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http://hdl.handle.net/11159/6193

The Effect of Regulation, Collaboration, and Financial Literacy on Financial Technology Adoption

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The purpose of the study to determine the effect of regulation, collaboration, and financial literacy on the adoption of financial technology for Small and Medium Enterprises. This research was conducted based on a causal design to analyze the relationship between regulatory, collaboration, financial literacy, and adoption of financial technology through hypothesis testing. The research sample involved 95 small and medium-sized businesses in East Java, Indonesia. The sampling method uses purposive sampling with the following criteria: (1) A minimum of 5 employees and a maximum of 99 employees; (2) Businesses use financial technology applications, namely OVO, GoPay, DANA, or LINK; (3) Businesses are carried out in the East Java region. This research uses Partial Least Square (PLS) analysis technique. Results show that regulation has a significant effect on financial literacy. Moreover, collaboration has a significant effect on financial literacy. Additionally, financial literacy has no significant effect on the adoption of financial technology and regulation does not significantly influence the adoption of financial technology. Furthermore, collaboration has a significant effect on the adoption of financial technology. Regulation and collaboration can be used to support increasing financial literacy for small and medium businesses. The higher level of understanding of the regulation and implementation of the collaboration carried out will increase financial literacy and can support the adoption of financial technology for small and medium businesses. This study uses regulatory and collaborative variables that have not been studied much in relation to financial literacy. On the other hand, not many studies have examined the relationship of financial literacy to the adoption of financial technology.

Keywords: regulation, collaboration, financial literacy, financial technology adoption, small and medium business

JEL Classification: D01, G20, G40

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1. Introduction

The increasing financial literacy of the people of Indonesia, the long-term investment and placement of capital in various productive sectors will increase. Three development priorities can be driven by the use of financial technology. First, capital mobilization increases the economic activity of underserved groups, such as Low-Income Communities and Small and Medium Enterprises (SMEs). Second, mobilizing money to finance basic infrastructure, such as sanitation and electricity. Third, mobilization of funds to encourage sustainable infrastructure development, such as clean energy, and or finance important innovations in the context of increasing agricultural and fisheries production. At present the SMEs have adapted to the 4.0 industrial revolution that is happening. The most dominant thing is seen through financial technology used by SMEs. Therefore, financial technology can be a solution as revealed by Arner et al. (2015) that financial technology is broadly the technology used to deliver financial solutions. Another interesting thing is that financial technology can cause disruptive innovation if it is not well anticipated by the business world which can cause a collapse. Therefore, the use of financial technology is proven to be able to provide greater access to formal financial services, encourage economic growth, and inclusive and sustainable development. The challenge for Indonesia is to make the process of development and public service adaptive to the development of financial technology. (Chinen and Endo, 2012) state that individuals who have the ability to make the right financial decisions will not have financial problems in the future and that proves sound financial behavior and is able to determine the priority scale of needs rather than wants. The several factors that influence this aspect are the social environment, parental behavior, financial education, and individual experience of finance. Based on the Deloitte Consulting Survey and the Indonesian Fintech Association in 2016, there are three things that drive the application of financial technology in Indonesia, namely clearer regulation, collaboration, and especially financial literacy (Fintechnews Singapore, 2016). Therefore, the purpose of this research is to find out regulations, collaboration, and financial literacy towards the adoption of financial technology for SMEs in East Java, Indonesia.

2. Literature Review

2.1. Financial Technology (Fintech)

Fintech is a new financial technology product that is able to facilitate a variety of transactions, from payments to investments to insurance (Teja, 2017). The technology substitution process in it is far better for encouraging long-term investment and capital placement in various productive sectors (Rong et al., 2013). Easy features will produce a high level of comfort so that the successful application of fintech can be optimized. The biggest challenge in developing financial innovation is a superior product whose function is accepted in the habit of using the user's daily payment system without changing user habits (Teja, 2017). This fintech illumination will achieve the goals of user convenience, user comfort, and be able to also minimize the cost of money creation to various credit cards that are more familiar among users (Teja, 2017). These tools make life easier, however, they pose a serious threat to banks, services should be created more convenient and useful for retaining clients. Financial technology also influences online trading. Many studies examine consumer confidence in online trading (Bock et al., 2012; Hong and Cha, 2013; Lin et al., 2014). In addition, research related to impulsive buying behavior by (Chen and Yao, 2018), then research on measurement of e-commerce services by (Das et al., 2019) and basic analysis of business websites by (Ha et al., 1998).

