

Research Article

A Proposed Investor Dashboard for Residential Real Estate Investors in the Philippines

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Article History	Abstract
Received: May 22, 2026 Accepted: June 15, 2026 Published: June 21, 2026	This study examined the mediating roles of investment efficiency and investment scale in the relationship between financial flexibility and firm performance among publicly listed residential real estate and property development companies in the Philippines from 2014 to 2023. Using an ex post facto research design and panel data analysis, the study analyzed financial information obtained from audited financial statements, annual reports, and disclosures of selected companies listed on the Philippine Stock Exchange. Firm performance was measured using Return on Equity (ROE), financial flexibility through the Financial Flexibility Index (FFI), investment efficiency using a residual-based model, and investment scale through the growth of non-cash assets. Results revealed that financial flexibility significantly influences firm performance. Investment efficiency significantly mediates the relationship between financial flexibility and firm performance, while investment scale does not exhibit a significant mediating effect. The findings emphasize that the effective allocation of financial resources contributes more to profitability than the mere expansion of investment activities. Based on the findings, a Real Estate Investor Dashboard was developed to assist investors in evaluating publicly listed residential real estate firms through an evidence-based decision-support system. The dashboard incorporates financial flexibility, investment efficiency, and profitability indicators and provides investment recommendations aligned with investor risk preferences. Keywords: Financial Flexibility, Investment Efficiency, Investment Scale, Firm Performance, Real Estate Investor Dashboard.

Introduction

The residential real estate sector plays a significant role in the Philippine economy by contributing to employment generation, infrastructure development, housing provision, and capital formation. As one of the country's major economic sectors, residential real estate firms continuously face challenges brought about by changing economic conditions, fluctuations in housing demand, rising financing costs, and increasing market competition. In recent years, the sector has experienced increasing inventory levels and slower market absorption, resulting in an average inventory age of approximately 8.2 years for residential units. This condition reflects a substantial oversupply of housing inventory and highlights the financial pressures faced by residential real estate developers, including increased carrying costs, liquidity constraints, and reduced profitability (Colliers Philippines, 2025).

In response to these challenges, firms must maintain adequate financial flexibility to sustain operations and pursue profitable investment opportunities. Financial flexibility refers to a company's ability to access and deploy financial resources efficiently while adapting to changing market conditions. Companies with greater financial flexibility are generally better positioned to withstand financial distress, capitalize on strategic investment opportunities, and maintain operational stability during periods of uncertainty.

While previous studies have established the importance of financial flexibility in enhancing firm performance, limited empirical evidence exists regarding the mechanisms through which financial flexibility influences

profitability in the Philippine residential real estate sector. Specifically, the mediating roles of investment efficiency and investment scale remain underexplored. Investment efficiency reflects a firm's ability to allocate resources to value-generating projects, whereas investment scale pertains to the magnitude of investment activities undertaken by the firm. Understanding these mechanisms is essential because financial flexibility alone does not guarantee improved performance; rather, the effectiveness of resource allocation ultimately determines whether available financial resources translate into higher profitability.

Given the challenges faced by residential real estate companies and the growing need for evidence-based investment decisions, this study examined the mediating roles of investment efficiency and investment scale in the relationship between financial flexibility and firm performance among publicly listed residential real estate and property development companies in the Philippines from 2014 to 2023. Furthermore, the findings served as the basis for the development of a Real Estate Investor Dashboard designed to assist investors, analysts, and other stakeholders in evaluating residential real estate firms through a systematic and data-driven decision-support tool.

Objectives

The study aimed to determine the mediating roles of investment efficiency and investment scale in the relationship between financial flexibility and firm performance among publicly listed residential real estate companies in the Philippines.

Specifically, it sought to:

- 1) Determine the level of firm performance using Return on Equity (ROE);
- 2) Assess financial flexibility using the Financial Flexibility Index (FFI);
- 3) Measure investment efficiency;
- 4) Determine investment scale;
- 5) Analyze the direct effect of financial flexibility on firm performance;
- 6) Examine the mediating role of investment efficiency;
- 7) Examine the mediating role of investment scale; and
- 8) Develop a Real Estate Investor Dashboard based on the findings.

Materials and Methods

Research Design

This study employed a quantitative ex post facto research design to examine the mediating roles of investment efficiency and investment scale in the relationship between financial flexibility and firm performance among publicly listed residential real estate companies in the Philippines. The ex post facto design was deemed appropriate because the study utilized historical financial data and examined relationships among variables without manipulating any of the conditions under investigation. Furthermore, panel data analysis was employed to capture both cross-sectional and time-series variations, allowing a more comprehensive assessment of the behavior of the selected firms over time.

Data Sources

The study focused on publicly listed residential real estate and property development companies operating in the Philippines. Financial data were collected from audited financial statements, annual reports, SEC Form 17-A filings, and disclosures available through the Philippine Stock Exchange Electronic Disclosure Generation Technology (PSE EDGE). The study covered a ten-year period from 2014 to 2023 to provide sufficient observations for statistical analysis and to capture changes in firm performance across different economic conditions.

Initially, eight publicly listed residential real estate firms were identified. However, after applying the inclusion criteria relating to data availability, consistency, and completeness, only four companies qualified for the final analysis. These firms were A Brown Company, Inc., Empire East Land Holdings, Inc., Sta. Lucia Land, Inc., and Vista Land & Lifescapes, Inc. The final dataset generated forty firm-year observations that served as the basis for the statistical analyses.

Table 1. Description of data and sources.

