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Research Article

Financial Performance Analysis using Modified Dupont Model in Malaysian Public Listed Companies

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ABSTRACT

The purpose of this study is to conduct a comprehensive assessment of the financial performance of Publicly Listed Companies in Malaysia using the Modified DuPont Model Framework. The motivation behind this investigation stems from the urgent need to evaluate the complex financial landscape of the Malaysian market methodically. The main objective is to provide empirical evidence of the relationship between key financial ratios and the return on equity (ROE), offering valuable insights for investors and stakeholders. The research period spans a decade, from 2013 to 2022, allowing for a thorough analysis of financial trends. The quantitative research method will be employed, utilizing secondary data obtained from Bursa Malaysia, and STATA software will be used for statistical analysis. The research approach has been carefully designed, employing a purposive sampling technique to select 260 companies from various sectors, including consumer goods, industrial products, services, technology and healthcare. Panel-Corrected Standard Errors (PCSE) regression was used to analyze the panel data in order to solve cross-sectional dependency concerns. The results show that interest burden, operating efficiency, asset utilization efficiency, and financial leverage all have a substantial influence on ROE, but tax burden does not. Furthermore, whereas company age increases the impact of financial leverage on ROE, firm size moderates the correlations between asset utilization efficiency and ROE. By showing how financial indicators function as powerful signals for investors, these findings support the Signalling Theory. The study provides financial decision-making implications for investors, policymakers, and corporate management.

Keywords: Financial Performance, Modified DuPont Model, Malaysian PLCs, Financial Performance, Financial Ratios, Tax Burden, Interest Burden, Operating Efficiency, Asset Utilization Efficiency, Financial Leverage, Signaling Theory.

INTRODUCTION

One of the main factors determining corporate success is a company's financial performance, which also affects strategic planning, decisions on investments, and general economic expansion. The financial environment in emerging nations like Malaysia is significantly shaped by Public Listed Companies (PLCs). Financial performance research is crucial for investors, corporate managers, and policymakers since these companies operate in a variety of industries, such as technology, consumer goods, industrials, healthcare, and services. The DuPont Model is one of the most well-known models used to evaluate a company's financial health. This model offers an organised method for comprehending company performance by breaking down Return on Equity (ROE) into its essential elements of profitability, operational effectiveness, and financial leverage (Teh et al., 2024). However, since corporate financial structures have become more complex, academics have improved this model to create the Modified DuPont Model, which adds new elements such financial leverage, tax burden, interest burden, and asset utilisation efficiency (Chang et al., 2014). A more detailed examination of financial performance is made possible by this improved framework, which provides greater understanding of corporate profitability and risk management strategies.

Market volatility, changes in regulations, and changing corporate governance norms have all contributed to major changes in Malaysia's financial industry in recent years. Since many businesses experienced economic difficulties as a result of the COVID-19 epidemic, the necessity for strong financial performance models was further highlighted. According to the Department of Statistics Malaysia (2021), the country's gross domestic products (GDP)

contracted by -5.6% in 2020, underscoring the challenges businesses faced in maintaining financial stability. Conventional financial ratio analysis is no longer as good at identifying the real factors that influence a company's profitability and risk exposure due to the growing complexity of financial decision-making. The Modified DuPont Model is especially pertinent to Malaysian PLCs as it offers a more thorough framework for study.

Despite its benefits, there are still few empirical research on the Modified DuPont Model in Malaysia. Conventional DuPont analysis is the main focus of the majority of current research, with minimal attention paid to business-specific factors such firm size and age. It is often acknowledged that company size has a significant role in determining financial performance, with larger businesses enjoying the advantages of economies of scale, easier access to financing, and a wider range of income sources (Komara et al., 2020). Older businesses, on the other hand, typically have more conservative financial practices, risk aversion, and financial stability, which influences how they use financial resources (Ilaboya & Ohiokha, 2016). However, it hasn't been fully investigated in the Malaysian context to what degree these firm-specific characteristics regulate financial ratios and ROE.

