Volume 2, December 2024
Proceedings of the 2nd International Conference on Management and Small Medium Enterprise
(ICMSME-2024)

The Impact of Data Analytics on Financial Asset Management Efficiency and Financial Prediction Accuracy in Strategic Decision Making in the Digital Era

Muhammad Yuda Dana Kesuma[a]
**Corresponding author e-mail: yuda.mydk@gmail.com*

A B S T R A C T

Digital transformation in the financial sector has driven the adoption of data analytics technology to support strategic decision-making.This study aims to analyze the impact of data analytics on the efficiency of financial asset management (X1) and the accuracy of financial predictions (X2) in supporting financial decision-making (Y). The research employs a quantitative approach using secondary data obtained from financial reports of fintech-based companies during the 2018–2023 period. The independent variables include the efficiency of financial asset management and the accuracy of financial predictions, while the dependent variable is the quality of financial decision-making. The data is analyzed using multiple linear regression to identify relationships and effects between variables. The findings indicate that the efficiency of financial asset management has a significant positive impact on financial decision-making, with a coefficient of 0.45. Similarly, the accuracy of financial predictions significantly contributes with a coefficient of 0.39. The regression model achieves an Adjusted R^2 value of 0.82, meaning that the model explains 82% of the variability in financial decision-making. This study underscores the importance of data analytics in enhancing operational efficiency and informational accuracy to support strategic decision-making. Companies are advised to increase investment in big data technology and artificial intelligence while providing employee training to effectively utilize these technologies.

Keywords:Data Analytics, Financial Efficiency, Financial Predictions, Decision-Making, Digital Era

INTRODUCTION

The development of digital technology has revolutionized various aspects of life, including financial management. In the digital era, financial decision-making no longer relies solely on intuition or experience, but on data that can be processed systematically. (Surachman et al., 2024). Data analytics, one of the main elements in digital transformation, is an important tool for companies to improve operational efficiency and the quality of strategic decisions. (Brigham and Houston, 2007; Davenport and Harris, 2017).

Efficiency of financial asset management is one of the important aspects of financial management. By utilizing analytical technology, companies can optimize asset management, increase transparency, and minimize operational errors (Istan et al., 2021). For example, historical data on assets can be processed to identify usage patterns, so companies can better plan asset allocation. (Brigham and Houston, 2007). Moreover, the integration of artificial intelligence and big data analytics has further enhanced the accuracy of financial forecasts, providing a competitive edge for companies in volatile markets (Singh and Tan, 2021).

Furthermore, the application of machine learning in predictive analytics has significantly improved forecasting precision, enabling organizations to respond proactively to market changes (Lee et al., 2022). These advancements underline the transformative role of data-driven technologies in shaping modern financial decision-making. In addition, the accuracy of financial predictions is a primary need in facing increasingly complex and dynamic markets. With data analytics, companies can leverage big data and artificial intelligence to project future financial trends. (Aftab, et al, 2022). Accurate predictions not only help companies in risk management but also provide a competitive advantage in responding to market opportunities (Davenport and Harris, 2017).

Effective working capital management is essential during digital transformation, as pointed out by (Zheng, and Iqbal, 2022). However, the adoption of this technology presents its own challenges. Issues such as lack of technological infrastructure, limited human resources, and data security risks are barriers that need to be overcome. (Chen *et al*, 2021). In this context, this study aims to measure the extent to which data analytics impacts asset management efficiency and financial forecast accuracy, and how both factors contribute to the quality of strategic decisions. (Davenport and Harris, 2017). This research provides practical and theoretical contributions in data-based financial management. The findings are expected to be a reference for companies to adopt data analytics technology as part of their decision-making strategy in the increasingly competitive digital era. (Mosteanu, and Faccia, 2020; Davenport and Harris, 2017).

RESEARCH METHODS

This study uses a quantitative approach with multiple linear regression analysis to measure the influence of independent variables (X1 and X2) on the dependent variable (Y). This approach was chosen because it is able to explain the causal relationship between variables based on numerical data.

The research population consists of financial reports of financial technology-based companies in Indonesia during the period 2018–2023. The sample was taken purposively to ensure the relevance of the data to the focus of the research, namely companies that have implemented data analytics technology in financial management.

Secondary data is used in this study, including annual financial reports, risk management reports, and big data that has been processed by the company. In addition, literature studies from relevant international journals are used as a theoretical basis. By using the test:

Normality Test: Ensure that the data is normally distributed using the Kolmogorov-Smirnov test.

Multicollinearity Test: Using the Variance Inflation Factor (VIF) value to identify the relationship between independent variables.

Multiple Linear Regression: The analysis model is used to measure the influence of X1 (asset management efficiency) and X2 (financial prediction accuracy) on Y (financial decisions).

RESULTS AND DISCUSSION

1. Descriptive Statistics

Table 1. Descriptive Statistics

Variables	Average	Standard Deviation	Minimum	Maximum
Efficiency (X1)	78.4	6.3	65.0	90.0
Prediction Accuracy (X2)	81.2	7.1	68.0	95.0
Financial Decisions (Y)	84.5	5.8	72.0	92.0

2. Normality Test

Normality test was performed using Kolmogorov-Smirnov test to verify whether the data distribution was normally distributed.

Hypothesis:

- H0: Data is normally distributed.
- H1: The data is not normally distributed.

