

Research article

EXAMINING THE FACTORS THAT INFLUENCE FIRM PERFORMANCE IN MALAYSIA

Nur Zaireen Ayuni Zaini¹, Nurul Hana' Saifuddin², Siti Nor Fatimah Zahari³,
Wan Nur Syamimi⁴, Wan Shaiful Azlan⁵, Ani Asmaa Asli^{6*}, Nur Azwani Mohamad
Azmin⁷

^{1,2,3,4,5,6,7}Faculty of Business and Management, Universiti Teknologi
MARA, Cawangan Terengganu, Kampus Dungun, Terengganu, Malaysia.

*Corresponding email: aniasmaa@uitm.edu.my

Abstract: This study investigates the internal financial factors that influence firm performance among non-financial listed companies in Malaysia from 2013 to 2023. Using the Resource-Based View (RBV) as the theoretical foundation, the research focuses on four key variables: firm size, sales growth, debt-to-equity ratio, and cash flow ratio. Return on Assets (ROA) serves as the primary measure of firm performance. Data was collected from 30 companies listed on Bursa Malaysia and analyzed using panel data regression techniques, including Pooled OLS, Fixed Effects Model (FEM), and Random Effects Model (REM). Diagnostic tests, including normality, unit root, multicollinearity, and heteroskedasticity, were conducted to ensure robustness. The REM was identified as the most appropriate model based on the Hausman test. Empirical findings revealed that cash flow ratio, debt-to-equity ratio, and sales growth have significant effects on firm performance, while firm size showed an insignificant impact. The results provide critical insights for corporate managers, investors, and policymakers in enhancing financial planning, investment strategies, and policy development aimed at improving firm resilience and profitability, particularly in the context of economic volatility and post-pandemic recovery.

Keywords: firm performance, OLS, non-financial, RBV

INTRODUCTION

Firm performance refers to a company's capability to manage its resources effectively to achieve business goals, maintain operations, and remain competitive over time. According to the OECD (2023), productivity, which reflects how efficiently inputs are transformed into outputs, aligns closely with firm performance metrics like profitability, efficiency, and long-term stability. In today's rapidly evolving economic environment influenced by global shifts and technological advances, understanding the drivers of firm performance is crucial. Modern assessments now emphasize internal adaptability and strategic resource management rather than focusing on profits alone. High-performing firms are recognized for their resilience and agility in managing disruptions, which serve as indicators of long-term organizational health (McKinsey, 2023; KPMG, 2021).

Firms can be broadly categorized into financial and non-financial sectors, each having distinct structures and operational frameworks. While financial firms operate under strict regulatory guidelines, non-financial firms rely heavily on efficient internal

resource management to stay competitive. In Malaysia, non-financial firms significantly contribute to national output and employment, accounting for over 38% of GDP through MSMEs in 2022 (DOSM, 2023). However, performance across this sector remains inconsistent due to challenges like inefficient capital structures and resource mismanagement. These issues highlight the importance of investigating internal financial factors that impact performance, especially in firms where internal capabilities determine long-term sustainability.

Global economic challenges since 2013 including the U.S.-China trade war, commodity price fluctuations, and the COVID-19 pandemic have created volatility that significantly impacted firms. In Malaysia, non-financial firms experienced heightened cost pressures due to the depreciation of the Ringgit and rising import prices. Domestically, policy changes like the GST implementation and subsidy cuts added further strain. Despite an uneven recovery in 2022–2023, firms with strong internal financial management, including healthy liquidity and lower leverage, demonstrated greater resilience. The pandemic era revealed that firms that managed resources strategically and leveraged digital transformation were more likely to recover and sustain profitability, underscoring the value of effective internal financial controls in navigating external shocks.

In recent years, non-financial listed firms in Malaysia have faced growing challenges due to internal inefficiencies and external macroeconomic pressures, including a shortage of digitally skilled labour, economic uncertainty, and regulatory complexity. Despite government initiatives under RMKe-12, issues such as poor capital management and inconsistent profitability persist. While past studies largely focus on the financial sector, limited research explores internal financial factors in the non-financial sector across pre- and post-pandemic periods. To fill this gap, this study uses Return on Assets (ROA) to analyze the effects of firm size, sales growth, cash flow ratio, and debt-to-equity ratio on firm performance from 2013–2023.