Furthermore, in order to assess company performance, advanced analytical methods are required due to the growing data-driven nature of financial markets. Simple regression models, which frequently overlook cross-sectional dependency and business heterogeneity, are the foundation of many earlier investigations. To ensure statistical accuracy and reliability while evaluating financial determinants, this study uses Panel-Corrected Standard Errors (PCSE) estimate, a robust panel data regression technique.

The foundation of this study is the Signalling Theory, which holds that companies signal their stability, profitability, and investment potential to external stakeholders through financial indicators (Spence, 1973; Ross, 1977). Strong financial performance, under this notion, conveys favorable signals to investors, raising a company's market value and appeal (Bini et al., 2011). Investor confidence is further reinforced by the perception that larger and older companies are more financially robust (Wasiuzzaman & Nair, 2013). The goal of this study is to offer a comprehensive framework for comprehending financial performance in Malaysian PLCs by combining Signalling Theory with the Modified DuPont Model.

By using the Modified DuPont Model to Malaysian PLCs and investigating the moderating effects of company size and firm age on financial performance, this study adds to the body of financial literature. Corporate managers, investors, and legislators will benefit from the results' practical consequences, which will help them improve their risk management, investment strategies, and financial planning. Additionally, this study contributes to the broader application of Signaling Theory, offering a new perspective on how firms use financial data to communicate the market position and stability. This study aims to bridge the gap in financial performance evaluation by employing a refined analytical approach that incorporates firm-specific attributes and advanced statistical techniques. By doing this, it aims to improve comprehension of how Malaysian PLCs deal with financial difficulties and generate value for shareholders.

Literature Review

A crucial component of business management and investment decision-making has always been the evaluation of financial performance. The DuPont Model is still one of the most used frameworks for analysing company profitability, efficiency, and financial leverage, while other models have also been utilized. The DuPont Model, which was first created by F. Donaldson Brown in 1918, breaks down Return on Equity (ROE) into its parts to provide a more thorough understanding of a company's operational efficiency and financial stability (Doorasamy, 2016). A more thorough assessment of financial performance has become accessible due to the Modified DuPont Model, which developed over time and included other financial measures such as tax burden, interest burden, asset utilisation efficiency, and financial leverage (Chang et al., 2014).

In recent years, corporate governance changes, regulatory reforms, and economic volatility have all had a major impact on Malaysia's financial environment. Businesses experienced revenue interruptions and financial difficulties during the COVID-19 pandemic, underscoring the significance of financial resilience (Department of Statistics Malaysia, 2021). Given these difficulties, a more comprehensive methodology for evaluating financial performance is required, especially when considering Public Listed Companies (PLCs), which are the primary driver of Malaysia's economic growth. Little empirical study has applied the Modified DuPont Model to Malaysian PLCs,

despite the fact that it is increasingly being used in international studies. This has left a gap in the literature of how financial drivers affect company profitability in the Malaysian setting.

The DuPont Model was presented as a simple structure for evaluating business success using financial leverage and return on assets (ROA) (Hawawini & Viallet, 1999). The model developed into a more complex financial evaluation tool over time, including new elements to enhance decision-making and performance monitoring. By further segmenting net profit margin into tax burden, interest burden, operational efficiency, asset turnover, and financial leverage, the Modified DuPont Model expands on the conventional methodology (Nanavati, 2013).

According to empirical research, the Modified DuPont Model offers better financial insights than conventional financial measures. For instance, Isberg (2000) discovered that breaking down ROE into a variety of financial metrics enables businesses to pinpoint certain areas that require enhancement, including capital structure optimisation, cost control, or operational efficiency. Similar to this, Belascu, Ogrean, and Herciu (2011) studied the top twenty most profitable businesses in the world and came to the conclusion that ROE decomposition improves investment decision-making by offering in-depth knowledge of the factors that influence profitability.

The DuPont and Modified DuPont Models have been used in several studies to evaluate financial performance in various economies and industries. A study by Shabani et al., (2021), examined the financial performance of SMEs in Kosovo and discovered that while excessive financial leverage has a negative effect on performance, net profit margin and asset turnover substantially contribute to greater ROE. The DuPont Model was also applied to the Romanian energy industry by Bunea et al., (2019), who came to the conclusion that although excessive debt lowers financial returns, greater profitability and asset efficiency increase ROE.

