusion of financial technology (fintech) in the category of digital finance. Fintech provides a range of investment products, including equities, commodities, financial derivatives, and digital gold, which is a type of gold. In addition to facilitating peer-to-peer lending and crowdfunding, fintech companies also act as a financial marketplace, connecting lenders and borrowers directly. However, this role as a financial marketplace—a digital financial component that promotes financial inclusion—is still up for debate. In addition, given that cryptoassets are purportedly a very effective and efficient form of payment (cryptocurrency), it is possible that in the future, cryptoassets will be seen as a component of digital finance that promotes financial inclusion. is still up for debate as to whether cryptocurrency assets qualify as commodities or currencies, but has evolved into an unofficial mode of payment in a number of wealthy nations. Because industrialized nations had access to sufficient infrastructure and technology, digital financial transactions were initially utilized there. Consequently, earlier research was conducted mostly in industrialized nations like the United States (Scott et al., 2017; Jakubik & Moinescu, 2015; Buchak et al., 2018; Wolfe & Yoo, 2018; Jagtiani & Lemieux, 2018; Tang, 2019) and Germany (Bömer & Maxin, 2018). However, due to the uneven distribution of technological advancements and the low cost of internet access in developing nations, digital financial transactions are currently becoming more and more common in these regions (Kanobe et al., 2017; Ramli, 2020). Additionally, there is a shift from a conventional to a digital economy in contemporary finance, with the payment system changing from being based on paper and metal and currency (checks, bilyet giro, credit/debit notes) to being based on cards and the internet (Ozili, 2018; Goldfarb & Tucker, 2017). Fintech firms, internet and mobile banking, smartphone-based payment apps (mobile payment), and e-commerce are all common in emerging nations with sizable people and vast territory. The lifestyle and business model have altered as a result of digital financial technology; purchasing and selling through stores, shophouses, or malls is no longer appealing nor productive. Since digital payment services are where digital finance first emerged and is currently expanding quickly, this study's focus on digital finance will be on these services. Because banking is the primary financial institution in the financial system, the impact of

digital finance on it may be used to study the link between digital finance and financial stability. Due to the dearth of quantitative data sources, there aren't many research on this subject, and the results are inconsistent. Some of the studies still employ a qualitative methodology. Numerous studies, including the empirical research of Nugroho et al. (2020), Tang (2019), Buchak et al. (2018), Romānova and Kudinska (2016), demonstrate the detrimental effects of digital finance, particularly fintech and peer-to-peer lending, on banking performance and financial stability. Conversely, the impact of digital payments in this context on financial stability is favorable for banking performance, aiding banks in lending, extending the reach of financing, and assisting consumers in switching from cash to non-cash payments. Research by Scott et al. (2017) indicates that implementing network-based technology infrastructure and a set of standards for network communication (SWIFT) has a significant impact on banking performance in 6848 banks across 29 European and American countries. These findings support Ozili's (2018) claim that digital financial services have a long-term positive effect on banking performance. According to Li et al. (2017), US retail banks' stock returns and the amount of financing and transactions in fintech startups rise together. According to Juengerkes' (2016) research, banks and fintech firms may work together to increase client trust and perhaps have complimentary impacts. Since governments, financial institutions, and monetary system regulators all employ technology for reporting and data bases, digital finance can aid in the exercise of control by offering quicker early warnings. Thus, the idea that digital finance has a beneficial impact on the stability of the financial system might be put out.

3. Systematic Risk

Digital finance is another example of the financial sector's globalization, which is made possible by technological advancements. While this phenomenon is beneficial for reaching financial inclusion goals, which are helpful for boosting economic growth and public welfare, it has also resulted in the emergence of an integrated financial system that transcends national boundaries. In macroeconomic terms, this may increase the causes of potential financial system instability (Mörttinen et al., 2005). Because of the interconnection of these linked financial activities, problems in one business can be swiftly spread to other entities within the network. This phenomenon is known as the "chain effect." In other words, digital financial developments that are expected to help financial system stability will be diminished by increasing macroeconomic risk or systematic risk. This is because financial system instability in other countries can be easily transmitted and destabilizes the financial system in any country. Similarly, if systemic risk rises, so too will digital finance's detrimental effects on financial stability. As a result of the interplay of size factors, business complexity, inter-institutional linkages and/or financial markets (interconnectedness), and excessive behavioral tendencies from financial actors or institutions to follow the economic cycle (procyclicality), there is a risk of contagion in part or all of the financial system, which is known as systemic risk (PBI, 2014). The impact of macroeconomics, in this instance monetary indicators, on financial stability is linked to three routes of transmission for monetary policy, according to Hodula & Pfeifer (2018): the asset-price channel, the bank-lending channel, and the balance-sheet channel. studies on market risk, sometimes referred to as systematic risk. Researchers, academics and practitioners alike, continue to find the risk of transmission associated with the health of banks or financial stability in particular, to be a fascinating issue. According to the findings of studies conducted in 2010 by Gai and Kapadia, 2013 by Caballero and Simsek, and 2011 by Minoiu and Reyes, very complex networks have the potential to raise more transmission risk. This study's second hypothesis is that systematic risk may act as a mediator between the impact of digital finance and financial stability.

