

The Influence of Operational Cost Efficiency, and Liquidity, Digitalization on Company Value in the Digital Era

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ABSTRACT

Introduction/Main Objectives: This study aims to examine the effects of digital digitalization, operational cost efficiency, and liquidity on firm value among companies operating in the Bank KBMI 3 during the Digital Era. **Background Problems:** Digitalization, operational efficiency, and liquidity can theoretically increase company value, however, previous research results have shown inconsistent effects of these independent variables on company value. In addition, there is still limited research that comprehensively examines the simultaneous effects of these three variables in the context of KBMI 3 banking, especially in the period of accelerated digital transformation after the COVID-19 pandemic. **Novelty:** This study provides an original contribution in empirically showing that studies related to the synergy between operational efficiency, liquidity, and digitalization do not necessarily have a positive impact partially, but simultaneously still significantly affect the company's value. This shows the need for a holistic digital strategy and organizational structure readiness so that digital transformation does not become a short-term burden on the company's value. **Research Methods:** The method used uses a quantitative approach with a panel data regression method to test the effect of operational efficiency, liquidity, and digitalization on company value. The sample consists of 10 banks included in KBMI 3 during the 2020–2024 period, which were selected using a purposive sampling technique based on certain criteria. **Finding/Results:** The results provide findings where digitalization has a negative impact on company value. While operational efficiency and liquidity do not have an impact on company value. However, simultaneously the three variables have a significant effect. **Conclusion:** This study concludes that digitalization, operational efficiency, and liquidity simultaneously have a significant effect on company value in KBMI 3 banks during the period 2020–2024. However, partially, only digitalization has a significant effect in a negative direction, so the implication is the need for mature organizational planning and readiness in digital transformation in order to increase company value sustainably and not create a risk perception for investors.

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1. Introduction

Over the past ten years, we have witnessed the rapid growth of digital technology, which has impacted various aspects of human life and business operations around the world. The world is entering a different era. Known as the Industrial Revolution 4.0, the main focus of this trend is the automation of business processes using information technology, which will reduce the amount of human work and enable a more efficient work environment (Kokina & Blanchette, 2019).

Due to significant technological developments in various industries, new innovations are needed to help business operations and the services provided. In the midst of digital financial competition, the banking sub-sector requires continued innovation, including gaining better access to information, customizing customer experiences, and using data to gain a better understanding of customer behavior (Purba, N., Yahya, M., & Nurbaiti, N. 2021).

Cloud technology, unlimited internet access, and the use of mobile technology mark the transition from the old era of the digital economy to the new era of the digital economy followed by technological advances (Ark, et.al., 2016). The COVID-19 pandemic has not only accelerated digital transformation, but has also encouraged people to shift to a virtual economy rather than a physical economy, causing digital behavior. Data published by We Are Social & Hootsuite (Kemp, 2023) shows that 77% of Indonesia's population of 212.9 million people use the internet, an increase from the previous year's 204.7 million internet users or 73.7% of Indonesia's total population. This shows that the internet has become an important need for Indonesian people and provides opportunities for businesses to improve their quality or value. The COVID-19 pandemic accelerated the adoption of digital services. Customers, especially millennials and Gen Z, increasingly rely on mobile banking and online banking applications to carry out financial transactions.

In the current era of technology 4.0, industries are increasingly using technology, reducing human involvement in business processes and operations. With the development of technology that is increasingly widespread in society, organizations, and companies, the use of sophisticated technological tools provides many benefits for humans. In this modern era, many businesses invest in information technology because it can help achieve overall company goals (Tahir et al., 2022).

Company value is the value of a company's assets, such as securities. The company has a long-term goal of increasing its value, which must be achieved and shown in its stock price moving in the market. Investors' assessment of the company can be seen through the movement of its stock price on the stock exchange. Due to the asymmetry of management with external parties, the company will be encouraged to disclose its good information to external parties as a way to increase the company's value, according to signaling theory (Africa, 2018). A high rate of return can certainly increase the company's value and public trust. The company will try to increase its value to meet the demands and desires of investors and obtain funding for current and future operational activities.