This study investigates the internal financial factors influencing firm performance among 30 non-financial firms listed on Bursa Malaysia from 2013 to 2023. Firm performance is measured by Return on Assets (ROA), a reliable accounting-based indicator. The four internal variables examined are firm size, sales growth, cash flow ratio, and debt-to-equity ratio. Firm size is assessed using the natural logarithm of total assets, sales growth represents revenue competitiveness, the cash flow ratio indicates liquidity strength, and the debt-to-equity ratio reflects a firm's leverage. The study aims to explore how these internal elements affect firm performance and contribute to financial sustainability.

LITERATURE REVIEW

Firm Performance

Firm performance, commonly measured by Return on Assets (ROA), is influenced by internal resources, aligning with the Resource-Based View (RBV) that emphasizes valuable, rare, inimitable, and non-substitutable (VRIN) assets as drivers of competitive advantage. Mailani (2024) and Bhandari (2022) highlight that firms with strong intangible assets and ESG practices tend to achieve higher ROA. Studies on Korean firms show R&D significantly boosts ROA, while Indian research reveals that poor working

capital practices and excessive debt reduce profitability (Garg, 2024). Thus, effective internal resource management enhances ROA, while financial inefficiencies undermine firm performance and long-term sustainability.

Firm Size

Firm size, typically measured by total assets or revenue, can signal stronger performance as per signaling theory (Mansikkamäki, 2023). Larger firms often attract more investment and resources, leading to improved efficiency and competitiveness (Kim Quoc Trung, 2021). Elouaourti (2023) found that firm size positively influences performance globally, though financing strategies vary by size. Ahmed (2023) highlighted firm size as a moderator in profitability, with larger firms performing better due to operational advantages. However, Yadav (2022) noted that beyond a certain scale, firms may face diseconomies of scale and inefficiencies, resulting in a negative impact on profitability despite their size.

Sales Growth

Sales growth, measured by the percentage increase in revenue, is a key indicator of a firm's competitiveness and long-term sustainability, especially in emerging markets like Malaysia. Dodoo (2020) found that a 1% increase in sales growth significantly improved ROA among Ghanaian firms, linking it to strategies like product innovation and customer expansion. Xie (2022) emphasized that sales growth influences firms' foreign investment decisions based on performance feedback, while Zhou (2024) found a strong positive correlation between sales growth, stock returns, and firm performance. Overall, studies confirm that higher sales growth enhances profitability through increased market share and operational efficiency.

Debt-To-Equity Ratio

The debt-to-equity (D/E) ratio, a key measure of financial leverage, significantly impacts firm performance as it reflects capital structure efficiency. Aman (2023) and Al-Naimi (2021) found a negative relationship between high debt reliance and ROA, citing reduced equity efficiency and increased agency costs. However, Arhinful (2023) observed a positive impact of debt on ROA among Tokyo-listed firms, emphasizing tax advantages and better capital access when debt is well-managed. These mixed findings suggest that the effect of D/E on performance depends on how firms balance debt and equity, manage financial risks, and strategically utilize leverage to enhance profitability.

Cash Flow Ratio

Liquidity, particularly measured through the cash flow ratio (CFR), plays a crucial role in sustaining firm operations and profitability, especially in emerging markets like Malaysia. CFR, defined as operating cash flow over current liabilities, reflects a firm's short-term solvency. Dodoo (2020) found a significant positive relationship between CFR and ROA in Ghanaian non-financial firms, while Noury (2020) confirmed the reliability of operating cash flow as a financial health indicator in French firms. Conversely, Yang (2020) warned that overconfident managers may overuse internal cash, leading to

negative OCF. Overall, strong CFR enhances financial resilience and supports sustainable performance across volatile markets.

METHOD

This study adopts panel data as its main research method to examine the relationship between key financial indicators and firm performance. Panel data, which combines cross-sectional and time-series dimensions, involves tracking multiple firms over a specific time period. In this study, data from 30 non-financial Malaysian firms spanning 2013 to 2023 is analyzed, forming a balanced dataset with repeated yearly observations. This approach enables the investigation of both short-term variations and long-term performance trends. It also accounts for firm-specific and time-specific effects, providing a more comprehensive understanding of how variables like firm size, sales growth, debt, and liquidity influence performance. Figure 1 presents the theoretical framework that illustrates the direct relationship between the dependent variable, firm performance measured by Return on Assets (ROA), and four independent variables which are firm size, sales growth, debt-to-equity ratio, and cash flow ratio.