The panel data used in this study spans a ten-year period, from 2009 to 2019. 120 samples over a ten-year period were taken from Bank Indonesia data sources. Univariate linear regression and moderating regression analysis (also known as multiple regression analysis, or MRA) are the data analysis techniques employed. Eviews software is the analytic tool.
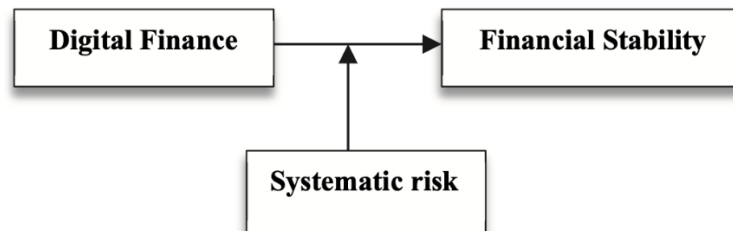

Figure 1 Conceptual Framework

RESULT AND DISCUSSION

First, the data that satisfies the requirements is chosen, and then the variable formula in question is used to compute the tabular data for each variable value. Due to the panel nature of the data, a panel data regression strategy must be used, and the Chow, Hausman, and Lagrange Multiplier (LM) tests must be employed. A model fit test and hypothesis testing must come next.

Table 1 Panel Data Regression Model Selection

Testing	Indicator	P-Value	Selected Model
Chow Test	Cross-section Chi-square	0.0000	Fixed Effect
Hausman Test	Cross-section random	0.0454	Fixed Effect

Lagrange Multiplier (LM) testing does not need to be done because the results of the Chow test and the Hausman test show that the appropriate model is the fixed effect model (FEM), while the LM test is used to select the appropriate model between the fixed effect model or the random effect model. The EViews output for the fixed effects model is summarized in the following table:

Table 2 Summary of Panel Data Regression

Dependent Variable: Y			
Variable	Coefficient	t statistics	p-value
C	546236.4	14.87255	0.0000
X	183499.7	0.824770	0.0414
XM	-180030.6	-0.808364	0.0427

The influence of digital finance on financial stability. The regression coefficient of variable X is 183499.7, this digital finance has a positive effect on financial stability of 183499.7 units of financial stability. The probability value for variable X is 0.04114; this value is smaller than 0.05; Thus it can be concluded that digital finance affects financial stability. This finding shows that the increase in digital financial activities, which is proxied by the volume of digital payments using the internet, will cause an increase in financial stability as measured by the increase in loan growth, because banks will be motivated to increase financing. This finding supports the opinion of Ozili (2018) that digital financial services have a positive effect on banking performance, this finding also supports the findings of Scott et al. (2017) and Li et al. (2017) and the opinion of Juengerkes (2016). However, these findings do not support the results of Tang (2019), Buchak et al. (2018), Romānova and Kudinska (2016), this difference in findings is possible due to differences in methodology used, especially data and proxies, where their research focuses on fintech that organizes peer-to-peer lending, as well as the independent variable is banking performance. Multiple Regression Analysis / MRA, it is known that the regression coefficient X and Y without a moderating variable (M) is +183499.7, then after being multiplied by the variable M, the coefficient value is reduced by -180030.6. This shows that the variable M can be a moderating variable, its effect is to weaken the effect of digital finance (X) on financial stability (Y).

$$Y= 546236.4 + 183499.7 X - 180030.6 XM \quad (5)$$

In case of increasing systematic risk, internet-based payments (digital payments) will no longer increase bank loan growth, because banks will be careful in financing (loan reduction) to increase their liquidity reserves. The findings of this study support the results of research and research opinions regarding systematic risk, especially the risk of transmission related to banking health or financial stability, the results of the study support the empirical findings of Gai and Kapadia (2010), Caballero and Simsek (2013), Minoiu and Reyes (2011). The scope of digital finance is quite broad, in this study it only focuses on payments so that it cannot represent digital finance as a whole. Likewise, financial stability has a variety of indicators that can be used, while the

research only uses indicators growth in bank loans. This limitation can be a suggestion for further research using different proxies.

CONCLUSION

Digital finance has a positive impact on financial stability by increasing the ability of banks to provide financing, so that the availability of bank loans tends to experience growth. However, the positive influence of digital finance on financial stability will decrease with increasing systematic risk, increasing digital payments as the main element of digital finance can no longer automatically support the growth of banking financing, this happens because banks anticipate systematic risks by reducing loans. Increased systematic risk will have an impact on financial system instability, in such conditions the banks will have liquidity difficulties and even lack of liquidity, therefore by reducing credit availability when there is an increase in systematic risk, banks will have sufficient liquidity in the event of financial system instability or there was a financial crisis caused by systematic risk.

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