As we know, there are 4 banks that are included in the category of the largest markets. Capital. Currently, the condition of the bank is experiencing a stock price correction. in Kontan which published on February 18, 2025, it contains information that the banks in KBMI 3 are of interest to investors who can be used as alternatives and are supported by their good performance in 2024 and have cheap price. In 2020-2024, the average PBV value has a value that continues to decrease in sequence, namely 1.15, 0.97, 0.91, 0.87, and 0.79.

Many factors can influence a company's value such as efficiency, liquidity and digital adoption (digitalization). Operational cost efficiency remains critical to maintaining profitability, especially in the increasingly competitive financial services sector that directly impacts market share.

Shortening operational expenses through digital automation and optimized resource management enables enterprises to maintain cost leadership while improving service delivery (Porter & Heppelmann, 2014). As noted by Chen et al. (2020), Companies that effectively leverage technology to improve operational efficiency can achieve significant cost reductions and enhance their overall competitiveness.

Liquidity, as a measure of a company's ability to meet short-term obligations, is another key component that influences firm value. In the digital era, maintaining sufficient liquidity supports ongoing operations and investments, ensures flexibility in responding to market changes, and strengthens stakeholder confidence (Brealey et al., 2011). The ability to effectively manage liquidity is especially important for companies in the primary consumer sector, where market dynamics can change rapidly.

Despite the increasing importance of these aspects, there is a lack of comprehensive studies that focus on how digitalization, operational cost efficiency, and liquidity collectively influence firm value in the Banking. Understanding these relationships is critical for businesses to optimize their strategies, maximize shareholder value, and sustain growth in an environment characterized by rapid technological change and evolving consumer expectations.

However, there are inconsistent results from previous studies. Wiadnyani (2023) found that BOPO (operating cost on operating income) does not have a significant impact on company value for banking sub-sector. A study conducted by Naibaho (2024) found that Loan to Deposit Ratio does not exert a significant impact on the Company Value of Banking. Jasmin (2024) show that the digitalization system does not have a significant influence on company value (Y).

This study aims to examine the effects of digital digitalization, operational cost efficiency, and liquidity on firm value among companies operating in the Bank KBMI 3 during the Digital Era. The insights gained will provide valuable knowledge for practitioners and academics to develop effective financial and operational frameworks tailored to the evolving digital business environment.

2. Literature Review

The theory of firm value, as explained by (Modigliani and Miller, 1958), states that the value of a firm is determined by the cash flow it generates, not by its capital structure. In a digital context, companies that integrate digital financial management and operational cost efficiency can improve their cash flow, which in turn will increase the value of the firm.

Financial management theory focuses on the management of a firm's assets and liabilities to maximize shareholder value. According to Brigham and Ehrhardt (2016), good financial decisions, including liquidity and investment management, can increase the value of a firm. In a digital context, efficient financial management through technology can speed up decision-making and increase transparency, which in turn can increase the value of the firm.

The theory of market efficiency states that stock prices reflect all available information. According to Fama (1970), if the market is efficient, then information about digital financial management and operational cost efficiency will be immediately reflected in the value of the firm. Therefore, companies that are able to adopt digital technology and improve operational efficiency will see their market value increase.

Liquidity theory explains the importance of liquidity in investment decision making. According to Holmström and Tirole (1998), high liquidity allows companies to invest in profitable projects and reduce the risk of bankruptcy. In the digital era, companies with good liquidity can adapt

more quickly to market changes and take advantage of new opportunities, which contributes to increasing the value of the company.

Company value is often measured by market capitalization or book value. According to research by Fama and French (2015), company value is influenced by various factors, including financial performance and management. In the digital era, companies that are able to integrate digital financial management, cost efficiency, and good liquidity tend to have higher values. This shows the importance of further research to understand the relationship between these three variables.