Figure 1: Theoretical Framework

Diagnostic checks are crucial in panel data regression to ensure the model's validity and reliability. Four key tests are conducted: the normality test, commonly using the Jarque-Bera method, assesses whether the data follows a normal distribution, with a p-value below 0.05 indicating non-normality (Rao, 2024). The unit root test evaluates data stationarity, where a p-value under 0.05 suggests the data is stationary and suitable for analysis (Lee, 2025). Multicollinearity is examined using the Variance Inflation Factor (VIF); a VIF above 5 indicates high correlation between independent variables, potentially compromising the regression model (Jacob M, 2023; Singh, 2024). Lastly, heteroscedasticity is a violation of constant error variance, is tested using the Modified Wald Test, where a significant result indicates unequal variance in error terms (Yusoff, 2022).

Panel data analysis involves three main types of models: Pooled Ordinary Least Squares (POLS), Fixed Effects Model (FEM), and Random Effects Model (REM). The POLS model treats all firms and time periods uniformly, assuming constant intercepts and slopes across entities, making it the simplest but least flexible method (Yusoff, 2022). The FEM controls for unobserved, time-invariant firm-specific traits by assigning each entity its own intercept, effectively removing bias

from omitted variables linked to individual characteristics (Kelejian, 2017). Meanwhile, the REM assumes firm-specific effects are random and uncorrelated with independent variables, allowing for more efficient estimates if this assumption holds, but potentially producing biased results if violated (Tilburg, 2025).

RESULTS

Normality testing using the Jarque-Bera test assesses whether sample data follow a normal distribution based on skewness and kurtosis as in the Figure 2. In this analysis, all variables yielded a p-value less than 0.05, leading to the rejection of the null hypothesis (H0). This indicates that the data are not normally distributed.

Figure 2
Descriptive statistics

	FP	LNFS	DTEQR	CFR	G
Mean	6.917727	7.813787	97.99697	52.50818	14.22324
Median	5.830000	7.892228	51.64500	32.09500	1.815000
Maximum	84.64000	11.31009	899.8900	1086.990	2172.110
Minimum	-22.65000	3.874113	0.200000	-82.27000	-65.94000
Std. Dev.	9.349542	1.699762	145.2235	104.8866	135.3003
Skewness	3.239474	0.107736	3.107826	6.637413	13.73775
Kurtosis	23.52244	2.256825	13.28342	58.06777	207.8986
Jarque-Bera	6368.276	8.232640	1985.266	44119.35	587652.3
Probability	0.000000	0.016304	0.000000	0.000000	0.000000
Sum	2282.850	2578.550	32339.00	17327.70	4693.670
Sum Sq. Dev.	28759.19	950.5433	6938562.	3619394.	6022734.
Observations	330	330	330	330	330

The unit root test was conducted to assess the stationarity of the variables in the panel data as in the Table 1. Based on the results, the p-values for firm performance (FP), log firm size (lnFS), debt-to-equity ratio (DTEQR), cash flow ratio (CFR), and growth (G) were all below 0.05, leading to the rejection of the null hypothesis. This indicates that these variables do not contain a unit root and are therefore stationary.

Table 1
Unit Root

	LLC		IPS		ADF		PP	
	Level	1st Diff	Level	1st Diff	Level	1st Diff	Level	1st Diff
FP	<u>-3.44713</u> (0.0003)	<u>-5.66025</u> (0.0000)	<u>-1.68992</u> (0.0455)	<u>-3.88349</u> (0.0001)	<u>80.4391</u> (0.0403)	<u>115.643</u> (0.0000)	<u>96.4253</u> (0.0020)	<u>276.409</u> (0.0000)
lnFS	<u>-20.1284</u> (0.0000)	<u>-39.2915</u> (0.0000)	<u>-4.93920</u> (0.0000)	<u>-7.15509</u> (0.0000)	<u>91.2965</u> (0.0057)	<u>115.389</u> (0.0000)	<u>115.901</u> (0.0000)	<u>152.705</u> (0.0000)
DTEQR	<u>-1.89652</u> (0.0289)	<u>-9.76101</u> (0.0000)	<u>-0.07704</u> (0.4693)	<u>-3.04292</u> (0.0012)	<u>64.9082</u> (0.3096)	<u>100.235</u> (0.0009)	<u>79.5120</u> (0.0467)	<u>205.319</u> (0.0000)
CFR	<u>-3.17166</u> (0.0008)	<u>-5.56855</u> (0.0000)	<u>-2.34115</u> (0.0096)	<u>-5.35236</u> (0.0000)	<u>96.6996</u> (0.0019)	<u>147.213</u> (0.0000)	<u>150.962</u> (0.0000)	<u>331.471</u> (0.0000)
G	<u>-4.81104</u> (0.0000)	<u>-9.32433</u> (0.0000)	<u>-4.13029</u> (0.0000)	<u>-6.76846</u> (0.0000)	<u>120.505</u> (0.0000)	<u>170.865</u> (0.0000)	<u>164.050</u> (0.0000)	<u>304.964</u> (0.0000)