2.2. Regulation

Empirically users will consider factors that influence the expectations of both users and organizations in adopting fintech, including customer trust, data security, added value from fintech itself. Clear regulations will increase customer confidence, data security and user design appearance which influence the application of fintech (Stewart and Jürjens, 2018). Today, many countries have specialized institutions to control companies in the financial markets. This fintech market is growing rapidly, followed by the emergence of new business start-ups every month, but on the other hand there is still no clear legal regulation from the government related to the development of this financial technology. Financial technology is developing so fast that it is difficult to manage all the innovative features of legal control (Kalmykova and Ryabova, 2016). Many studies argue that the government should answer significant regulatory challenges (Philippon and Philippon, 2019). Clarity of regulation can serve as a basis for an asset-based non-debt financing system (A. Graff, 2013). The financial structure is intended to avoid the long-term contractual arrangements between property buyers and property investors in addition to long-term leases of ownership rights to money by property buyers (A. Graff, 2013).

2.3. Collaboration

Collaboration with other companies in a business ecosystem will produce competence to achieve a minimum critical mass of adopters and higher probability so that innovative financial-related products will be able to be successfully implemented (Teja, 2017). Thus, the company needs to overcome these problems by becoming a leader in a business ecosystem through collaboration. The business and government ecosystems need to maintain this active role collaboration to encourage the development of Fintech collaboration in and throughout the business ecosystem. Therefore, transforming users into developers can open up new opportunities (Overholm, 2015; McKelvey et al., 2015). Furthermore, binding a user network and changing the user's role to become a developer assumes the company will get more acceptance (Lu et al., 2014). Thus the company needs to overcome these problems by becoming a leader in a business ecosystem through collaboration. By binding a user network and changing the user's role into a developer, the assumption is that the company will get more acceptance (Lu et al., 2014). Transforming users into developers can open up new opportunities (Overholm, 2015; McKelvey et al., 2015).

2.4. Financial Literacy

Research related to financial literacy has been carried out by several researchers (Chen, H. and Volpe, 1998; Rohrke and Robinson, 2000; Gutter and Copur, 2011; Henager and Mauldin, 2015; Widyastuti et al., 2016; Fiksenbaum et al., 2017; Firli, 2017; Bhatt, 2017; Gerhard et al., 2018). The potential impact of fintech on the financial industry, to create stability and access to services (Philippon and Philippon, 2019). Some financial and startup sectors see this fintech as a gateway to increase business opportunities but on the other hand, there are also security threats increasing rapidly and have become a challenge for fintech users if users are not equipped with a good understanding of financial literacy (Stewart and Jürjens, 2018). The biggest challenge in developing financial innovation is a superior product whose function is accepted in the habit of using the user's daily payment system without changing user habits (Teja, 2017). The potential of fintech in the financial industry to create stability and access to services (Philippon and Philippon, 2019). Therefore, the technology substitution process is far better for encouraging long-term investment and capital placement in various productive sectors (Rong et al., 2013). Financial literacy research has also been linked to loan management in multiple studies (Kotzé and Smit, 2008; Huston, 2012; Allgood and Walstad, 2013; Lusardi and de Bassa Scheresberg, 2015). In addition, financial literacy is also associated with gender, among others: (Lusardi and Mitchell, 2008; Yu et al., 2015; Potrich et al., 2015). On the other hand, financial literacy is also associated with capital markets (van Rooij et al., 2011) and small and medium businesses (Eniola and Entebang, 2015a; Eniola and Entebang, 2015b; Eniola and Entebang, 2017; Engström and McKelvie, 2017; Agyei, 2018; Akhtar and Liu, 2018; Mabula and Ping, 2018).

3. Research Premises

This study examines the influence of regulation and collaboration that will affect financial literacy. This happens because literacy is influenced by correct understanding of regulations and well-done collaboration. The increased ability of financial literacy will accelerate the adoption of financial technology which is currently developing very fast. In this study a hypothesis was developed related to the effects of regulation, collaboration, and financial literacy on the adoption of financial technology with financial literacy as an intermediate variable. There are five hypotheses in this study, namely:

H_1: Regulation has a significant effect on financial literacy
H_2: Collaboration has a significant effect on financial literacy
H_3: Financial literacy has a significant effect on the adoption of financial technology
H_4: Regulation influences the adoption of financial technology
H_5: Collaboration Affects the adoption of financial technology

4. Research Methodology

The research conducted is a causal design, which is to analyze the relationships between regulatory variables, collaboration, financial literacy, and financial technology adoption through hypothesis testing. The sample in this study was 95 SMEs. This study used a purposive sampling method with criteria, namely: (1) Having a minimum of 5 employees and a maximum of 99 employees; (2) Businesses run using fintech applications, namely OVO or GoPay or FUND, or LINK; (3) Businesses are run in the East Java Region. To test the proposed hypothesis, the variables examined in this study were classified into dependent variables, independent variables, and mediating variables. This research uses partial least square (PLS) method.