Variable	Proxy/ measure	Formula	Data source	Interpretation guide
Firm performance	Return on equity (ROE)	$ROE = \text{Net profit} \div \text{Total equity}$	SEC Form 17-A annual reports / PSE EDGE / Company financial statements	Higher ROE indicates better firm performance and stronger profitability from shareholders' equity.
Financial flexibility	Financial flexibility index (FFI)	$FFI = 0.44A + 0.49P + 0.07L$	Derived from financial statements	Higher FFI indicates greater financial flexibility and stronger capacity to respond to financial opportunities or constraints.
Cash holdings (A)	Liquidity	$A = (\text{Cash assets} + \text{Short-term investments}) \div \text{Total assets}$	Statement of financial position	Higher values indicate stronger internal liquidity.
Potential cash inflows (P)	Borrowing capacity	$P = 1 - \text{Debt ratio}$	Statement of financial position	Higher values indicate greater unused borrowing capacity.
Financial health (L)	Altman Z-score	$L = 1.2x_1 + 1.4x_2 + 3.3x_3 + 0.6x_4 + 1.0x_5$	Financial statements / Market data	Higher values indicate stronger financial health and lower financial distress risk.
Investment efficiency	Residual-based investment efficiency	$IE = \text{Actual investment} - \text{Expected investment}$	Derived from panel regression estimates	Values closer to zero indicate efficient investment allocation. Positive residuals suggest overinvestment, while negative residuals suggest underinvestment.
Investment scale	Growth in non-cash assets	$IS = (\text{Non-cash assets}_t - \text{Non-cash assets}_{t-1}) \div \text{Non-cash assets}_{t-1}$	Statement of financial position	Higher values indicate larger investment expansion and asset growth.

Source: Adapted from Raza *et al.*, (2021).

Data Analysis

To ensure that the results and conclusions of the study are accurate and reliable, appropriate statistical methods were used. Different statistical tools were applied to address the specific objectives of the study. The identified statistical tools used in the study were as follows:

Graphical Presentation: This was used to illustrate the trends and movements of firm performance, financial flexibility, investment efficiency, investment scale, leverage, market-to-book value, firm size, past returns, and past investment from 2014 to 2023 through line graphs for easier interpretation of patterns over time.

Descriptive Statistics: This method was used to summarize the data through mean, median, standard deviation, minimum, and maximum values. It was utilized to assess the overall characteristics of firm performance, financial flexibility, investment efficiency, and investment scale among the selected residential real estate and property development companies.

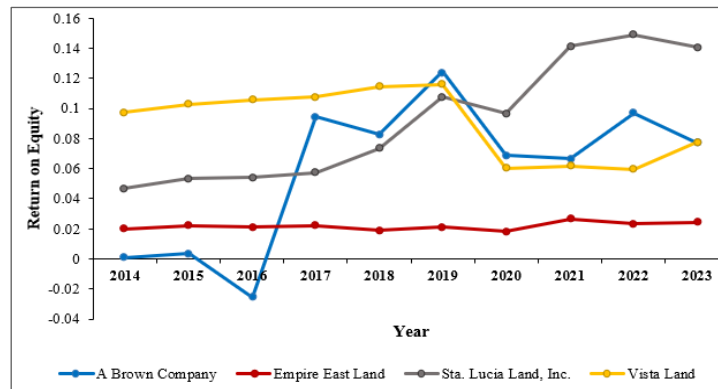
Panel Multiple Regression Analysis: This was applied to examine the effect of financial flexibility on firm performance among the selected firms. Since the study involved observations across multiple firms over a ten-year period, panel data analysis was considered appropriate because it captures both cross-sectional and time-series variations. Several competing panel regression models were estimated, including pooled ordinary least squares, cross-section fixed effects, period fixed effects, two-way fixed effects, and random effects models. The Chow test was used to compare the pooled ordinary least squares model and fixed effects model, the Breusch-

Pagan Lagrange Multiplier test was used to compare the pooled model and random effects model, and the Hausman test was used to determine whether fixed effects or random effects provided the more appropriate specification. Based on the results of these diagnostic procedures, the two-way fixed effects model was selected as the final regression model because it effectively controlled for both firm-specific and time-specific heterogeneity, thereby improving the consistency and reliability of the regression estimates.

Diagnostic Tests: To ensure the validity of the regression model, several diagnostic tests were conducted. The Jarque–Bera test was used to assess normality, the Variance Inflation Factor (VIF) was applied to detect multicollinearity among the independent variables, the Breusch–Pagan test was used to examine heteroskedasticity, and the Durbin–Watson statistic was used to assess autocorrelation. These diagnostic procedures were necessary to confirm that the regression assumptions were reasonably satisfied and that the resulting estimates were appropriate for interpretation.

Mediation Analysis: This was used to determine whether investment efficiency and investment scale transmitted the effect of financial flexibility on firm performance. The analysis examined the direct effect of financial flexibility on firm performance, as well as the indirect effects operating through the mediating variables. The component paths between financial flexibility, investment efficiency, investment scale, and firm performance were evaluated to determine whether mediation existed. Statistical significance for all analyses was assessed using the 0.05 level of significance.

Results and Discussions

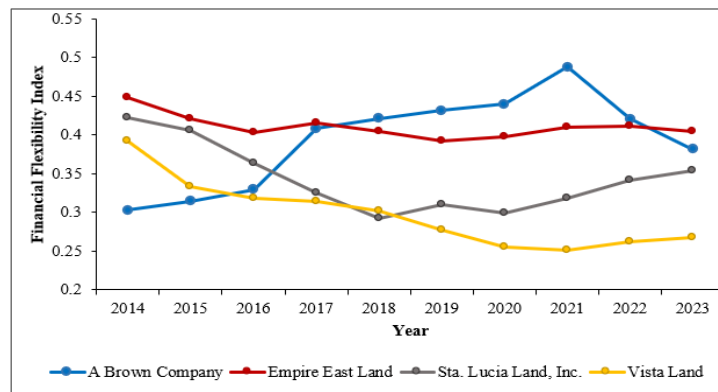


Mean: 0.0658; Median: 0.0642; Std. Dev: 0.0436; Min -0.0254; Max 0.149

Figure 1. Trends of firm performance of residential firms in terms of return on equity.

Figure 1 presents the trend of firm performance among selected residential real estate companies from 2014 to 2023. The graph generally shows a fluctuating pattern across firms, indicating inconsistent profitability throughout the study period. While some firms experienced gradual improvement in profitability, others exhibited periods of decline and volatility. These fluctuations suggest that firm performance in the real estate sector is influenced by both internal operational decisions and changing external economic conditions. The varying profitability patterns indicate that firms differed in their ability to manage financing and investment allocation during changing economic conditions.

