

Determinants of Profitability of Listed Real Estate Companies in the Philippines

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The purpose of this research is to identify the overall internal and external property industry determinants of profitability of listed real estate companies in the Philippines. In particular, this research uses reported annual data from 2013 to 2022. Using a robust random effects (RE) panel regression model with Return on Asset (ROA) as dependent variable, the results show that firm size (-), firm revenue growth (+), liquidity (-), efficiency measured using total asset turnover (+) or measured using cash conversion cycle (-) are significant determinants of profitability. On the other hand, using a robust fixed effects (FE) panel regression model with Return on Equity (ROE) as dependent variable, the results show that while firm revenue growth (+) and efficiency measured using total asset turnover (+) or measured using cash conversion cycle (-) are still significant determinants of profitability, solvency (+) is also another notable factor. The results of this study can help companies in the industry identify firm-specific and macroeconomic factors empirically proven to be important drivers of earning potential so that efforts and resources may be properly channeled to capitalize on them, especially at a recovery period from the effects of the COVID-19 pandemic.

1 Introduction

“The real estate industry plays a vital role in the economic development where it paves the way to stabilize the economy through guarantying continuous capital flows for financing” (Kaluarachchi, 2021, p. 26). The real estate sector, being one of the key drivers of the Philippine economy, is considered an important industry, bringing in an estimated PHP1.099 trillion in revenues to the country and 101,976 total employment (PSA, 2019). “With the COVID-19 pandemic ushering in the new decade after causing undeniable turmoil for the Philippine economy and the real estate market” (Suarez, 2022, para. 15), it would be of interest to companies in the industry to identify various factors – intrinsic or extrinsic to the firm – that have been empirically proven to be important drivers of earning potential. This is so that efforts and resources may be properly channeled to take advantage of a period where experts and observers, evident in the substantial strides so far made by Philippine property developers, assert a strong, positive momentum amid the industry’s ongoing recovery (Remo, 2023).

1.1 The Philippine Real Estate Industry

The real estate sector in the Philippines is a key driver in the Philippine economy, contributing 5.7% of Philippines’ Gross Domestic Product (GDP), with the related construction industry contributing 7.3% in the same. Likewise, the property sector was responsible for 15.7% of the Philippine Stock Exchange’s total market capitalization in 2022 (PSA, 2023a); Bangko Sentral ng Pilipinas (BSP, n.d.). Although “the real estate service suffered a 16.7% drop in value from 2019 to 2020 due to mall closures, rent concessions, and lower foot traffic in business establishments” (NEDA, 2020, p. 8), it grew by 2.2% from 2020 to 2021 and 5.3% from 2021 to 2022 when the economy began to recover (PSA, n.d.) from the effects of the COVID-19 pandemic. On the other hand, the construction industry likewise experienced a decline of 25.5% from 2019 to 2020, “dragged down by the contraction in private construction projects from both households and firms, as well as delays due to various issues around the pandemic and reprioritization of the budget to support urgent COVID-19 measures” (NEDA, 2020, p. 5-6). It then bounced back with a growth rate of 10.1% and 12.1% in 2020 to 2021 and 2021 to 2022, respectively. Tables 1 and 2 below show the percent share of each industry/sector in the 2022 GDP and stock market capitalization, respectively (*See Table 1: Percent*

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Share per Industry in 2022 GDP (at Current Prices) and Table 2: Percent Share per Sector in 2022 Philippine Stock Market Capitalization).

Table 1. Percent Share per Industry in 2022 GDP (at Current Prices)

Industry	%
Agriculture, forestry, and fishing	9.55
Industry	29.23
Mining and quarrying	1.27
Manufacturing	17.24
Electricity, steam, water and waste management	3.39
Construction	7.33
Services	61.22
Wholesale and retail trade; repair of motor vehicles and motorcycles	18.10
Transportation and storage	3.66
Accommodation and food service activities	1.79
Information and communication	3.16
Financial and insurance activities	10.10
Real estate and ownership of dwellings	5.67
Professional and business services	6.13
Public administration and defense; compulsory social activities	5.06
Education	4.01
Human health and social work activities	1.87
Other services	1.66
Total	100

Source: PSA (2023a)

Table 2. Percent Share per Sector in 2022 Philippine Stock Market Capitalization

Sector	%
Financials	31.16
Industrials	18.55
Holding Firms	19.93
Property	15.74
Services	12.29
Mining & Oil	2.15
SME	0.18
Total	100

Source: PSE Edge (n.d.)