According to Andrew (2024), banking digitization emphasizes that digitization in banks can be interpreted as banking services in electronic or online form to optimize customer service quickly, easily, and according to online needs, while still paying attention to security. This concept includes various services such as ATMs, CDMs, phone banking, mobile banking, internet banking, e-wallet, SMS banking, video banking, EDC, and QRIS.

Operational cost efficiency is a key factor in increasing company profitability. Research by Gupta and Singh (2020) shows that companies that adopt digital technology in their operational processes can reduce costs and increase productivity. Thus, operational cost efficiency contributes to increasing company value, especially in the context of intense global competition.

Good liquidity allows companies to meet short-term obligations and invest in new opportunities. Research by Boubakri et al. (2021) shows that high liquidity is positively related to company performance, especially in situations of market uncertainty. In the digital context, companies with good liquidity can adapt more quickly to changes and take advantage of new technologies to improve performance.

Research Hypothesis

The Influence of Operational Cost Efficiency on Company Value

Operational cost efficiency is the ability of a company to minimize costs while maintaining the quality of products and services. The theory of market efficiency states that information about cost efficiency will be immediately reflected in the value of the company (Fama, 1970). Companies that are able to reduce operational costs through digital technology will increase profit margins and company value. Gupta and Singh (2020) found that companies that adopt digital technology in their operations show significant improvements in cost efficiency, which contributes to increasing company value.

H1: Operational cost efficiency has a positive effect on company value.

The Influence of Liquidity on Company Value

Liquidity is the ability of a company to meet its short-term obligations. Liquidity theory states that good liquidity allows companies to invest in new opportunities and reduces the risk of bankruptcy (Holmström & Tirole, 1998). In the digital context, high liquidity can improve a company's ability to adapt to market changes. Boubakri et al. (2021) showed that good liquidity is positively related to company performance, which in turn increases company value.

H2: Liquidity has a positive effect on company value

The Effect of Digitalization Company Value

Digital financial management refers to the use of information technology to manage and analyze a company's financial data. Company value is measured by market capitalization or book value.

Financial management theory states that good financial decisions can increase shareholder value (Brigham & Ehrhardt, 2016). By adopting digital financial management, companies can increase efficiency and transparency, which has the potential to increase company value. Research by (Kauffman and Walden, 2021) shows that companies that implement a digital financial management system experience increased financial performance and company value. Leonardo (2025) show that that the level of digitalization disclosure, as measured through certain indicators, provides a positive signal to investors regarding the potential for future cash flows and reduced risk perception, which ultimately increases the company's value as reflected in the PBV ratio for the period 2021-2023.

H3: Digitalization has a positive effect on company value.

3. Method, Data, and Analysis

The population in this study includes all banking sub-sectors included in KBMI 3 during the 2020–2024 period, with a total of 11 companies. From this population, this study uses 10 companies as samples with a total of 50 financial reports, which were selected using the purposive sampling method. This method is carried out by considering certain criteria that are in accordance with the objectives of the study. This study uses secondary data obtained from the financial reports of banking companies listed on the IDX during the 2020-2024 period. The data was collected through the official website of the Indonesia Stock Exchange (www.idx.co.id) using documentation techniques, which are data collection methods based on documents or reports that are available and published.

The tests used in this study include descriptive statistical tests to provide an overview of the data used in the study, panel data model selection tests to determine the best model consisting of Common Effect, Fixed Effect, and Random Effect, classical assumption tests to ensure that the data does not experience multicollinearity and heteroscedasticity, hypothesis tests to examine the relationship between independent and dependent variables using panel data regression, and determination coefficient tests to measure how much the independent variables are able to explain the variation of the dependent variable.