Table 2. Kolmogorov-Smirnov Test Results

Variables	KS Value	P-Value	Decision
Efficiency (X1)	0.085	0.120	Accept H0 (Normal)
Prediction Accuracy (X2)	0.092	0.086	Accept H0 (Normal)
Financial Decisions (Y)	0.078	0.200	Accept H0 (Normal)

Interpretation

Since the p-value for all variables is greater than 0.05, it can be concluded that the data is normally distributed. The importance of normal distribution in this analysis is to ensure the validity of the statistical tests used in the regression model.

3. **Multicollinearity Test**

Multicollinearity tests are carried out using the Variance Inflation Factor (VIF) value to check whether there is a relationship between independent variables.

Table 3. VIF Analysis Results

Variables	VIF	Decision
Efficiency (X1)	1.12	There is no multicollinearity
Prediction Accuracy (X2)	1.08	There is no multicollinearity

Criteria:

- If VIF < 10: There is no multicollinearity.
- If VIF ≥ 10: There is multicollinearity.

Interpretation:
All VIF values are less than 10, so there is no multicollinearity problem between independent variables in the model. Low multicollinearity indicates that independent variables have unique contributions to the model without significantly influencing each other.

4. **Multiple Linear Regression Analysis**

Persamaan regresi: $Y=\beta0+\beta1X1+\beta2X2+\epsilon$

Table 3. Regression Analysis

Parameter	Coefficient	T-Statistic	P-Value
Intercept (β0\beta_0)	25.34	3.12	0.002**
Efficiency (X1) (β1\beta_1)	0.45	4.21	0.000**
Accuracy (X2) (β2\beta_2)	0.39	3.87	0.001**

- **Adjusted R^2:**0.82
- **F-Statistic:**43.18 ($p < 0.001$)

5. **Heteroscedasticity Test**

To ensure the reliability of the regression model used, a heteroscedasticity test was conducted using the Breusch-Pagan method.

Table 4. Heteroscedasticity Test

Statistics	Mark
Lagrange multiplier statistics	2.99
p-value	0.224
f-value	1.49
f p-value	0.328

Interpretation of Results

Since the p-value (0.224) is greater than 0.05, there is insufficient evidence to reject the null hypothesis. This indicates that the regression model does not have heteroscedasticity problems, so the residual error is considered to have constant variance. This strengthens the validity of the regression results and ensures reliable interpretation of the coefficients.

6. Practical Implications

These results indicate that:

1. **Efficiency of financial asset management (X1)**: A 10% increase in efficiency can improve the quality of financial decisions by up to 4.5%.
2. **Financial prediction accuracy (X2)**: A 10% increase in prediction accuracy contributes to a 3.9% increase in the quality of strategic decisions.

With an Adjusted R^2 of 0.82, this model is able to explain 82% of the variability in financial decisions. The remaining 18% is likely influenced by other factors such as macroeconomic conditions or internal company policies. Explanations of these 18% other factors can be the focus of further research to provide a more comprehensive picture.

CONCLUSION AND SUGGESTIONS

Conclusion

This study shows that data analytics has a significant effect on the efficiency of financial asset management and the accuracy of financial predictions. The efficiency of financial asset management (X1) has a regression coefficient of 0.45, indicating a significant positive contribution to the quality of financial decisions. The accuracy of financial predictions (X2) also has a significant effect with a coefficient of 0.39. Overall, the regression model is able to explain 82% of the variability in financial decisions (Adjusted $R^2 = 0.82$).

Suggestion

1. **Technology Investment:** Companies are advised to increase investment in big data and artificial intelligence technologies to support data-driven decision making.

2. **HR Training:** Intensive training is required to ensure employees can use analytics technology effectively.
3. **Data Security:** Companies need to strengthen data security systems to reduce the risk of information leaks that can disrupt the decision-making process.
4. **Further Studies:** Future research could explore additional variables, such as risk management or regulatory influence, to provide a more comprehensive picture.

BIBLIOGRAPHY

[1] Brigham, E. F., & Houston, J. F. (2007). *Fundamentals of Financial Management*. Thomson/South-Western.
[2] Chen, Y., Kumara, E., & Sivakumar, V. (2021). Investigation of finance industry on risk awareness model and digital economic growth. *Annals of Operations Research, 326*, 1–22.
[3] Davenport, T. H., & Harris, J. G. (2017). *Competing on Analytics: The New Science of Winning*. Harvard Business Review Press.
[4] Mosteanu, N. R., & Faccia, A. (2020). Digital systems and challenges in financial management. *Quality - Access to Success, 21*, 159–166.
[5] Aftab, J., et al. (2022). Big data analytics in financial decision-making. *Journal of Business and Economics, 45*(3).
[6] Zheng, X., Zhou, Y., & Iqbal, S. (2022). Working capital management of SMEs in digital transformation. *Economic Analysis and Policy, 76*.
[7] Surachman, A. E., et al. (2024). *Manajemen Keuangan di Era Digital*. Sada Kurnia Pustaka.
[8] Istan, M., et al. (2021). *Asset dan Liability Management Bank*. LP2 IAIN Curup.
[9] Singh, P., & Tan, Y. (2021). The integration of AI and big data in strategic management. *Management Science Review, 12*(4), 200–220.
[10] Lee, J., Park, S., & Kim, H. (2022). Machine learning in financial forecasting: Trends and applications. *Journal of Financial Innovation, 8*(2), 145–160.