The mean return on equity (ROE) is 0.0658, indicating that firms generated an average return of 6.58%, which reflects moderate profitability in the sector. The median value of 0.0642 is close to the mean, suggesting a relatively symmetric distribution. The standard deviation of 0.0436 indicates moderate variability in firm performance across companies and years. The minimum value of -0.0254 shows that some firms experienced losses, while the maximum value of 0.1490 indicates that certain firms achieved relatively strong profitability. The results suggest that firm performance in the residential real estate sector is moderate but varies depending on firm-specific conditions and market factors. The average ROE of 6.58% indicates moderate profitability in the residential real estate sector. Compared to the common benchmark of 8%–15%, the industry average falls slightly below the ideal range, suggesting that firms may not be maximizing shareholder returns. This moderate level reflects the capital-intensive nature of real estate, where profitability is influenced by long project cycles, financing costs, and market demand conditions. This observation is based on the study of Ong (2024), which explained that firm performance in the Philippine property sector is highly influenced by market demand, investment activities, and overall economic conditions. These factors contribute to fluctuations and moderate levels of return on equity.

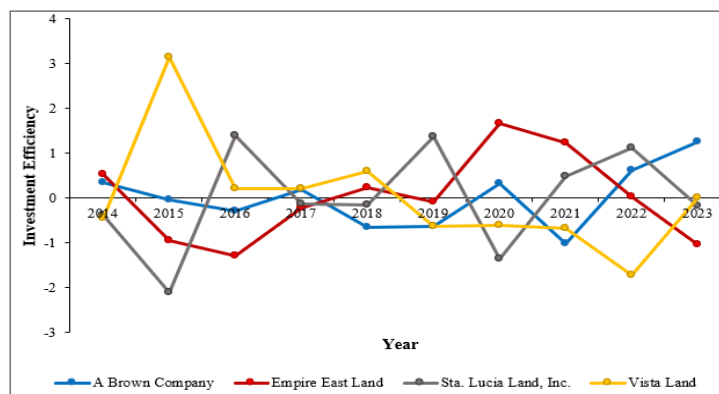


Mean: 0.361; Median: 0.372; Std. Dev: 0.0620; Min 0.251; Max: 0.488

Figure 2. Trends of financial flexibility index of residential firms.

Figure 2 presents the trend of the Financial Flexibility Index (FFI) among selected residential real estate firms from 2014 to 2023. The graph generally shows moderate but stable financial flexibility across firms throughout the study period. Most firms remained within a relatively narrow range, suggesting controlled financial management and balanced financing strategies. These trends suggest that firms continuously adjusted liquidity management, borrowing capacity, and financial health in response to operational and investment requirements. Financial flexibility has a mean value of 0.3610, indicating that firms generally operate at a moderate level of financial flexibility. The median value of 0.3720 suggests that most firms maintain a balanced financial position. The standard deviation of 0.0620 indicates low variability, meaning that firms have relatively consistent levels of financial flexibility. The values range from 0.2510 to 0.4880, confirming that firms avoid both extremely low and excessively high levels of flexibility. This suggests that companies maintain a stable and controlled financial structure to support operations and investment activities.

For the industry average, the mean FFI of 0.3610 places the selected residential real estate sector within the moderate financial flexibility level. In this study, the Financial Flexibility Index is interpreted using the following normalized scale: 0.00–0.29 as low, 0.30–0.59 as moderate, 0.60–0.89 as high, and 0.90 and above as excessive. This classification is based on equal interval segmentation of a normalized index, where values are grouped to make interpretation more consistent. Since the observed values range only from 0.2970 to 0.4110, none of the firms reached the high or excessive level. This indicates that the industry maintained a moderate and conservative financial position. The use of segmented ranges for interpreting composite index values is consistent with the OECD (2008), which explains that composite indicators are useful when multiple dimensions are combined into one index for comparison and interpretation.



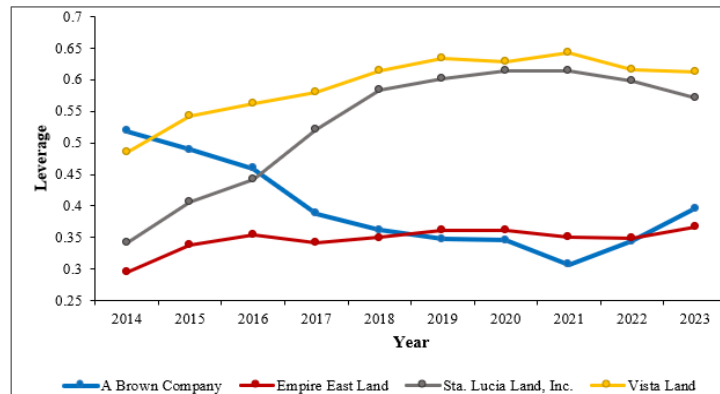
Mean: -0.00000045; Median: -0.0713; Std. Dev: 1.00 Min: -2.11; Max: 3.12

Figure 3. Trends of investment efficiency of residential firms.

Figure 3 presents the trend of investment efficiency among selected firms from 2014 to 2023. The graph generally shows highly fluctuating investment efficiency patterns across firms and years. Residual values frequently moved above and below zero, indicating inconsistent investment allocation behavior over time. These fluctuations suggest that firms did not consistently maintain optimal investment behavior and periodically experienced either overinvestment or underinvestment conditions. Investment efficiency has a mean value of -0.00000045, which is approximately zero, indicates that on average, firms invest close to an expected or balanced level. However, the median value of -0.0713 suggests a slight tendency toward

underinvestment. The standard deviation of 1.0000 reflects high variability, indicating that investment efficiency differs significantly across firms and years. The minimum value of -2.11 and maximum value of 3.12 further highlight the wide dispersion, showing that firms experience both substantial underinvestment and overinvestment. These results imply that while the overall average appears balanced, individual firm behavior is inconsistent and varies widely over time.