Teh et al., (2024) evaluated the DuPont Model's Goodness of Fit (GoF) in describing the financial performance of 500 Malaysian PLCs. According to the research, the DuPont Model accounts for 16.9% of the variation in ROE, while net profit margin and financial leverage have less of an effect than total asset turnover. This implies that in order to improve the explanatory capacity of financial models, future research should include more financial drivers.

The foundation of this study is Signalling Theory, which describes how businesses communicate stability, profitability, and investment potential to external stakeholders through financial indicators (Spence, 1973; Ross, 1977). This theory states that companies with effective resource management and sound financial management communicate favorably to investors, raising their market value and appeal as an investment (Bini et al., 2011).

The hypothesis is especially applicable to the business environment in Malaysia, where financial signaling is heavily influenced by firm age and size. Larger and older firms typically provide stronger financial signals, as they are perceived as more financially stable and better positioned to withstand market fluctuations (Wasiuzzaman & Nair, 2013). However, there is a need for more research in this area as little has been done on how these firm-specific traits moderate financial success indicators.

Empirical Evidence on the Determinants of Financial Performance

Tax Burden and Financial Performance

The percentage of earnings before taxes (EBT) kept after tax deductions is known as the tax burden, and it affects total profitability. According to Hanlon and Heitzman (2010), tax avoidance techniques may improve short-term profitability but also draw regulatory attention and reputational issues, which might affect long-term financial success. While according to Kharatyan et al., (2017), tax burden significantly influences ROE, with greater taxes lowering net profit margins.

Interest Burden and Financial Performance

The effect of finance expenses on business profitability is gauged by interest burden. Nissim & Penman (2001) discovered that excessive borrowing raises financial risk and lowers ROE, whereas moderate debt levels can boost profitability by offering a tax protection. According to Guariglia, Spaliara, and Tsoukas' (2012) analysis of 14,000 UK businesses, high interest rates have a detrimental impact on a company's ability to survive, especially in times of financial crisis.

Operating Efficiency and Financial Performance

A company's capacity to manage expenses and optimize revenue creation is reflected in its operating efficiency. According to Kharatyan et al. (2017), better operating efficiency has a major impact on ROE since profitable businesses have effective cost-control procedures. Werner and Moormann (2009) also discovered that European banks' technical efficiency had a beneficial influence on their financial performance, highlighting the significance of operational effectiveness.

Asset Utilization Efficiency and Financial Performance

Asset turnover gauges how well a company makes use of its resources to produce income. According to Ali Khan et al., (2016), better financial success in the retail sector is correlated with increased asset turnover. Hanisah et al., (2021) found that occupancy rates, pricing policies, and customer satisfaction all had a big impact on asset utilisation efficiency in Malaysia's hotel industry.

Financial Leverage and Financial Performance

The degree to which a company depends on debt to finance its assets is indicated by financial leverage, often known as the equity multiplier. According to Ferrarini et al., (2017), Chinese banks that have smaller equity multipliers perform better financially, suggesting that conservative capital structures increase profitability. The significance of balanced debt management was also highlighted by Sandip & Samanta (2018), who discovered that manufacturing companies with lower leverage ratios have better financial results.

RESEARCH METHODOLOGY

This study employs a quantitative research approach to analyze the financial performance of Malaysian Public Listed Companies (PLCs) using the Modified DuPont Model. The dataset, which comes from Bursa Malaysia and Refinitiv Eikon Datastream, includes 260 PLCs from a range of industries across a ten-year span, from 2013 to 2022. In order to maintain data consistency, a purposive sample approach is used, which excludes financial enterprises because of their different capital structures. There are five independent factors in the study framework: tax burden, interest burden, operating efficiency, asset utilisation efficiency, and financial leverage; two moderating variables are firm size and firm age; and one dependent variable is return on equity (ROE).

Panel data regression analysis is performed using STATA software to investigate these associations. Descriptive statistics, normality tests, correlation analysis, and the Hausman test are used to assess whether Fixed Effects (FE) or Random Effects (RE) models are appropriate. Heteroskedasticity and autocorrelation are addressed by using Panel-Corrected Standard Errors (PCSE). The research, which adopts a positivist paradigm, makes the assumption that financial performance can be assessed and examined objectively. Maintaining secrecy and integrity while working with publicly accessible data upholds ethical principles. A thorough evaluation of financial factors is made possible by this analytical approach, which also provides insightful information on the financial performance of Malaysian PLCs.

