

Research Article

The Impact of Payment Systems and Peer-to-Peer Lending on the Performance of SMEs in Indonesia

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Abstract. SME performance has contributed to the establishment and sustainability of the nation's economy. This paper aimed to analyze the effect of payment systems and peer-to-peer lending on the performance of SMEs. A questionnaire was distributed to SMEs in Sumatra, Indonesia, using an area random sampling technique, and 387 respondents were obtained. The study found that payment systems and peer-to-peer lending do affect the performance of SMEs.

Keywords: payment system, peer-to-peer lending, SMEs' performance

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1. INTRODUCTION

SMEs' performance is associated with the company's work standard. The ability to manage a business by the SMEs is important for performances and their continuity. SMEs have an important role in growing the strategic economy and the country. According to [1] a good foundation and performance support a positive influence on the economic sustainability of a nation. Great performance will increase business development. The poor performance is indicated by unplanned work, low sales, unstable production, increase in fixed costs, and unable to serve customers.

Therefore business to have the ability to run good performance, the business performance needs to comprehend definition and goal them. Some of the previous studies give some business performance definitions. For instance, [2] and [3], define SMEs' Performance as an outcome of SMEs' activities or investment in one term. SMEs' performance is also defined as a particular business measured by normative, comprehensiveness, and expense. This performance is also the result of the company's

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activities to gain market and financial-oriented profits. [4]. Business capabilities and prowess are sometimes also used to show the company's performance [5].

According to the Enterprise Survey 2015 and 2018, between 2012 and 2016, SMEs Indonesian had negative annual sales growth, and worst performance namely; high cost, poor profit, and annual sales growth, and less production. The literature on entrepreneurship suggests that financial technologies (payment systems and peer-to-peer lending) are appropriate predictor performances of SMEs [6][7–11].

According to [12], payment systems and peer-to-peer lending are part of financial technology. Financial technology has function as payments, remittances advice, loans payable, and investments. Technology gives high emphasis on SMEs' performance [13]. Financial technology consist of financial services with information technology. Broadly, financial technology is defined as a produce income beyond the existence of technology and financial services [14].

SMEs are easy to access to financial technology. To optimize the function of payment systems and peer-to-peer lending, Governments should engage in financial institutions and business communities related to transactions and to increase financial technology. Financial technology is becoming more modern.

The expansion of payment systems is supported by number of transactions made by the community encouraging the development of payment systems. Payment systems evolved from commodity cash and non-cash payment systems. Payment systems are an important component of the economy. Payment transactions, payment systems, and economic transaction patterns are constantly changing in times.

Less knowledge about the newest production technologies and product quality control affects SMEs' performance. The ability to read the needs of the market is still low worsening performance as well. SMEs have not been able to capture what consumers want, want, and need. Therefore, online promotion through social media needs to be done. It takes good management, administration, and a financial system. SMEs need to pay attention to limited facilities and infrastructure, especially related to financial technology tools. Previous studies have been conducted on performance in Indonesia [15][16][17][18][19].

The company's achievements are important in the company's performance in one period. SMEs' performance is important for all stakeholders and other communities. They will evaluates the SMEs by a financial standard following the objectives of the company concerned. The assessment of the company's performance is done through the ratio of financial statements displayed by the company. [20] A company's performance consists of ratios: liquidity, leverage, activity, profitability, growth, and valuation

which: 1) Liquidity ratio has purpose to measure a company's ability to pay the short-term debt. 2) The leverage ratio measures total debt. 3) Asset management, the activity ratio aims to measure the effectiveness of the company's activities. 4) Profitability ratio measured by effectiveness management. 5) Growth ratio to measure company capacity 6) Goal valuation ratio measures the company's overall performance because this ratio is the return ratio.

2. HYPOTHESES DEVELOPMENT

Financial technology is guided by a mix of financial services and finance technology. Financial technology is defined as the supply of credit through financial technology services by a company [14]. Today banks pay full attention and invest in financial technology to improve the efficiency of financial technology system innovations such as electronic funds transfer sales.

2.1. Payment System on SMEs' Performance

The application of financial technology affects the performance of SMEs. Related to the implementation, the company needs to adjust it according to environmental changes. Digital innovations improve network correspondence [21][22]. [23] it argues that there are surprising results regarding the performance of small banks and SMEs. SMEs need to pay attention to their financial performance because SMEs play an important role in job creation in society.