From an industry perspective, the average investment efficiency of -0.00000045 indicates that the sector, on average, operates near a neutral level of investment efficiency. However, the high variability reflected in the standard deviation and range suggests that firm-level differences are significant. This means that while the overall industry appears balanced, individual firms may experience either efficient or inefficient investment behavior. This is consistent with Gaio *et al.*, (2023), who found that investment efficiency varies across firms and is closely linked to financial reporting quality and firm-specific conditions.

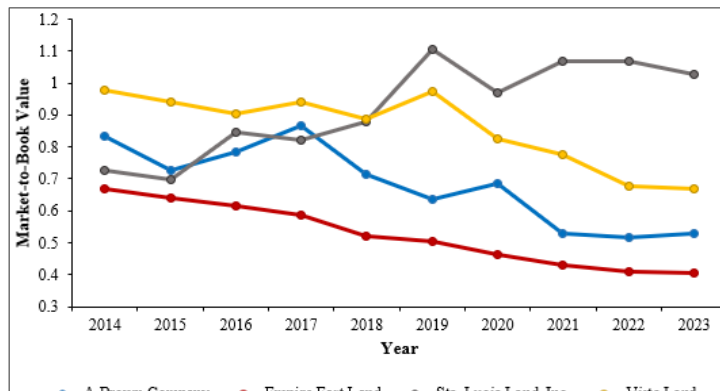


Mean: 0.4660; Median: 0.4510; Std. Dev: 0.1180; Min: 0.2960; Max: 0.6420

Figure 4. Trends of determinants of expected investment in terms of leverage.

Figure 4 presents the trend of leverage among selected firms from 2014 to 2023. The graph shows varying leverage behavior across firms, reflecting differences in financing strategies and capital structure decisions. These trends suggest that firms adopted different approaches in balancing growth financing and financial risk. Leverage has a mean value of 0.4660, indicating that, on average, 46.6% of firm assets are financed through debt. The median value of 0.4510 is close to the mean, suggesting a balanced distribution. The standard deviation of 0.1180 reflects moderate variability across firms. The values range from 0.2960 to 0.6420, indicating that firms maintain moderate levels of debt financing. This suggests that companies rely on debt to support capital-intensive projects while maintaining manageable financial risk.

From an industry perspective, the average leverage of 0.4660 indicates that, on average, about 46.6% of total assets of the selected firms are financed through debt. This reflects a moderate level of leverage, suggesting that firms rely on debt to support capital-intensive development projects while maintaining a balanced financing structure. In real estate, such levels are expected because firms require substantial external financing for long-term projects. This finding aligns with Breuer (2023), who reported that real estate firms typically operate with leverage levels that can reach around 50% or more of total assets, reflecting the sector's dependence on debt to finance large-scale investments.

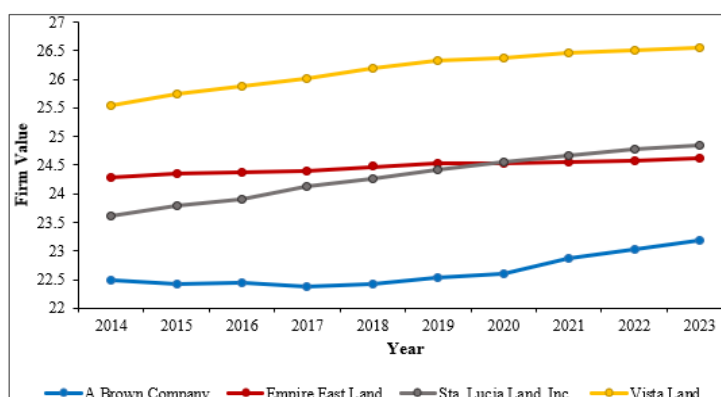


Mean: 0.746; Median: 0.726; Std. Dev: 0.197; Min: 0.405; Max: 1.100

Figure 5. Trends of determinants of expected investment in terms of market-to-book value.

Figure 5 presents the trend of market-to-book value among selected firms. The graph shows fluctuating but generally declining market-to-book ratios for most firms, suggesting weakening market valuation over time. The mean market-to-book value is 0.7460, indicating that firms are generally valued below their book value. The median of 0.7260 supports this observation, suggesting cautious investor sentiment. The standard deviation of 0.1970 indicates moderate variability in market valuation. The minimum value of 0.4050 and maximum value of 1.1000 show that while most firms are undervalued, some firms achieve market values exceeding their book value. This reflects differences in investor expectations and perceived growth opportunities across firms.

From an industry perspective, the mean market-to-book value of 0.746 indicates that the selected residential real estate firms are generally valued below their book value. Since the average is below 1.00, this suggests cautious investor sentiment toward the sector during the study period. This is supported by Cheng (2025), who emphasized that market-to-book ratios are widely used in finance as indicators of firm valuation, investor expectations, and perceived growth opportunities.

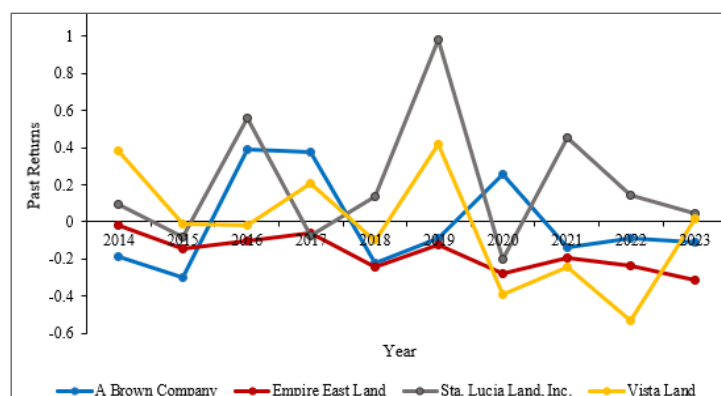


Mean: 24.4; Median: 24.4; Std. Dev: 1.30; Min: 22.4; Max: 26.6

Figure 6. Trends of determinants of expected investment in terms of firm size.