Multicollinearity occurs when independent variables in a regression model are highly correlated, which can distort the reliability of coefficient estimates. Using the Variance Inflation Factor (VIF) as suggested by Singh (2024), values exceeding 5 indicate strong multicollinearity. In this analysis, all variables showed VIF values below 5, indicating no multicollinearity issues and confirming that the predictors are reliable for regression analysis as stated in Figure 3.

Figure 3
Variance Inflation Factors

Variance Inflation Factors			
Date: 06/27/25 Time: 01:35			
Sample: 2013 2023			
Included observations: 330			
Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	5.852388	23.86809	NA
LNFS	0.095891	25.00377	1.126471
DTEQR	1.30E-05	1.627221	1.117029
CFR	2.26E-05	1.265902	1.011604
G	1.35E-05	1.014030	1.002914

Heteroskedasticity arises when the variance of error terms in a regression model is not constant, potentially affecting the reliability of estimates. Using the Modified Wald Test, as suggested by Yusoff (2022), the analysis revealed a chi-square p-value less than 0.05 as in Figure 4. This leads to the rejection of the null hypothesis, indicating that the model suffers from heteroskedasticity, and the error variances are not constant across observations.

Figure 4
Wald Test

Wald Test: Equation: Untitled			
Test Statistic	Value	df	Probability
F-statistic	45.11872	(5, 325)	0.0000
Chi-square	225.5936	5	0.0000
Null Hypothesis: C(1)=0,C(2)=0,C(3)=0,C(4)=0,C(5)=0 Null Hypothesis Summary:			
Normalized Restriction (= 0)	Value	Std. Err.	
C(1)	4.541445	2.419171	
C(2)	0.094096	0.309663	
C(3)	0.002380	0.003609	
C(4)	0.025589	0.004756	
C(5)	0.004512	0.003671	

Based on the result of the Redundant Fixed Effect, which explains that either POLS or FEM is the appropriate model. It shows the Probability Cross-section F is 0.000 which is less than 0.05, it means, reject null hypothesis (H_0), therefore it is indicated that FEM is the accepted model from this redundant fixed effect. Meanwhile, the result of the Hausman test determines the best model between REM and FEM. From the result, the Probability Cross-section F is 0.1901, which is greater than 0.05. Hence, it failed to reject null hypothesis (H_0). This means, the Random Effect Model (REM) is the best model to explain factor that influence firm performance in Malaysia. The F-test value of 9.79 with a p-value of 0.0000 indicates that the overall regression model is statistically significant at the 5% level, meaning at least one independent variable significantly affects firm performance (ROA) in Malaysia. The model explains 10.76% of the variation in firm performance, while the remaining 89.24% is influenced by other factors. Although the model is significant, the low R^2 suggests that the independent variables have a weak explanatory power as in Figure 5.

Figure 5

Summary of the result

Dependent variable: Firm Performance			
Independent variables:	POLS	FEM	REM
	Coefficient		
Log Natural Firm Size (LnFS),	0.094096	-0.314244	0.105071
Debt To Equity Ratio (DTEQR)	0.002380	-0.012968	-0.008872
Cash Flow Ratio (CFR)	0.025589	0.029554	0.028552
Growth (G)	0.004512	0.007210	0.00675
Adjusted R-squared	0.074346	0.460807	0.096568
F-statistic	7.606089	9.520330	9.791678
Redundant Fixed Effect (P-value)	0.0000		
Hausman Test (P-value)	0.1901		

Estimate equation based on result from Random Effect Model as in Figure 6:

Figure 6

Result Equation

$$FP = 5.370916 + 0.105071LNFS - 0.008872 DTEQR + 0.028552CFR + 0.00675G + \varepsilon$$

The regression slope coefficients indicate the relationship between each independent variable and firm performance (FP). A 1-unit increase in Log Natural Firm Size (LNFS) leads to a 0.11% increase in FP, while a 1-unit increase in Debt-to-Equity Ratio (DTEQR) results in a 0.01% decrease in FP. Similarly, increases in Cash Flow Ratio (CFR) and Growth (G) by 1 unit lead to improvements in FP by 0.03% and 0.01%, respectively, suggesting that firm size, cash flow, and growth positively influence performance, whereas higher leverage slightly reduces it.