RESULT

Table 1 summarizes the descriptive statistics for the study's key variables: Return on Equity (ROE), Tax Burden (TB), Interest Burden (IB), Operating Efficiency (OE), Asset Utilization Efficiency (AUE), Financial Leverage (FL), Firm Size (FS), and Firm Age (FA). The dataset consists of 2600 observations and is strongly balanced, offering a comprehensive view of Malaysian Public Listed Companies (PLCs) over the period 2013 to 2022.

Table 1: Descriptive Statistics

Statistics	ROE	TB	IB	OE	AUE	FL	FS	FA
Count	2600	2600	2600	2600	2600	2600	2600	2600
Mean	0.0663	0.7863	1.1339	0.0849	0.7664	1.8214	13.1389	23.6135
Std Dev	0.1302	0.4151	0.5822	0.1491	0.5399	0.7937	1.4859	9.5991
Min	-0.2939	-0.5142	-0.5354	-0.4689	0.0485	1.0420	6.9921	5
Max	0.5844	2.0042	3.0869	0.4292	3.1798	5.2373	18.4442	61

Skewness	0.9191	-0.1696	0.7413	-1.0238	1.7517	2.0195	0.6702	1.2323
Kurtosis	7.9314	6.5782	7.5853	6.5796	7.6912	7.6749	3.6891	5.1965
Percentile	3rd, 97th	3rd, 97th	3rd, 97th	2nd, 98th	1st, 99th	1st, 99th	-	-

The average ROE of 6.63% indicates a reasonable level of profitability, while the mean TB (0.7863) and IB (1.1339) show that businesses are successfully controlling their tax and interest costs. AUE (0.7664) and OE (0.0849) show that different businesses have different degrees of asset efficiency and operational productivity. Financial leverage with mean of 1.8214, suggests that firms maintain assets approximately 1.82 times their equity. . The sample is dominated by large and established enterprises, as seen by the average FS (log-transformed) of 13.1389 and FA of 23.6135.

Significant diversity within the sample is revealed by standard deviations and extreme values. TB (SD = 0.4151) and OE (SD = 0.1491) are more consistent, but FL (SD = 0.7937) and IB (SD = 0.5822) show notable dispersion. While some companies exhibit financial difficulty with negative ROE (-0.2939) and IB (-0.5354), others report excessive FL (max = 5.2373) and AUE (max = 3.1798). FS was log-transformed to normalise its distribution, and winsorization was used at the right percentiles to reduce the effect of outliers. These modifications ensure the dataset's stability and dependability for further examination.

Table 2: Correlation Analysis

Variables	**ROE_w**	**TB_w**	**IB_w**	**OE_w**	**AUE_w**	**FL_w**	**log_FS**	**FA**
ROE_w	1.000	-0.0167	0.0638	0.5424	0.3897	-0.0914	0.1262	0.1214
TB_w	-0.0167	1.000	-0.1749	-0.0864	-0.0358	-0.0385	0.0256	0.0084
IB_w	0.0638	-0.1749	1.0000	0.1128	-0.0035	0.0991	0.0886	0.0154
OE_w	0.5424	-0.0864	0.1128	1.0000	-0.0162	-0.0725	0.1672	0.0818
AUE_w	0.3897	-0.0358	-0.0035	-0.0162	1.0000	0.1205	-0.1218	0.0078
FL_w	-0.0914	-0.0385	0.0991	-0.0725	0.1205	1.0000	0.2905	0.0306
log_FS	0.1262	0.0256	0.0886	0.1672	-0.1218	0.2905	1.0000	0.3049
FA	0.1214	0.0084	0.0154	0.0818	0.0078	0.0306	0.3049	1.0000

The correlation analysis highlights important findings by examining the correlations between ROE and the independent variables. Table 2 demonstrates that ROE has a substantial positive association with both asset utilisation efficiency (0.3897) and operating efficiency (0.5424), highlighting the significance of efficiency in raising profitability. Higher leverage appears to marginally lower returns, as indicated by the modest negative connection (-0.0914) between financial leverage and ROE. There is little direct influence indicated by the low correlations between Tax Burden and Interest Burden and ROE (-0.0167 and 0.0638, respectively).