Figure 6 presents firm size trends among selected firms. The graph shows a generally increasing pattern across firms, indicating expansion in operational scale over time. Firm size has a mean and median value of 24.4000, indicating a consistent level of firm scale across the sample. The standard deviation of 1.3000 suggests moderate variation in size among firms. The values range from 22.4000 to 26.6000, indicating that all firms operate within a relatively similar scale in the residential segment. This consistency supports comparability across firms and suggests stable growth in total assets over time.

Since firm size is measured using the natural logarithm of total assets, there is no fixed external benchmark for determining it. Thus, the industry average of 24.4 serves as the internal reference point for comparing the scale of firms within the selected residential real estate companies. This value reflects the typical level of asset size provides a basis for evaluating whether individual firms operate above or below the average industry level.



Mean: -0.00158; Median: -0.0851; Std. Dev: 0.2960; Min: -0.5330; Max: 0.9840

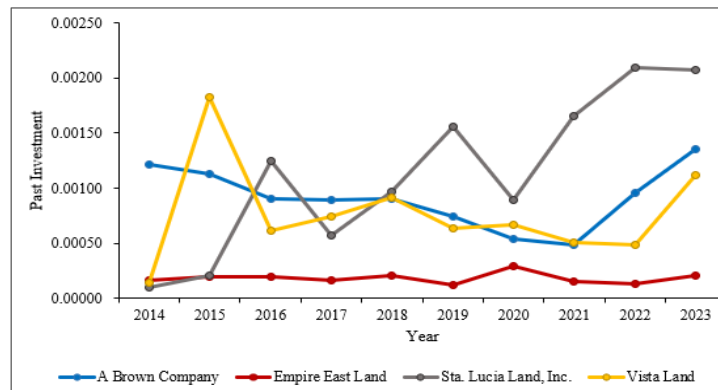
Figure 7. Trends of determinants of expected investment in terms of past returns.

Figure 7 presents past return trends among selected firms. The graph shows a highly volatile pattern, with frequent movements between positive and negative values across all firms. Unlike firm size and financial

flexibility, past returns do not follow a stable trend, reflecting sensitivity to both firm-level performance and broader market conditions. This indicates that past returns are unstable and influenced by changing economic conditions and investor behavior.

Past returns have a mean value of -0.00158, indicating that, on average, returns are close to zero and slightly negative. The median value of -0.0851 suggests that more observations fall below zero, indicating frequent negative returns. The standard deviation of 0.2960 reflects high variability, showing that returns fluctuate significantly across firms and periods. The values range from -0.5330 to 0.9840, indicating large swings between losses and gains. This suggests that stock performance in the real estate sector is highly volatile and sensitive to market conditions.

The industry average past return of -0.0016 indicates that the selected firms experienced near-zero overall performance during the study period. Unlike accounting-based measures, past returns do not have a fixed benchmark because they are determined by market conditions, firm performance, and investor behavior. As explained by Zaremba *et al.*, (2021), who emphasized that stock market outcomes, including returns, are highly influenced by changing economic conditions and policy responses, leading to variability across firms and over time rather than a constant benchmark. In the real estate sector, returns are also cyclical and sensitive to market fluctuations, which explains the observed near-zero average.



Mean: 0.000749; Median: 0.000651; Std. Dev: 0.000557; Min: 0.0000983; Max: 0.00209

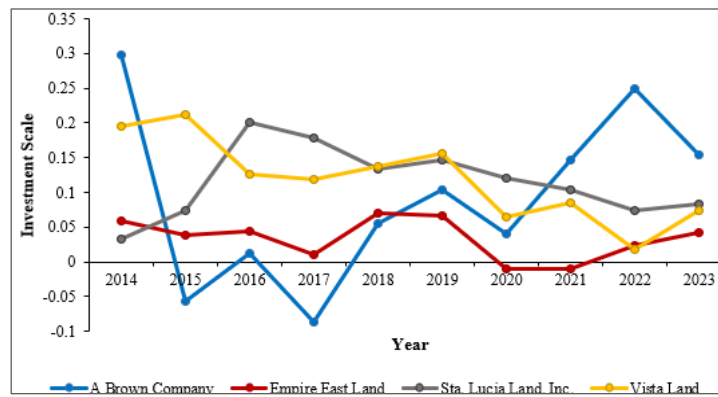
Figure 8. Trends of determinants of expected investment in terms of past investment.

Figure 8 presents fluctuating trend, meaning the firms did not follow one consistent pattern of investment activity throughout the period. This suggests that past investment was influenced by firm-specific project timing, financing capacity, and development strategies.

Past investment has a mean value of 0.000749, indicating relatively small but consistent investment levels relative to total assets. The median value of 0.000651 suggests a slightly lower central tendency. The standard deviation of 0.000557 indicates low variability, meaning that firms follow relatively consistent investment patterns. The values range from 0.0000983 to 0.002090, showing that investment levels are generally stable but vary slightly across firms and periods.

From an industry perspective, the average past investment of 0.000749 indicates a relatively low but positive level of investment activity among the selected firms. Unlike ROE or leverage, past investment does not have a fixed external benchmark because it depends on the firm's project cycle, capital expenditure needs, and timing of development activities. Therefore, the industry average in this study serves as an internal reference point for comparing the investment behavior of the selected companies. Firms above the average may be considered more active in investment spending, while firms below the average may be more conservative. This interpretation is supported by Setianto and Kusumaputra (2019), who explained that corporate financial flexibility, investment activities, and cash holdings are closely related because firms adjust investment behavior based on available resources and strategic needs.

Figure 9 presents the trends of investment scale of selected residential real estate companies from 2014 to 2023 in terms of non-cash assets. The graph shows a fluctuating pattern with firm-specific movements. This means that investment scale did not increase or decrease uniformly across all companies. This pattern suggests that investment scale in real estate is highly dependent on firm-specific project timing, land acquisition, development activity, and strategic expansion decisions.



Mean: 0.0896; Median: 0.0746; Std. Dev: 0.0799; Min: -0.0860; Max: 0.297

Figure 9. Trends of investment scale of residential firms in terms of non-cash assets.