Table 2

Level of significance based on P-value

Independent Variable	P-value		Level of significant	Result
Log Natural Firm Size (LNFS)	0.8458	>	0.05	Insignificant, Accept Ho
Debt To Equity Ratio (DTEQR)	0.0387	<	0.05	Significant, Reject Ho
Cash Flow Ratio (CFR)	0.0000	<	0.05	Significant, Reject Ho
Growth (G)	0.0215	<	0.05	Significant, Reject Ho

The table interprets the significance of independent variables based on their p-values compared to a significance level of 0.05. A variable is considered statistically significant if its p-value is less than 0.05, leading to the rejection of the null hypothesis (Ho). In this analysis, Debt to Equity Ratio (DTEQR), Cash Flow Ratio (CFR), and Growth (G) are significant predictors since their p-values (0.0387, 0.0000, and 0.0215 respectively) are less than 0.05, indicating that these variables have a statistically significant effect on the dependent variable. On the other hand, Log Natural Firm Size (LNFS) is not significant (p-value = 0.8458), meaning there is insufficient evidence to suggest it affects the dependent variable, and thus the null hypothesis is accepted for this variable.

CONCLUSION

Based on the findings, the Random Effects Model (REM) was determined to be the most appropriate to explain factors influencing firm performance in Malaysia. The model is statistically significant, with an F-statistic of 9.79 ($p < 0.05$), indicating that the independent variables collectively affect firm performance measured by ROA. Among the variables, Debt-to-Equity Ratio (DTEQR), Cash Flow Ratio (CFR), and Growth (G) have significant effects, while Log Natural Firm Size (LNFS) does not. However, the R-squared value of 0.1076 suggests that only 10.76% of the variation in firm performance is explained by these variables, implying that other unobserved factors may also play a substantial role.

For future research, it is recommended to include additional variables such as innovation, corporate governance, market competition, and macroeconomic indicators (e.g., GDP growth, inflation) to better capture the factors influencing firm performance. Researchers could also explore the impact of digital transformation or sustainability practices on firm outcomes. Moreover, using a longer time frame or expanding the sample size to include more firms across various sectors could enhance the robustness and generalizability of the findings. Lastly, applying advanced econometric techniques such as dynamic panel data models or structural equation modeling may provide deeper insights into the causal relationships among variables.

REFERENCES

- Ahmed, A. M. (2023). Effect of Firm Size on the Association between Capital Structure and Profitability. *Sustainability (Switzerland)*, 15(14).
<https://doi.org/10.3390/su151411196>
- Alarussi, A. S., & Alhaderi, S. M. (2018). Factors affecting profitability in Malaysia. *Journal of Economic Studies*, 45(3), 442–458.
<https://doi.org/10.1108/JES-05-2017-0124>
- Al-Naimi, A. A. (2021). CAPITAL STRUCTURE, BOARD SIZE AND FIRM PERFORMANCE: EVIDENCE FROM JORDAN Institute of Banking Studies in Jordan. In *Academy of Strategic Management Journal* (Vol. 20).