The existence of financial technology affects the performance of SMEs. Companies need to adjust to changing environments. His findings found that digital innovation improved his network correspondence [21] [22]. [23] think that financial technology experience has a positive impact on the performance of SMEs. Payment systems will achieve the highest performance in finance [24].

According to [25] and [14], there is a positive effect on the Indonesian economy and performance due to the advancement of financial technology developments in Indonesia. So that it can encourage the welfare of the community equally. Technology companies generate payment revenue from transactions. This will improve performance. [9] [26] [27] indicates that online financial developments have a positive impact on profitability (performance), the hypotheses that can be proposed are as follows:

H1: There is a positive effect of the payment system on the SMEs' performance

2.2. Peer-to-peer Lending on SMEs Performance

[28] found that loan repayments affected performance. The interest rate on peer-to-peer lending is low. This will encourage SMEs to lend money rather than borrowing to other institutions. With the loan, SMEs will do profit-generating activities so that it ultimately improves performance. Loans for small businesses are difficult to obtain from banks [30]. The proposed credit is rejected by the lending institution because it is not eligible to meet the requirements. This is one of the real weaknesses in small business financing that is related to performance. Another alternative to lending can be easily obtained through advances in financial technology i.e. peer-to-peer lending. Online loan funds make it easy to make a business. In turn, gaining profits and improving performance.

[30] found that profitability can be improved by running some simple investment rules of the portfolio and providing a good return on credit, however, lenders are careful to lend money to borrowers with some selection criteria. Thus, online loans have a chance of long-term success [26] [31]. The following hypothesis:

H2: There is a positive effect of peer-to-peer lending on SMEs' performance

3. METHODOLOGY

3.1. Population and Sample

The SME population was selected in Sumatra. Sumatra island becomes the the lowest SMEs among the other 5 major islands (Java, Kalimantan, Sulawesi, Papua, and Nusa Tenggara) in Indonesia. The sample is part of the population. Sumatran regions are: Aceh Nangroesalam, North Sumatra, West Sumatra, Riau, Jambi, South Sumatra, Bengkulu, Lampung, Bangka Belitung Islands and Riau Islands. According to [32] at least sample of 384 respondents is sufficient for $\geq 1,000,000$ populations. The sample was taken through area random sampling. Area random sampling is a geographic cluster, namely research related to populations within an identifiable geographic area such as city block states or certain boundaries.

3.2. Measurements

SMEs' performance is a dependent variable. Measurements of SME performance for the study were taken from [33] [15] [18] [34]. The measurement scale for performance is the Likert scale which is 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and

5 = strongly agree. Furthermore, the payment system and peer-to-peer lending also consist of five Likert scale points used; 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree [35] [36] [29].

4. RESULTS AND DISCUSSIONS

4.1. Survey respondents

The population of this study was all SMEs in Sumatera island. They are $\geq 1.000.000$. Questionnaires sent 2.700 questionnaires to 2.700 SMEs. This number was taken due to a study of [37] and [38] who found that the average response rates of the survey are 7%-21%. which said that the possibility of the questionnaire will be sent back by the respondents is between 7% - 21%. From the 2.700 questionnaires, there were only 387 questionnaires (14.33%) were sent back to the researcher. According to [33], if the amount of the population is $\geq 1.000.000$, the minimum sample is 384. Therefore, all of the questionnaires which were sent back by the respondents (387), are taken as the sample of this study.

4.2. Descriptive Statistic of SMEs Performance, Payment system, and Peer-to-peer Lending (N = 387)

Table 1 provides the descriptive statistic result in SMEs' performance, payment system, and peer-to-peer lending. Mean of SMEs' Performance = 11.95, payment system = 15.52, and peer-to-peer lending 14.57. Meanwhile standard deviation for SP = 1.925, PS = 3.195 dan PL = 4.831. The result shows:

TABLE 1: Descriptive Statistic for SMEs' Performance, Payment system, and Peer peer Lending (N= 387)

Variables	Denoted by		Mean	Std Deviation
SMEs' Performance	SP		11.95	1.925
Payment System	PS		15.52	3.195
Peer-to-peer Lending	PL		14.57	4.831
Source: processed data				

4.3. Result H1 and H2

The effect of the payment system and peer-to-peer lending on SMEs' performance is supported. These result can see in table 2 as follow:

TABLE 2: Regression Model Summary Statistics of Analysis Payment System and Peer-to-Peer Lending on SMEs' Performance