Firm Age (0.1214) and Firm Size (0.1262) show weak positive associations with ROE, indicating their little contribution to profitability. With all inter-variable correlations below ±0.30, the lack of multicollinearity is verified. These results underscore the critical role of operational and asset efficiency over structural factors in driving financial performance.

Table 3: Prais-Winsten Regression with Panel-Corrected Standard Errors (PCSE) Analysis

ROE_w	**Coef.**	**Panel-Corrected Std. Err.**	**t**	**P>[t]**	**[95% Conf.**	**Interval]**
TB_w	0.0079	0.0045	1.77	0.076	-0.0008	0.0167
IB_w	0.0112	0.0033	3.37	0.001	0.0047	0.0177
OE_w	0.4606	0.0217	21.27	0.000	0.4182	0.5031
AUE_w	0.0911	0.0086	10.58	0.000	0.0742	0.1079

FL_w	-0.0353	0.0059	-6.01	0.000	-0.0469	-0.0238
log_FS	0.0116	0.0031	3.75	0.000	0.0056	0.0177
FA	0.0005	0.0002	2.45	0.014	0.0001	0.0009
_cons	-0.1622	0.0383	-4.23	0.000	-0.2372	-0.0871
rho	0.5401					

Number of obs =	2,600
Number of groups =	260
R-squared =	0.4461
Wald chi2(7) =	803.15
Prob > chi2 =	0.0000

The PCSE model is used to handle cross-sectional dependence, autocorrelation, and heteroskedasticity problems found in the panel data of 260 enterprises over a ten-year period. These problems were validated by preliminary tests, such as the Modified Wald Test and the Wooldridge Test, which supported the usage of PCSE for accurate and dependable estimations. The results are summarised in Table 3.

ROE is not substantially impacted by Tax Burden (β = 0.0079, p = 0.076), but it is favourably and significantly impacted by Interest Burden (β = 0.0112, p = 0.001), Operating Efficiency (β = 0.4606, p = 0.000), and Asset Utilisation Efficiency (β = 0.0911, p = 0.000). Financial Leverage has a negative impact on ROE (β = -0.0353, p = 0.000), highlighting the dangers of having too much debt. These findings emphasise the need to resolve panel data concerns in order to ensure accurate results and stress the importance of efficiency and resource optimisation in enhancing financial success, while also warning against excessive leverage.

Table 4: Moderating Factors with Panel-Corrected Standard Errors (PCSE) Analysis

Variable	Coefficient	Std. Error	t-Value	P-Value	95% Conf. Interval (Lower)	95% Conf. Interval (Upper)
FS_TB	-0.0046	0.0021	-2.16	0.031	-0.0088	-0.0004
FS_IB	-0.0048	0.002	-2.37	0.018	-0.0088	-0.0008
FS_OE	-0.0362	0.0134	-2.71	0.007	-0.0623	-0.01
FS_AUE	0.0394	0.0069	5.71	0.0	0.0259	0.0529
FS_FL	0.0003	0.0033	0.1	0.924	-0.0062	0.0068
FA_TB	0.00001	0.0004	0.03	0.974	-0.0008	0.0008
FA_IB	-0.0004	0.0003	-1.26	0.208	-0.0009	0.0002
FA_OE	-0.0037	0.0018	-2.05	0.04	-0.0073	-0.0002
FA_AUE	0.0034	0.0004	8.25	0.0	0.0026	0.0043
FA_FL	0.0015	0.0005	3.26	0.001	0.0006	0.0025

In order to address heteroskedasticity and cross-sectional dependence concerns, the PCSE analysis investigates the moderating effects of Firm Size (FS) and Firm Age (FA) on the association between financial variables and ROE. The results are summarised in Table 4 above.