Investment scale has a mean value of 0.0896, indicating that firms expand their non-cash assets by approximately 8.96% on average. The median value of 0.0746 suggests that most firms experience moderate growth. The standard deviation of 0.0799 reflects moderate variability in asset expansion. The values range from -0.0860 to 0.2970, indicating that some firms reduce their asset base while others experience strong growth. This suggests that firms differ in their expansion strategies and investment activities.

From an industry perspective, the average investment scale of 0.0896 indicates a moderate but controlled level of non-cash asset expansion among the selected firms. Firms above the average may be considered more active in expanding non-cash assets, while firms below the average may be viewed as more conservative.

Table 2. Regression results evaluating the relationship between financial flexibility and firm performance.

Variable	Coefficient	Standard error	t-value	Prob.*	Decision to Ho	Interpretation
C	-0.065328	0.040283	-1.621717	0.1169	Failed to reject	Not significant
ff	0.363217	0.110873	3.275964	0.0030	Reject	Significant

R-squared: 0.722947; Adjusted R-squared: 0.584420; F-statistic: 5.218830; Prob(F-statistic): 0.000172;
Firm performance (ROE) = 0.363217; Financial flexibility – 0.065328

Table 2 presents the effect of financial flexibility on the firm performance of residential real estate and property development companies. The table shows that the constant has a coefficient of -0.065328 with a p-value of 0.1169, which is greater than the 0.05 level of significance. Therefore, the null hypothesis is failed to reject, indicating that the constant is not statistically significant. The negative constant suggests that in the absence of financial flexibility, firm performance measured by return on equity tends to be slightly negative. However, since the result is not statistically significant, the constant does not provide strong evidence of a meaningful baseline effect on firm performance. This implies that firm performance is more influenced by the independent variable rather than the constant term. In firm-level financial studies, performance is typically driven by financial and operational factors rather than baseline values alone (Wooldridge, 2016).

Financial flexibility has a coefficient of 0.363217 with a p-value of 0.0030, which is lower than the 0.05 level of significance. The null hypothesis is therefore rejected, indicating that financial flexibility has a statistically significant effect on firm performance. The positive coefficient indicates that financial flexibility has a positive and significant relationship with firm performance. This means that for every one-unit increase in financial flexibility, return on equity increases by approximately 0.36 units. This suggests that firms with greater financial flexibility are more capable of generating higher returns. In the real estate sector, financial flexibility allows firms to continue funding development projects, manage financial risks, and respond effectively to changing market conditions.

This finding supports the study of Bilyay-Erdogan (2020), who stated that financial flexibility enhances firm value by enabling firms to respond to financial opportunities and economic changes. Similarly, Sun and Zhang (2025) explained that financial flexibility improves firm efficiency and resource allocation by providing sufficient liquidity for operational and investment activities. Moreover, Jaiswal and Elmarzouky (2025) emphasized that firms with higher financial flexibility were better able to withstand financial shocks and maintain stronger performance during economic disruptions. The adjusted R-squared value is 0.584420, indicating that approximately 58.44% of the variation in firm performance is explained by financial flexibility. This value suggests that financial flexibility has a moderately strong explanatory power in the model. It

indicates that more than half of the variation in return on equity among the selected firms can be attributed to financial flexibility. The adjusted R-squared provides a more reliable measure because it accounts for the number of predictors included in the model. According to Hair et al., (2019), an adjusted R-squared value above 50% is generally considered strong in firm-level financial studies, where performance is influenced by multiple factors. This supports the importance of financial flexibility as a key determinant of firm performance.

The model has an F-statistic of 5.218830 with a probability value of 0.000172, which is lower than the 0.05 level of significance. The significant F-statistic indicates that the regression model is statistically valid and reliable. This means that financial flexibility significantly explains variations in firm performance, and the model is appropriate for hypothesis testing. According to Wooldridge (2016), a significant F-statistic confirms that the model has explanatory power and is suitable for regression analysis. This strengthens the conclusion that financial flexibility is an important factor influencing firm performance.

Table 3. Mediating role of investment efficiency and investment scale in the relationship between financial flexibility and firm performance.

Effect	Est.	SE	β	z	p	Decision to H_0	Interpretation
Indirect							
ff $\Rightarrow$ ie $\Rightarrow$ roe	-0.5121	0.11008	-0.7276	-4.652	<.001	Reject	Significant
ff $\Rightarrow$ is $\Rightarrow$ roe	-0.0123	0.01839	-0.0175	-0.671	0.502	Failed to reject	Not significant
Component							
ff $\Rightarrow$ ie	-8.3006	1.26474	-0.7201	-6.563	<.001	Reject	Significant
ie $\Rightarrow$ roe	0.0617	0.00935	1.0105	6.596	<.001	Reject	Significant
ff $\Rightarrow$ is	-0.2689	0.19951	-0.2084	-1.348	0.178	Failed to reject	Not significant
is $\Rightarrow$ roe	0.0459	0.05930	0.0841	0.774	0.439	Failed to reject	Not significant
Direct							
ff $\Rightarrow$ roe	0.3554	0.10273	0.5050	3.459	<.001	Reject	Significant
Total							
ff $\Rightarrow$ roe	-0.1691	0.10940	-0.2402	-1.546	0.122	Failed to reject	Not significant
ff = Financial flexibility; ie = Investment efficiency; is = Investment scale; roe = Return on equity							

Table 3 presents the mediating role of investment efficiency and investment scale in the relationship between financial flexibility and firm performance. It estimated the direct effect, indirect effect, and total effect using statistical estimation procedures. The indirect effect of financial flexibility on firm performance through investment efficiency has an estimate of -0.5121 with a p-value of less than 0.001, indicating a statistically significant effect. The null hypothesis is rejected. The result indicates that investment efficiency significantly mediates the relationship between financial flexibility and firm performance. The negative coefficient suggests that although financial flexibility provides firms with greater access to financial resources, the way these resources are allocated may reduce overall performance when inefficiencies occur. This implies that financial flexibility alone does not guarantee improved profitability. Instead, the effectiveness of financial flexibility depends on how well firms manage and allocate their investment resources. This negative mediating effect can be further explained using agency theory. While financial flexibility increases the availability of resources, it may also reduce managerial discipline, leading to inefficient investment decisions. Managers with excess financial capacity may overinvest or allocate resources to less productive projects, which weakens overall efficiency and offsets performance gains. In the real estate sector, where projects involve long-term commitments and high capital requirements, inefficient allocation can lead to delays, increased costs, and lower returns, ultimately weakening firm performance. This finding is supported by Nguyen *et al.*, (2025), who emphasized that financial flexibility improves firm performance only when firms are able to allocate resources efficiently and align investment decisions with market opportunities. Their study highlighted that firms with high financial flexibility but poor investment discipline often experience reduced performance due to inefficient capital allocation, reinforcing the importance of investment efficiency as a key transmission mechanism.