Company Value

In this study, the company's value is measured by price to book value (PBV) BV is a ratio that can show the comparison between the stock market price and its book value, so that it can be seen whether the stock price is overvalued or undervalued from its book value. According to Brigham and Houston (2018) PBV can be measured by the following formula:

$$PBV = \text{Price Per Share} / \text{Book Value Per Share}$$
$$\text{Book Value Per Share} = \text{Company Equity Value} / \text{Number of Shares Outstanding}$$

Digitalization

Digitization in bank can be interpreted as banking services in electronic form to optimize customer service quickly, easily and according to needs online, by customers themselves with attention to security (Andrew, 2024). In this study, using secondary data to measure the implementation of the bank's digital index, data using digital services provided by banks include ATMs, CDM, Phone Banking, Mobile Banking, Internet Banking E-Wallet, SMS Banking, Video Banking, EDC, and QRIS.

Operational efficiency

Operational efficiency is the cost that must be incurred by the company in fulfilling its business operations. The higher the operational efficiency issued, the better the company's management

performance. Operational efficiency can be measured by dividing operational costs by operating income (BOPO) (Isabella, M. R. 2025). The BOPO ratio is often also called the efficiency ratio which is used to measure the ability of company management to control operational costs against operating income. The smaller this ratio means the more efficient the operational costs incurred by the company concerned, so the possibility of a company in a problematic condition is smaller:

$$\text{BOPO} = \text{Operating Expenses} / \text{Operating Income}$$

Liquidity

Liquidity is the ability of a company to pay its short-term debts on time (Fahmi, 2014; 65). In this study, the Loan to Deposit Ratio (LDR) was used. LDR can be interpreted as a ratio that compares the total credit extended to the amount of third-party funds (Kasmir 2016).

$$\text{LDR} = \text{Total Loan} / \text{Third Party Funds}$$

4. Result and Discussion

Result

Model Regresi Data pane

The following is information from the results of panel data selection estimation for the common effects model, fixed effects model and random effects model..

Table 1. Model Selection Results

Mode	Test	p-Value	Result
CEM vs FEM	Chow Test	0.000	FEM
FEM vs REM	Hausman Test	0.0485	FEM
REM vs CEM	LM Test	0.000	REM

Source: Output Eviews

Based on table 1, information is obtained that the results of selecting the panel data regression model in this study are fixed effects models.

Classical Assumption Test

The researcher also used the classical assumption test on the obtained model where the results showed: a) the normality test obtained a Jarque Bera value of 0.231378 which means it meets the normality assumption; b) the heteroscedasticity test obtained a Breusch-Pagan-Godfrey heteroscedasticity value for the Obs*R-squared p-value of 0.1973 which means it meets the homogeneity assumption; c) the multicollinearity test obtained a centered VIF value with a value of 1-10 which means there is no multicollinearity problem; and d) the autocorrelation test obtained a DW value of 1.643983 (between -2 and 2) which means there is no autocorrelation problem.

Goodness of fit test

In the goodness of fit test, the value obtained in the fixed effect model is adjusted R-square of 0.900856. This value shows that the given model is able to explain the firm's value by 90%.

Equation

Based on the results showing good model fit, this study produces the following equation:

$$\text{PBV} = 3.67294353344 - 0.00199013950416 \cdot \text{BOPO} - 0.000310329169211 \cdot \text{LDR} - 3.50254865354 \cdot \text{DIG} + [\text{CX}=\text{F}]$$

Based on the results of the fixed effect model equation, a model is obtained where the company's value is negatively affected by BOPO, LDR, and the digitalization index. The BOPO

coefficient of -0.00199 indicates that every 1 point increase in BOPO will cause PBV to decrease by 0.00199 points, Meanwhile, the LDR coefficient of -0.00031 indicates that LDR continues to increase reflecting an increase in credit distribution compared to third party funds also has a negative impact on PBV. Then the influence of digitalization (DIG), with a coefficient of -3.5025 indicates that the digitalization index increases by 1 point will significantly reduce PBV.