Evaluations in PLS include evaluating inner models or structural models (Campbell and Fiske, 1959; Fornell and Larcker, 1981; Hair et al., 2011; Hair et al., 2014).

5. Analysis and Results

The discriminant validity test is assessed by comparing the square root of the average variance extracted (AVE) with the correlation between constructs or it can also be by comparing the loading of the construct as measured by the loading of other constructs (Sholihin and Ratmono, 2013). Table 1 presents the results of testing the discriminant validity of the constructs in the study.

***Table 1**. Correlations between Latent Variables*

	CL	RG	FL	IAF
CL	0.822	0.723	0.652	0.715
RG	0.723	0.843	0.657	0.659
FL	0.652	0.657	0.789	0.595
IAF	0.715	0.659	0.595	0.779

Source: processed data 2020

The next test is reliability is measured using composite reliability and Cronbach alpha. The rule of thumb of composite reliability and Cronbach's alpha is greater than 0.60 (Werts et al., 1974) presented in Table 2. The next test is the evaluation of structural models. Evaluation of structural models in SEM-PLS using the coefficient of determination (R^2) and Q-Squared values can be shown in Table 2.

***Table 2.** Coefficient Test Results*

Coefficient	CL	RG	FL	IAF
Composite reliability	0.912	0.925	0.831	0.939
Cronbach's alpha	0.880	0.898	0.698	0.928
AVE	0.676	0.710	0.622	0.607
R^2			0.497	0.564
Q-Square			0.295	0.327

Source: processed data 2020

In Table 3 and Figure 1 shows the results of the hypothesis being tested. This research proposes four hypotheses. The hypothesis in this study is said to be accepted if it has a p-value <0.05 (significant at the 5% level). The results show that the first hypothesis namely regulation has a significant effect on financial literacy. The second hypothesis shows Collaboration has a significant influence on financial literacy. The third hypothesis shows that financial literacy does not have a significant influence on the adoption of financial technology. The fourth hypothesis shows that regulation does not have a significant influence on the adoption of financial technology. Next, the fifth hypothesis shows that collaboration has a significant influence on the adoption of financial technology.

***Table 3.** Path Evaluation Results*

Path	Coefficient	T-Statistics	P - Values	Conclusion
Regulation (RG) -> Financial Literacy (FL)	0.328	3.751	0.000*)	Received
Collaboration (CL) -> Financial Literacy (FL)	0.388	3.336	0.001*)	Received
Financial Literacy -> Intention to Adopt Fintech (IAF)	0.119	1.298	0.195	Rejected
Regulation (RG) -> Intention to Adopt Fintech (IAF)	0.263	1.959	0.051	Rejected
Collaboration (CL) -> Intention to Adopt Fintech (IAF)	0.406	3.680	0.000*)	Received

Note: *) sig 0.05
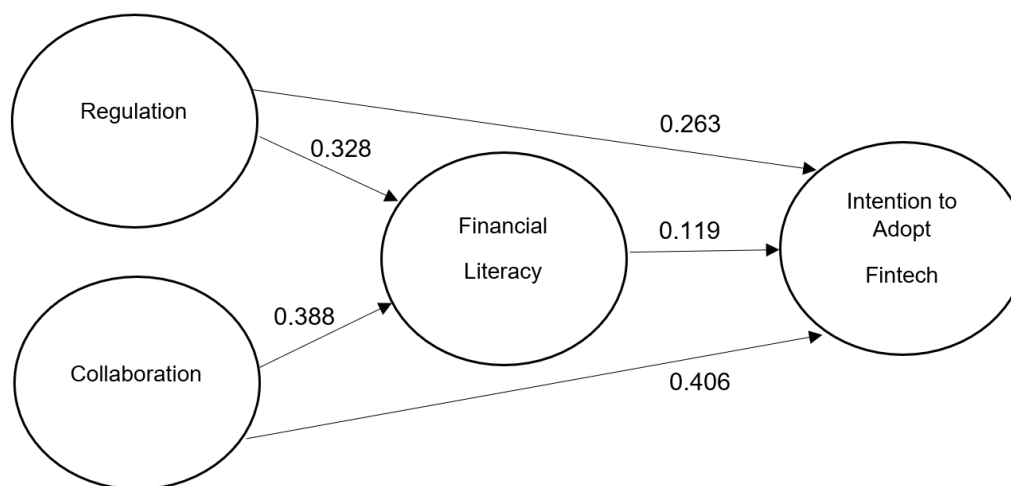
Source: processed data 2020