Dependent Variable	Model Performance	SMEs	VIF	Hypothesis
	(t statistic in parentheses)			
Payment System	2.413 0.000***		1,045	H1 supported at α 1%
Peer-to-peer Lending	3.430 0.016***		1.045	H2 supported at α 1%
R ² Adjusted R F statistic Significance of F Durbin-Watson	0.72 0.67 14.798 0.000*** 1.950			

Notes: ***, **, * indicates regression analysis is statistically significant at 1%, 5%, and 10% respectively
 Source: processed data

The result in table 2 shows that two independent variables payment system and peer-to-peer lending have a significant effect on SMEs' performance. The finding indicates a positive relationship as predicted in the study. This result supports hypotheses 1 and 2. Hypotheses 1 payment system effect SMEs' performance and hypothesis 2 the effects of peer-to-peer lending on SMEs' performance. H1 is supported at a significance of 1%. Hence, for H2, there is a positive effect of peer-to-peer lending on SMEs' performance as is proved by the significant result of regression analysis at a significance of 1%. In conclusion, H2 is supported.

R² is 0.72% meaning payment system and peer-to-peer lending together affect SMEs' Performance amount 72%. It is also shown with a significant F test on the significance of F 1%.

5. CONCLUSION AND RECOMMENDATION

The study examines issues related to the payment system and peer-to-peer lending on SMEs' Performance in Indonesia. Payment systems influence SMEs' performance and also peer-to-peer lending effect on SMEs performance.

Payment systems can replace formal financial institutions such as banks. Payment can be made using a smartphone. Mobile technology is one of the mobile payments. Hence, SMEs can borrow loans with peer-to-peer lending. SMEs can get capital immediately through peer-to-peer lending. This study is supported by [14]. Indonesia's economy will increase if Indonesia's finances are good. This encourages the prevalent distribution of the welfare of the population; make online payments easily, assist with financing

through peer-to-peer lending; encourage the distribution of national financing; Improve financial inclusion and improve the performance capabilities of SMEs.

In line the results [39] perform an analysis of the payment factors of the system. [40] found that the extent of benefits and convenience in payment. Payment systems have a positive influence on revenue level/business performance, e-commerce influences the positive and significant performance of SMEs. [41] [42] concluded that the increase in financial technology in Indonesia has a positive impact on SMEs' performance.

Then, financial technology encourage level the well-being of the population. Financial technology needs business capital by providing loans and making profits. Peer-to-peer lending provides convenience to SMEs because it is more efficient, effective, and low interest rate costs [43]. This study also supported by found that financial technology increases SMEs' Performance [44].

These findings are supported by signaling theory. Signaling theory motivates companies to present good information to shareholders and disclose excellent performance. One of the important leading indicators of a company's health is the company's performance. A good signal about SMEs' performance brings a positive sign for the company to increase the stock price and performance [45][46].

With regards to future research, despite the contribution of the study, several limitations should be recorded. The limitations of this study are only using payment systems and peer-to-peer lending to the performance of SMEs. It is recommended for subsequent research to add other variables such as capital, human resources, and marketing. Respondents were limited to the island of Sumatra. There are still other islands in Indonesia that can be sampled in this study.

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References

- [1] Cowan K, Guzman F. How CSR reputation, sustainability signals, and country-of-origin sustainability reputation contribute to corporate brand performance: An exploratory study. *Journal of Business Research*, 2020;117:683–93.