- Aman, Q. (2023). The impact of debt and equity decisions on business performance: Evidence from International Airline Corporation. *Revista Amazonia Investiga*, 12(63), 10–20.
<https://doi.org/10.34069/ai/2023.63.03.1>
- Arbelo. (2024). Internationalization and individual firm performance: a resource-based view. *Eurasian Business Review*.
<https://doi.org/10.1007/s40821-024-00276-5>
- Arhinful, R. (2023). The effect of financial leverage on financial performance: evidence from non-financial institutions listed on the Tokyo stock market. *Journal of Capital Markets Studies*, 7(1), 53–71.
<https://doi.org/10.1108/JCMS-10-2022-0038>
- Bank Negara Malaysia. (2023). *2023 Financial Stability Review Second Half*.
- Bank Negara Malaysia. (2024). *BNM Annual Report 2024*.
- Barney. (2021). Resource-Based Theory and the Value Creation Framework. *Journal of Management*, 47(7), 1936–1955.
<https://doi.org/10.1177/01492063211021655>
- Bhandari. (2022). The resource-based view, stakeholder capitalism, ESG, and sustainable competitive advantage: The firm’s embeddedness into ecology, society, and governance. *Business Strategy and the Environment*, 31(4), 1525–1537.
<https://doi.org/10.1002/bse.2967>
- BNM. (2023). *Capital Adequacy Framework (Operational Risk)*.
<https://www.bis.org/bcbs/publ/d424.pdf>
- Dodoo. (2020). Examining the factors that influence firm performance in Ghana: a GMM and OLS approach. *National Accounting Review*, 2(3), 309–323.
<https://doi.org/10.3934/NAR.2020018>
- DOSM. (2023). *MSMEs’ GDP surges by 11.6 per cent in 2022, reaching RM580.4 billion*.
- Elouaourti, Z. (2023). Financial services and firm performance, are there any differences by size? Worldwide evidence using firm-level data. *Journal of Economic Studies*, 50(4), 858–880.
<https://doi.org/10.1108/JES-10-2021-0526>
- Federico, J. S. (2015). *The heterogeneous dynamics between growth and profits: the case of young firms*. 44(2), 231–253.
- Foong. (2021). Capital Structure and Firm Performance: Evidence from Malaysian Public Listed Plantation Companies. In *UNIMAS Review of Accounting and Finance* (Vol. 5, Issue 1).

- Garg. (2024). Does Working Capital Management Affect Financial Performance: Empirical Evidence of Indian Manufacturing Sector? *Journal of Operations and Strategic Planning*, 7(1), 48–64.
<https://doi.org/10.1177/2516600x241245808>
- Ibhagui, O. W. (2018). Leverage and firm performance: New evidence on the role of firm size. *The North American Journal of Economics and Finance*, 45, 57–82.
<https://doi.org/10.1016/j.najef.2018.02.002>
- Jacob M. (2023, November 24). *What is multicollinearity?* IBM.
<https://www.ibm.com/think/topics/multicollinearity>
- Kelejian, H. (2017). Panel Data Models. *Spatial Econometrics*, 307–341.
<https://www.sciencedirect.com/science/article/abs/pii/B9780128133873000159>
- Kero. (2023). A Systematic Review of Resource-Based View and Dynamic Capabilities of Firms and Future Research Avenues. In *International Journal of Sustainable Development and Planning* (Vol. 18, Issue 10, pp. 3137–3154). International Information and Engineering Technology Association.
<https://doi.org/10.18280/ijstdp.181016>
- Kim Quoc Trung. (2021). *Determinants of small and medium-sized enterprises performance: The evidence from Vietnam*.
- KPMG. (2021). *Resilience: Leading for the long term*.
- Lee, S. (2025, April 17). *A Definitive Guide to Panel Unit Root Tests*. Number Analytics.
- Mailani. (2024). Resource-Based View Theory to Achieve a Sustainable Competitive Advantage of the Firm: Systematic Literature Review. *International Journal of Entrepreneurship and Sustainability Studies*, 4(1), 1–15.
<https://doi.org/10.31098/ijeass.v4i1.2002>
- Mansikkamäki, S. (2023). Firm growth and profitability: The role of age and size in shifts between growth–profitability configurations. *Journal of Business Venturing Insights*, 19. <https://doi.org/10.1016/j.jbvi.2023.e00372>
- McKinsey. (2023). *State of Organizations 2023 McKinsey & Company*.
- Mohamed. (2016). *The Impact of Goods and Services Tax (GST) in Malaysia*.
<https://www.researchgate.net/publication/334646170>
- Naa Amua Dodoo, R., Appiah, M., & Tetteh Donkoh, D. (2020). Examining the factors that influence firm performance in Ghana: a GMM and OLS approach. *National Accounting Review*, 2(3), 309–323.
<https://doi.org/10.3934/NAR.2020018>
- Noury. (2020). The prediction of future cash flows based on operating cash flows, earnings and accruals in the French context. *Journal of Behavioral and Experimental Finance*, 28. <https://doi.org/10.1016/j.jbef.2020.100414>