Figure 1. *Full Model – standardized estimates*
Source: data processed, 2020

The results of hypothesis testing presented in Table 3 show the p-value and coefficient of the regulatory path to financial literacy of 0.328 and with a significance level of 0.000 (significant <level of 5%). These results indicate that Hypothesis 1 was accepted. The higher the understanding of regulations when applied by SMEs, the higher the ability in financial literacy. The p-value and the path coefficient of collaboration to financial literacy are 0.388 and with a significance level of 0.001 (significant <level 5%). These results indicate that Hypothesis 2 is accepted. The higher the ability of collaboration by SMEs, the higher the ability of financial literacy. The p-value and coefficient of financial literacy path to the adoption of financial technology are 0.119 and with a significance level of 0.195 (significant <level 5%). These results indicate that Hypothesis 3 was rejected. For the p-value and the coefficient of regulatory path to the adoption of financial technology of 0.263 and with a significance level of 0.051 (significant <level of 5%). These results indicate that Hypothesis 4 was rejected. Furthermore, the p-value and the coefficient of collaboration path towards the adoption of financial technology are 0.406 and with a significance level of 0.000 (significant <level 5%). These results indicate that Hypothesis 5 is accepted. The higher the ability to collaborate by SMEs, the higher the ability to adopt financial technology.

6. Discussion and Conclusion

The results of this study indicate that regulation and collaboration have a strong influence in supporting understanding in financial literacy. This is an important finding that regulation and collaboration need to be considered for the success of financial literacy for small and medium business actors. On the other hand, the results of this study found that collaboration has a strong influence in adopting financial technology. This shows that the role of collaboration between parties, namely the government, business actors, and consumers is important to support success in the adoption of financial technology. The study also found that regulation did not affect the adoption of financial technology. This is allegedly because regulations relating to financial technology are still relatively new and unclear for business actors. In addition, this study also found that financial literacy does not affect the adoption of financial technology. This can be caused because the understanding of financial literacy has not been associated with financial technology. Developments related to technology-based financial literacy will actually be very helpful for small and medium businesses in supporting optimal productivity and results. Clear regulations will increase customer confidence, data security and user design appearance which influence the application of fintech (Stewart and Jürjens, 2018). Many studies argue that the government should answer significant regulatory challenges (Philippon and Philippon, 2019). Some potential risks that may arise in the fintech business process are fraud and data security risks (cybersecurity).

The success rate of fintech plays an important role for the development of the economy to better serve customers, a higher level of comfort and lower costs. Otoritas Jasa Keuangan (OJK) added that the banking industry in the future will move virtually without the presence of banks physically (OJK, 2017). This business ecosystem can help the continuation of old technology for a longer time, when companies focus on facing the big challenges of the emergence of ecosystems to commercialize new technologies (Rong et al., 2013). Requires a good level of knowledge and understanding to decide on financial management in accordance with priority (Chinen and Endo, 2012). This priority scale then compares the needs and desires (Chinen and Endo,

2012). The technological element in fintech terms has become key in handling financial processes (Alt et al., 2018). Thus, the company needs to overcome these problems by becoming a leader in a business ecosystem through collaboration. By binding a user network and changing the user's role into a developer, the assumption is that the company will get more acceptance (Lu et al., 2014). Transforming users into developers can open up new opportunities (Overholm, 2015 and McKelvey et al., 2015). The prospect of its application will grow faster than competitors when using collaboration between industry and the business ecosystem. The digital sector is considered as a strategic means for transferring knowledge and technology that offers new market opportunities for companies to develop and come up with various other innovative ideas. This rapid growth fundamentally formulates theories about innovation management that have an impact on company performance. New technology has dramatically affected the competitiveness of today's business environment. Adoption of digital financial services needs to guide organizational design and planning activities, highlighting the needs and value of human capital and the ability of companies and the time required for their development to be discussed with policies and regulations (David-West et al., 2018).

This research is limited to small and medium-sized businesses in East Java, Indonesia, which have certain business characteristics. In addition, the number of samples is still limited. This study also examines the relatively new relationship so that there are not many references to support the results of this study. Future research can examine with a qualitative approach to find out in depth relating to regulations and collaboration needed to support financial literacy and financial technology adoption. In addition, future research can also compare with conditions before and when covid19 occurs that can obtain different results.

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