- <https://doi.org/10.1016/j.jbusres.2018.11.017>
- [2] Davis GF, Cobb JA. Chapter 2: Resource dependence theory: Past and future. *Research in the Sociology of Organizations*. 2010;28:21–42
[http://dx.doi.org/10.1108/S0733-558X\(2010\)0000028006](http://dx.doi.org/10.1108/S0733-558X(2010)0000028006)
- [3] Thrikawala S. The determinants of entrepreneurial intention among academics in Sri Lanka, *International Proceedings of Economics Development & Research*. 2011;4:464–8.
- [4] Harash E, Al-timimi S, Alsaadi J. The influence of finance on performance of small and medium enterprises (SMEs). *International Journal of Engineering and Innovative Technology (IJEIT)*. 2014;4(3):161–7.
- [5] Otto AS, Szymanski DM, Varadarajan R. Customer satisfaction and firm performance: Insights from over a quarter-century of empirical research. *Journal of the Academy of Marketing Science*. 2020;48(3):543–64.
- [6] Chege SM, Wang D. The influence of technology innovation on SME performance through environmental sustainability practices in Kenya. *Technology in Society*. [7] 2020;60(Nov):101210, 1-12, <https://doi.org/10.1016/j.techsoc.2019.101210>
- [8] Chege SM, Wang D, Suntu SL. Impact of information technology innovation on firm performance in Kenya. *Information Technology for Development*. 2020;26(2):316–45. <https://doi.org/10.1080/02681102.2019.1573717>
- [9] Sohn SY, Kim HS, Moon TH. Predicting the financial performance index of technology fund for SME using structural equation model. *Expert Systems with Applications*. 2007;32(3):890–8.
- [10] Soto-Acosta P, Popa S, Palacios-Marqués D. E-business, organizational innovation and firm performance in manufacturing SMEs: An empirical study in Spain. *Technological and Economic Development of Economy*. 2016;22(6):885–904.
- [11] Tarute A, Gatutis R. ICT Impact on SMEs performance. *Procedia - Social and Behavioral Sciences*. 2014;110:1218–25. <http://dx.doi.org/10.1016/j.sbspro.2013.12.968>
- [12] Khayer A, Talukder MS, Bao Y, Hossain MN. Cloud computing adoption and its impact on SMEs' performance for cloud supported operations: A dual-stage analytical approach. *Technology in Society*. 2020;60:101225.1-38. <https://doi.org/10.1016/j.techsoc.2019.101225>
- [13] Amalia F, Chishti S, Barberis J. Book review: The fintech book?- The financial technology handbook for investors, entrepreneurs, and visionaries. *Journal of Indonesian Economy and Business*. 2016. 31(3):345–8.
- [14] Zhu Z, Matsuno K. Entrepreneurial proclivity: Its environmental conditions and growth consequences. *Journal of Strategic Marketing*. 2016;24(1):20–33.

- [15] Prawirasasra KP. Financial technology in Indonesia: Disruptive or collaborative? Reports on Economics and Finance. 2018;4(2):83–90.
- [16] Aribawa D, Atma U, Yogyakarta J. The effect of financial literacy on performance. *urnal Siasat Bisnis*.2016;20(1):1–13.
- [17] Lanang IPES, Kirya IK, Cipta IW. Analysis of factors influencing the performance of micro, small and medium enterprises (MSMEs) in Bangli Regency. *E-Journal Bisma Univ Pendidik Ganesha*. 2014;2(1):11–21.
- [18] Wardi Y, Susanto P, Abdullah NL. Entrepreneurial orientation on the performance of small and medium enterprises (SMEs) West Sumatra: Analysis of the moderating role of competition intensity, market turbulence and technology. *Journal of Technology Management*. 2017;16(1):46–61.
- [19] Rahayu AY, Musdholifa M. Pengaruh literasi keuangan terhadap kinerja dan keberlanjutan umkm di kota surabaya. *Jurnal Ilmu Manajemen*. 2017;5(2016):1-7.
- [20] Amri AF, Iramani I. The influence of financial literacy on the performance and sustainability of MSMEs in the city of Surabaya. *Journal of Business & Banking*. 2018;8(1).
- [21] Begenau J. Capital requirements, risk choice, and liquidity provision in a business-cycle model. *Journal of Financial Economics*. 2020;136(2):355–78. <https://doi.org/10.1016/j.jfineco.2019.10.004>
- [22] Ngurah G, Adinegara J, Wayan N et al. Factors that influences tourist's satisfaction and its consequences. *European Journal of Business and Management*. 2017;9(8):39–50.
- [23] Scott SV, Van Reenen J, Zachariadis M. The long-term effect of digital innovation on bank performance: An empirical study of SWIFT adoption in financial services. *Research Policy*. 2017;46(5):984–1004. <http://dx.doi.org/10.1016/j.respol.2017.03.010>
- [24] Brynjolfsson E, Malone TW, Gurbaxani V, Kambil A. Does information technology lead to smaller firms? *Management Science*. 1994;40(12):1628–44.
- [25] Soriano MA. Factors driving financial inclusion and financial performance in Fintech new ventures: An empirical study. *Dissertations and Theses Collection (Open Access)*. https://ink.library.smu.edu.sg/etd_coll/145.2017;1-258.
- [26] Kuvaas B, Buch R, Weibel A, Dysvik A, Nerstad CGL. Does intrinsic and extrinsic motivation relate differently to employee outcomes? *Journal of Economic Psychology*. 2017;61:244–58. <http://dx.doi.org/10.1016/j.joep.2017.05.004>
- [27] Dong J, Yin L, Liu X, Hu M, Li X, Liu L. Impact of internet finance on the performance of commercial banks in China. *International Review of Financial Analysis*. 2020;72(Aug):10157. 1-12. <https://doi.org/10.1016/j.irfa.2020.101579>