The indirect effect of financial flexibility on firm performance through investment scale has an estimate of -0.0123 with a p-value of 0.502, which is greater than the 0.05 level of significance. The null hypothesis is not rejected, indicating that the indirect effect is not statistically significant. This result indicates that investment scale does not mediate the relationship between financial flexibility and firm performance. The non-significant coefficient suggests that increasing the size of investments alone does not necessarily lead to improved firm performance. This finding implies that financial flexibility does not automatically translate into effective expansion decisions. While firms may have the capacity to undertake larger investments, the scale of

investment does not guarantee profitability if such expansion is not supported by efficient allocation and sound financial management. In capital-intensive industries such as real estate, large-scale investments often involve long development periods, high costs, and exposure to market risks, which may limit their immediate contribution to firm performance. From a theoretical perspective, this result may be explained by the resource-based view (RBV), which emphasizes that resources alone are insufficient to generate competitive advantage unless they are effectively utilized. In this context, financial flexibility as a resource must be complemented by efficient investment decisions to produce positive performance outcomes. Without proper utilization, expansion through increased investment scale may fail to create value.

This finding is consistent with Wu *et al.*, (2024), who noted that the effectiveness of investment activities depends not only on their scale but also on how efficiently resources are allocated. Similarly, Ma and Jin (2016) emphasized that large investments do not automatically improve firm value unless supported by proper capital allocation strategies. These findings reinforce the idea that investment scale alone is not a sufficient driver of firm performance.

The relationship between financial flexibility and investment efficiency has an estimate of -8.3006 with a p-value of less than 0.001, indicating a statistically significant effect. The null hypothesis is rejected. The negative coefficient indicates that higher financial flexibility is associated with lower investment efficiency. This suggests that firms with greater access to financial resources may become less disciplined in their investment decisions. Instead of carefully evaluating projects, firms may engage in excessive or less optimal investments due to the availability of funds. In the context of real estate, this may result in overdevelopment, investment in less profitable projects, or inefficient allocation of capital across multiple developments. This result is supported by Jaiswal and Elmarzouky (2025), who found that firms with higher financial flexibility may face challenges in maintaining investment discipline, especially during periods of economic uncertainty. Their study explained that while financial flexibility increases funding capacity, it may also lead to overinvestment behavior if not properly managed, which negatively affects investment efficiency.

The relationship between investment efficiency and firm performance has an estimate of 0.0617 with a p-value of less than 0.001, indicating a statistically significant effect. The null hypothesis is rejected. The positive coefficient indicates that higher investment efficiency leads to improved firm performance. This means that firms that allocate their resources effectively are able to generate higher returns. In the real estate sector, efficient investment decisions ensure that projects are profitable, costs are controlled, and resources are used productively, all of which contribute to higher return on equity. This finding aligns with Alkhazaleh et al., (2024), who emphasized that investment efficiency is a critical determinant of firm performance because it reflects how well firms convert financial resources into profitable investments. Their study highlighted that firms with efficient capital allocation achieve better financial outcomes compared to those with inefficient investment practices.

The relationship between financial flexibility and investment scale has an estimate of -0.2689 with a p-value of 0.178, which is greater than the 0.05 level of significance. The null hypothesis is failed to reject, indicating that the effect is not statistically significant. This result suggests that financial flexibility does not significantly influence investment scale. This means that even if firms have higher financial flexibility, they do not necessarily increase or decrease their level of investment activities. Firms may choose to maintain stable investment levels or delay expansion depending on market conditions, risk considerations, and strategic priorities. This is consistent with D'Lima and Schultz (2021), who explained that investment decisions in real estate are influenced not only by financial capacity but also by market opportunities and investor expectations. Their study emphasized that firms do not automatically expand investments simply because they have financial flexibility; instead, they consider external conditions and long-term strategies before adjusting investment scale.

The relationship between investment scale and firm performance has an estimate of 0.0459 with a p-value of 0.439, which is greater than the 0.05 level of significance. The null hypothesis is failed to reject, indicating that the effect is not statistically significant. This result indicates that investment scale does not significantly affect firm performance. This suggests that simply increasing the size of investments or expanding asset base does not automatically improve profitability. Without efficient project selection and management, larger investments may not generate expected returns and may even increase financial risk. This finding supports Ma and Jin (2016), who explained that investment scale contributes to firm performance only when it is aligned with efficient resource utilization. Their study emphasized that expansion alone does not guarantee profitability, and firms must ensure that investments are productive and strategically managed. The regression

results show that financial flexibility has a positive and significant effect on firm performance ($B = 0.3554$; $\beta = 0.5050$; $p < .001$), indicating that an increase in financial flexibility leads to higher return on equity. The null hypothesis is rejected. This result indicates that financial flexibility has a positive and significant direct effect on firm performance. This means that firms with higher financial flexibility are able to generate higher returns independently of investment efficiency and investment scale. Financial flexibility allows firms to maintain liquidity, manage risks, and take advantage of profitable opportunities. This is supported by the World Bank (2021), which reported that firms with stronger financial flexibility were better able to sustain operations and maintain performance during economic disruptions. The study highlighted that financial flexibility provides firms with the capacity to respond to financial challenges and support ongoing business activities.