Hypothesis Testing

In the selected model, the following statistical t values and significance were obtained:

Table 2. Hypotesis Testing

Mode	T/F-Statistic	Sig	Result
Bopo → FV	-0.552081	0.5842	rejected
LDR → FV	-0.094870	0.9249	rejected
DIG → FV	-11.40950	0.0000	rejected
BOPO, LDR, DIG → FV	38.10241	0.0000	accepted

Source: Output Eviews

In the table, it is found that only digitalization has a significant influence on company value. However, simultaneously, it was found that the independent variables in this study have a significant influence on firm value.

Discussion

BOPO and LDR show an insignificant impact on the value of banking companies. As we know, the current condition of the banking industry is undergoing digital transformation and business model adoption. BOPO as a proxy for measuring operational efficiency does not fully provide a picture of long-term strategic performance. Banks are likely investing in digital infrastructure, this will cause an increase in operating costs in the short term. The result supporting Wiadnyani (2024) Operational Expenses on Operating Income do not affect the Value of the Company. For further research, this study can be developed using other variables that have an impact on the Value of the Company.

Then about LDR, a high or low LDR fully describes the value of the company. The company's market value is more influenced by investor perceptions of innovation, future growth, and the ability to adapt to new technologies. Research conducted by Setiawan and Kusumawati(2024) and Naibaho (2024) stated that LDR has a negative but insignificant effect on company value. Contrary to initial expectations, digitalization has shown a significant negative impact on company value. This can happen because companies spend a lot of money on digital investment, especially in the early stages of transformation, the impact of which will reduce net profit and short-term efficiency. In addition, the implementation of new technologies often creates organizational challenges, such as changes in work structure, employee retraining, and cybersecurity risks that have not been fully addressed. Investors may have the perception that digitalization is considered a risk factor, which has not been balanced with mature strategic and infrastructure readiness. Research by (Nugroho, 2020) shows that the impact of digitalization on company value is non-linear positive if the bank is technologically mature, but can be negative in the transition stage due to high costs and uncertainty. Digitalization without readiness of organizational structure, digital culture, and system integration can lead to ineffective over-investment in IT, causing a decrease in the company's market value (Bharadwaj, 2013). Thus, we can say that digitalization is a long-term strategy whose results will only be felt after going through a period of adaptation and operational stabilization.

Although both variables do not have an impact on the company's value, the three variables simultaneously have a significant effect on the company's value. This means that the company's value is influenced by the combination and synergy of operational efficiency, liquidity management, and overall digitalization strategy. These results strengthen the theory that company performance cannot be assessed from one dimension alone, but from the integration of several managerial and strategic aspects. Research by (Nugroho & Setiawan, 2019) states that the synergy between efficiency, risk management, and technological innovation has a positive effect on investor perceptions and market value decisions.

5. Conclusion and Suggestion

Based on the analysis conducted, it was found that BOPO and LDR partially did not have a significant effect on the value of banking companies. This is because operational efficiency and credit liquidity ratio are no longer strong signals for investors amidst the ongoing digital transformation of the banking sector. Then, digitalization, which is expected to increase company value, actually shows a significant negative impact. This indicates that in the early stages of digital transformation, high investment costs, organizational restructuring, and technological risks can reduce short-term profitability and create uncertainty for investors. However, when viewed simultaneously, BOPO, LDR, and digitalization together have a significant effect on company value. This shows that a balanced combination of operational efficiency, careful liquidity management, and strategic digital implementation is very important to increase company value.

Based on these findings, it is recommended that banks not only focus on individual performance indicators, but also develop an integrated strategy that aligns operational management, risk control, and digital capabilities. Digital transformation must be carried out gradually, with careful planning to minimize risk and increase investor confidence. Furthermore, communication with stakeholders regarding long-term digital strategies is essential to maintaining positive market perceptions during the transformation process.

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