- [28] Octavia A, Indrawijaya S, Sriayudha Y, Heriberta, Hasbullah H, Asrini. Impact on e-commerce adoption on entrepreneurial orientation and market orientation in the business performance of SMEs. *Asian Economic and Financial Review*. 2020;10(5):516–25.
- [29] Shen JJ, Ginn GO. Financial position and adoption of electronic health records: A retrospective longitudinal study. *Journal of Health Care Finance*. 2012;38(3):61–77.
- [30] Wille D, Hoffer A, Miller SM. Small-business financing after the financial crisis – Lessons from the literature. *Journal of Entrepreneurship and Public Policy*. 2017;6(3):315–39.
- [31] Klafft, Michael, Online Peer-to-Peer Lending: A Lenders' Perspective (July 14, 2008). Proceedings of the International Conference on E-Learning, E-Business, Enterprise Information Systems, and E-Government, EEE 2008, H. R. Arabnia and A. Bahrami, eds., pp. 371-375, CSREA Press, Las Vegas 2008, Available at SSRN: <https://ssrn.com/abstract=1352352> or <http://dx.doi.org/10.2139/ssrn.1352352>
- [32] Chen X, Huang B, Ye D. Gender gap in peer-to-peer lending: Evidence from China. *Journal of Banking & Finance*. 2020;112(40):105633.1-43.
- [33] Bougie R., Sekaran U. Research methods for business: A skill-building approach. *Long Range Planning*. 2018;26:1-389.
- [34] Nenzhelele TE, Pellissier R. Competitive intelligence implementation challenges of small and medium-sized enterprises. *Mediterranean Journal of social*. 2014;5(16):92–9.
- [35] Yushita AN. The importance of financial literacy for personal financial management. *Jurnal Nominal, Barom Ris Akunt dan Manaj*. 2017;6(1),11-26
- [36] Puschmann T. Fintech. *Business & Information Systems Engineering*. 2017;59(1):69–76.
- [37] Gai K, Qiu M, Sun X. A survey on FinTech. *Journal of Network and Computer Applications*. . 2018;103:262–73. <https://doi.org/10.1016/j.jnca.2017.10.011>
- [38] Zhang QH, Fan DXF, Tse TSM, King B. Creating a scale for assessing socially sustainable tourism. *Journal of Sustainable Tourism*. 2017;25(1):61–78. <https://doi.org/10.1080/09669582.2016.1173044>
- [39] Pielsticker DI, Hiebl MRW. Survey response rates in family business research. *European Management Review*. 2020;17(1):327–46.
- [40] Mallat T. Exploring merchant adoption of mobile payment systems: An empirical study. *E-Service Journal*. 2008;6(2):24-57
- [41] Hayashi BF. Mobile payments: What's in it for consumers? *Economic Review First Quarter 2012*. Federal Reserve Bank of Kansas City. 35–66.

- [42] Ningtyas PK, Sunarko B, Jaryono. Analysis of factors that influence e-commerce adoption and their effect on MSME performance. *Anal Fakt Yang Mempengaruhi Adopsi E-Commerce Dan Pengaruhnya Terhadap Kinerja Umkm Oleh*. 2015;21:95–107.
- [43] Hanum AN, Sinarasri A. Analysis of the factors that influence the adoption of e-commerce and its influence on the performance of MSMEs (Case study of MSMEs in the city of Semarang). *Maksimum*. 2017;1(1):1–15.
- [44] Nisar TM, Prabhakar G, Torchia M. Crowdfunding innovations in emerging economies: Risk and credit control in peer-to-peer lending network platforms. *Strategic Change, Briefings in Entrepreneurial Finance*. 2020;29(3):355–61.
- [45] Agyei SK, Nsiah C, Wallace B. Culture, financial literacy, and SME performance in Ghana. *Cogent Economics & Finance*. 2018;37(1):1–16. <http://doi.org/10.1080/23322039.2018.1463813>
- [46] Kusuma H. Effect of information asymmetry on dividend policy. *Jaai*. 2006;10(1):1–12.
- [47] Yuniningsih Y-, Hasna NA, Nizarudin Wajdi MB. Financial performance measurement of with signaling theory review on automotive companies listed in Indonesia stock exchange. *IJEED - International Journal of Entrepreneurship and Business Development*. 2018;1(2):167–177.