A negative and significant effect is revealed by the interaction between Firm Size and Tax Burden (β = -0.0046, p = 0.031), Interest Burden (β = -0.0048, p = 0.018), and Operating Efficiency (β = -0.0362, p = 0.007), suggesting that bigger enterprises profit less from these parameters. On the other hand, Firm Size positively moderates Asset Utilisation Efficiency (β = 0.0394, p < 0.001), indicating that efficient resource allocation is more advantageous for larger businesses. For Financial Leverage, no discernible moderating impact is shown.

Financial Leverage (β = 0.0015, p = 0.001) and Asset Utilisation Efficiency (β = 0.0034, p < 0.001) are positively and substantially moderated by Firm Age, suggesting that older businesses are better at optimising these parameters. Nonetheless, Firm Age has a negative moderating effect on operating efficiency (β = -0.0037, p = 0.040), suggesting that older businesses' returns are declining as a result of structural inefficiencies. There are no discernible relationships between tax burden and interest burden.

These results show that financial factors have different effects on larger and older businesses, and that performance depends on efficiency and resource optimisation. The findings support Signalling Theory by highlighting how business characteristics influence stakeholder perceptions and financial success.

DISCUSSION

This study examines the moderating impacts of company size and firm age while highlighting the major financial determinants of ROE in Malaysian PLCs. The findings are supported by existing literature and Signaling Theory, which posits that financial indicators convey critical signals to stakeholders about a firm's stability and profitability (Spence, 1973; Ross, 1977).

According to Mustapha and Saad (2016), standardised corporate tax rates in Malaysia reduce variances in the tax burden's effect on profitability, which is consistent with the negligible link between tax burden and ROE. Hanlon and Heitzman (2010) have pointed out that effective tax planning further reduces the consequences of the tax burden.

Effective debt management is crucial, as seen by the positive correlation found between interest burden and ROE. Higher profitability is correlated with lower interest costs, which is in line with research by Rahman et al. (2023) and Nadarajah et al. (2022), who highlighted that financial flexibility boosts returns and investor trust.

The greatest beneficial influence on ROE was shown by operating efficiency, highlighting the importance of cost control in raising profitability. This conclusion is corroborated by Ahmed and Wang (2023) and Smith et al., (2023), who emphasised profitability generated by efficiency. The importance of resource optimisation in capital-intensive industries is further highlighted by the positive correlation between ROE and asset utilisation efficiency, which is consistent with Deng and Huang (2021). As mentioned by Rao and Carter (2020) and Xu and Zhang (2021), the financial constraint hypothesis states that over-leveraging restricts operational flexibility and reinvestment potential, and the negative effect of Financial Leverage on ROE reflects the risks associated with excessive debt.

According to the moderating analysis, economies of scale improve resource allocation, therefore larger businesses gain more from asset utilisation efficiency (Namada, 2017). However, because of structural inefficiencies, larger enterprises have lower benefits from operating efficiency (Katou & Budhwar, 2006). Because of their more established resource management systems, older businesses benefited more from asset utilisation efficiency and financial leverage (Benjamin et al., 2017). In contrast, bureaucratic obstacles caused operational efficiency gains to drop (Ilaboya and Ohiokha, 2016).

CONCLUSION

The main financial factors that influence Return on Equity (ROE) in Malaysian PLCs are highlighted in this study, with a focus on the functions of efficiency, resource management, and firm-specific characteristics. While financial leverage has a negative effect on profitability and reflects the hazards of an over reliance on debt, operating efficiency and asset utilisation efficiency greatly increase ROE. While older organisations successfully use financial methods in spite of structural inefficiencies, larger enterprises profit from resource optimisation but struggle with operational efficiency. These results, which are consistent with Signalling Theory, give managers and legislators information on how to customise strategies according to firm attributes in order to maximise financial performance.

Policymakers should strengthen laws encouraging financial transparency and balanced leverage in light of the ramifications. Instead of depending just on leverage, investors and shareholders should provide preference to

companies with robust efficiency measures. In order to increase efficiency and handle debt responsibly, corporate managers need to strengthen their financial policies.

Future studies could investigate other moderating factors, such governance structures and economic conditions, and broaden the research to include other industries in order to improve generalisability. Maintaining long-term profitability and competitiveness requires businesses to constantly balance efficiency, leverage, and firm attributes.

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