- Nuryanah, S., & Islam, S. M. N. (2011). *CORPORATE GOVERNANCE AND PERFORMANCE: EVIDENCE FROM AN EMERGING MARKET*.
- OECD. (2023). *OECD Compendium of Productivity Indicators 2023*. OECD. <https://doi.org/10.1787/74623e5b-en>
- Rao, R. (2024). *Normality Testing in Statistics: What Clinician-Researchers Should Know*. https://doi.org/10.4103/HFJI.HFJI_7_24
- Saggu. (2015). *Commodity Price Crash: Risks to Exports and Economic Growth in Asia-Pacific LDCs and LLDCs Asia-Pacific land-locked developing countries (LLDCs) include Asia-Pacific least developed countries (LDCs) include*.
- Securities Commission Malaysia. (2024). *CAPITAL MARKET STABILITY REVIEW 2024*. www.investsmartsc.my
- Siew. (2019). *US-China Trade War: Potential Trade and Investment Spill-overs into Malaysia US-China Trade War: Potential Trade and Investment Spill-overs into Malaysia I*.
- Singh, V. (2024, November 18). *Variance Inflation Factor (VIF): Addressing Multicollinearity in Regression Analysis*. DataCamp
- Suitri. (2021). *Capital Structure and Financial Performance of Manufacturing Companies in Indonesia*.
- Tilburg. (2025). *The Random Effects Model*. Tilburgsciencehub. <https://tilburgsciencehub.com/topics/analyze/causal-inference/panel-data/random-effects/>
- Tuyet. (2023). Competition and firm performance: evidence from Vietnam. *RAUSP Management Journal*, 58(2), 111–124. <https://doi.org/10.1108/RAUSP-03-2022-0094>
- World Bank. (2024). *A World Bank Group Flagship Report Global Economic Prospects*.
- Xie, E., Fang, A. J., Chen, X., Wu, Z., & Kumar, V. (2022). Performance feedback on sales growth goal and OFDI location choices for firms in emerging economies. *Journal of World Business*, 57(4). <https://doi.org/10.1016/j.jwb.2022.101343>
- Yadav, I. S. (2022). The nexus between firm size, growth and profitability: new panel data evidence from Asia–Pacific markets. *European Journal of Management and Business Economics*, 31(1), 115–140. <https://doi.org/10.1108/EJMBE-03-2021-0077>
- Yang. (2020). Managerial overconfidence and manipulation of operating cash flow: Evidence from Korea☆. *Finance Research Letters*, 32. <https://doi.org/10.1016/j.frl.2019.101343>

Yusoff, Z. (2022). *Quantitative Research Methods* (3rd ed.). MLSCA ASIAN ACADEMY PETALING JAYA.

Yusuf. (2021). Determinants of Firms' Performance: Evidence from Non-Financial Firms in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 11(11).
<https://doi.org/10.6007/ijarbss/v11-i11/11339>

Zhou. (2024). Exploring the investment value of retail sales growth: Evidence from the China Retailer Alliance. *Finance Research Letters*, 63.
<https://doi.org/10.1016/j.frl.2024.105364>

Clark. (2015). Should I Use Fixed or Random Effects? *Political Science Research and Methods*, 3(2), 399–408.
<https://doi.org/10.1017/psrm.2014.32>

Frondel. (2010). *Fixed, Random, or Something in Between?*

Lim. (2023). Development of a fire prediction model at the urban planning stage: Ordinary least squares regression analysis of the area of urban land use and fire damage data in South Korea. *Fire Safety Journal*, 136.
<https://doi.org/10.1016/j.firesaf.2023.103761>

O'Reilly. (2025). Freedom from unit roots? The time series properties of democracy and economic freedom. *Journal of Comparative Economics*.
<https://doi.org/10.1016/j.jce.2025.02.003>

Rao, R. (2024). *Normality Testing in Statistics: What Clinician-Researchers Should Know*.
https://doi.org/10.4103/HFJI.HFJI_7_24

Singh, V. (2024, November 18). *Variance Inflation Factor (VIF): Addressing Multicollinearity in Regression Analysis*. DataCamp.
<https://www.datacamp.com/tutorial/variance-inflation-factor>

Yusoff, Z. (2022). *Quantitative Research Methods* (3rd ed.). MLSCA ASIAN ACADEMY PETALING JAYA