The total effect of financial flexibility on firm performance has an estimate of -0.1691 with a p-value of 0.122 , which is greater than the 0.05 level of significance. The null hypothesis is failed to reject, indicating that the overall effect is not statistically significant. The non-significant total effect suggests that the overall impact of financial flexibility on firm performance becomes weak when both mediating variables are considered. This implies that the positive direct effect of financial flexibility is offset by the negative indirect effect through investment efficiency. As a result, the overall relationship becomes insignificant. This result is consistent with Nguyen *et al.*, (2025), who explained that the effect of financial flexibility on firm performance depends on how firms utilize their financial resources. Their study emphasized that inefficient investment decisions can offset the benefits of financial flexibility, leading to weaker overall performance outcomes.

Conclusions

Upon the completion of the study, the following conclusions were drawn:

- 1) Publicly listed residential real estate and property development companies maintained generally positive profitability, as measured by Return on Equity (ROE), from 2014 to 2023.
- 2) The selected companies maintained moderate levels of financial flexibility index in terms of cash holdings, potential cash inflows, and financial health.
- 3) Investment efficiency was measured using a residual-based approach. Expected investment was first estimated using firm-specific determinants, including leverage, market-to-book value, firm size, past returns, and past investment. The residual, defined as the difference between actual and expected investment, was used as the measure of investment efficiency.
- 4) The selected companies exhibited growth in investment scale, as reflected in the expansion of non-cash assets over the study period.
- 5) Financial flexibility has a significant positive effect on firm performance, a significant negative effect on investment efficiency, and investment efficiency has a significant positive effect on firm performance. The indirect effect is significant and negative, indicating a conflicting mediation relationship, while investment scale has no significant effect and does not mediate the relationship.
- 6) A Real Estate Investor Dashboard was developed as an output of the study to serve as a structured decision-support tool for evaluating firms based on financial flexibility, investment efficiency, and return on equity.

Recommendations

These recommendations are primarily applicable to selected publicly listed residential real estate firms formulated based on the gathered results of the study and are aligned with its significance:

- 1) To Philippine residential real estate and property development companies, strengthen financial flexibility through improved cash management, balanced borrowing, and disciplined investment decision-making to enhance firm performance while avoiding inefficient resource allocation.
- 2) To shareholders and investors, utilize the Real Estate Investor Dashboard by incorporating financial flexibility, investment efficiency, and firm performance as key considerations in evaluating the profitability and long-term potential of property development firms.
- 3) To the academic community, integrate financial flexibility, investment efficiency, and investment scale into teaching and research to deepen understanding of firm performance, particularly in capital-intensive industries such as real estate.
- 4) To graduate students and future researchers, expand the study by including additional variables, industries, or longer time periods, and by applying alternative methodologies to further validate and enhance the findings.
- 5) To the researcher, apply the knowledge gained in financial analysis and investment evaluation in assessing real-world business and investment opportunities.

Declarations

Acknowledgments: The authors express their sincere gratitude to Dr. Teodorica G. Ani for her invaluable guidance, unwavering support, and expert mentorship throughout the conduct of this study. The authors also extend their heartfelt appreciation to Dr. Bendalyn M. Landicho, Dr. Gemar G. Perez, Dr. Amor A. Ilagan, and Dr. Ferdinand L. Martinez for their insightful comments, constructive suggestions, and valuable recommendations, which significantly enhanced the quality of this research.

The authors likewise express their sincere appreciation to Dr. Lorena F. Mendoza for her assistance in reviewing and refining the manuscript. They are also grateful to the Graduate School, College of Accountancy, Business, Economics and International Hospitality Management, Batangas State University – The National Engineering University, for providing academic support and a conducive academic environment that facilitated the successful completion of this study.

Finally, the authors acknowledge the use of publicly available secondary data obtained from the Philippine Stock Exchange Electronic Disclosure Generation Technology (PSE EDGE), Securities and Exchange Commission (SEC) Form 17-A Annual Reports, audited financial statements, and other publicly disclosed corporate reports utilized in this research.

Artificial Intelligence (AI) Use Statement: The authors declare that artificial intelligence (AI) tools were used solely to assist with language refinement, grammar checking, and improvement of clarity and readability during the preparation of this manuscript. All research activities, including the study conceptualization, literature review, data collection, data analysis, interpretation of findings, and conclusions, were conducted entirely by the authors. The authors critically reviewed, validated, and revised all AI-assisted outputs and assume full responsibility for the accuracy, integrity, and originality of the content presented in this manuscript.

Author Contributions: JLDC: Conceptualization, research design, literature review, data collection, data analysis, interpretation of results, development of the proposed Real Estate Investor Dashboard, manuscript preparation, editing, revision, and final approval of the manuscript; WDA: Review of manuscript, validation of research content, technical inputs, manuscript revision, and final approval of the manuscript.

Conflict of Interest: The authors declare that there is no conflict of interest regarding the publication of this manuscript.

Consent to Publish: The authors agree to publish this paper in International Journal of Recent Innovations in Academic Research.

Data Availability Statement: The datasets used and analyzed during the current study were obtained from publicly available audited financial statements, SEC Form 17-A filings, annual reports, and disclosures available through the Philippine Stock Exchange Electronic Disclosure Generation Technology (PSE EDGE). The compiled dataset supporting the findings of this study is available from the corresponding author upon reasonable request.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable. This study utilized publicly available secondary financial data obtained from annual reports, audited financial statements, SEC Form 17-A filings, and PSE EDGE disclosures. No human participants, animals, or personal identifiable information were involved in the conduct of the study.

Informed Consent Statement: Not applicable. The study did not involve human participants, surveys, interviews, or experimental procedures. The research was based solely on publicly available corporate financial information.

Research Content: The authors declare that the research content of this manuscript is original and has not been published elsewhere. The manuscript is not under consideration for publication in any other journal. The authors further certify that all sources of information have been properly acknowledged and cited.

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Citation: Jeanilen L. de Chavez and Wilmer D. Ambal. 2026. A Proposed Investor Dashboard for Residential Real Estate Investors in the Philippines. *International Journal of Recent Innovations in Academic Research*, 10(2): 117-130.

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