The government recognizes the real estate sector as a significant contributor in the country's economic growth and development and has put in place a number of initiatives to help the industry grow. One is the Comprehensive Agrarian Reform Program (CARP) that aims to promote sound rural development and industrialization (DAR, 1988). "CARP accomplishments in the last 30 years represent 70% of an estimated total non-owner-cultivated agriculture land and 54% of total farming households in the country, but evidence suggest that the program has been poorly targeted in terms of areas covered and beneficiaries" (Ballesteros et al., 2017, p. 37). Another is "the "Build, Build, Build Program" that aims to enhance mobility and connectivity, and thereby spur development growth" (Patinio, 2022, July 24, para. 7). "Projects such as the final section of TPLEX (Tarlac–Pangasinan–La Union Expressway), Plaridel By-Pass Road Phase II, NLEX (North Luzon Expressway) Harbor Link Segment 10 and C3-10 Section, Skyway Stage 3, and Alabang-Sucac Skyway Extension, in addition to the Central Luzon Link Expressway, Cavite Laguna Expressway, and Manila Cavite Toll Expressway for the road sector" (Patinio, 2022, July 24, para. 10-11), are products of this program. Furthermore, "the recently-enacted Republic Act No. 11966, also known as the Public-Private Partnership (PPP) Code of the Philippines, mandated the enhancing of public-private collaboration and laying the foundation for ensuring the realization of high-quality infrastructure projects and services in the country" (PPPC,

2023, para. 1). Development of areas that are at the receiving end of these initiatives could bolster the performance of real estate firms. Other improvements include the combining of online databases of Land Management Bureau (LMB) of the DENR and the Land Registration Authority to “relieve land title applicants from directly requesting and submitting land records from each agency as part of the verification and registration requirements” (DENR, 2019, para. 4), as well as LRA’s online data linkage system, making it easier for the transacting public to process land transactions faster (DENR, 2022).

However, “growth from the past decade was halted as lockdowns from the COVID-19 pandemic took a heavy toll on economies, with unemployment, declining business and consumer confidence, and slowdown in remittance inflows affecting the industry” (Suarez, 2022, para. 16). “The health crisis also affected real estate segments—from residential, office, retail, hospitality to industrial—in varying degrees” (Suarez, 2022, para. 16). Nonetheless, the industry is expected to experience a positive net take-up in 2023, with Metro Manila leading the demand due to the increased office absorption driven by outsourcing companies and flexible workspaces, as evidenced by new supply reaching 641,100 square meters with Quezon City, with Ortigas Central Business District (CBD) covering close to half of this new supply (Colliers, 2023). “Many businesses have also started to implement return-to-office plans which are expected to drive economic recovery” (Suarez, 2022, para. 17). “The boom in e-commerce has likewise driven the demand for warehousing, logistics, and supply chain solutions, subject to recent global events like the ongoing Russia-Ukraine conflict which are expected to put a strain on the continued growth in the industry” (Suarez, 2022, para. 18). Apart from this, “the middle-class population, and consistent remittances from overseas Filipino workers (OFWs) are also anticipated to contribute to this sector’s growth, with Filipinos’ ability to purchase and invest in real estate steadily rising in recent years” (Statista, 2023, para. 1). According to the BSP, “cash remittances sent by OFWs through banks jumped by 3.6% to \$32.54 billion in 2022, exceeding the previous record of \$31.42 billion in 2021, and accounted for 8.9% of the country’s GDP, citing the usual surge in remittances in December during the holidays, pull factors (i.e., inflation and greater mobility in the home country), a weaker peso in the last few months of 2022, and better economic performance in host economies” (Ta-asan, 2023, para. 2, 7 & 11).

2 Review of Related Literature and Hypotheses Development

2.1 Internal Factors

Over the recent years, various economies and regions have been subjected to studies on the factors influencing real estate firm profitability such as in the case of Sri Lanka and Japan (Kaluarachchi, 2021), Vietnam (Hoang & Linh, 2021; Doan, 2020), and Indonesia (Rizki et al., 2019; Diaz & Hindro, 2017). These studies determined the relationship of profitability with external macroeconomic factors including GDP growth, inflation, and interest rates, and internal firm-specific factors including leverage, liquidity, firm size, firm age, firm revenue growth, and working capital management. Given the broad nature of the real estate firms’ business model in the Philippines, spanning from leasing and selling of both residential and commercial properties alike, this paper intends to capture the impact of overall property industry determinants by considering general macroeconomic and firm-specific variables.

The following internal factors were identified to be potential determinants of firm profitability based on the previously mentioned studies on real estate firms in different economies:

2.1.1 Firm Age

Firm age as a potential firm-specific factor affecting profitability has not been contemplated in recent literature for the real estate industry. While Doan (2020) in Vietnam concluded that a positive effect on profitability is expected the older the real estate firm is, limited explanation was provided. Nonetheless, there are several recent studies specifically devoted on understanding the relationship between firm age and profitability, but in the context of listed firms in a specific stock exchange. Warusawitharana (2018, 1, para. 2) found that United Kingdom-based firms’ average profitability changes systematically with age. On average, “firms realize profitability increases in their early years, followed by a slow decline after 10 years of age” (Warusawitharana, 2016, 3.2 para. 2). On the other hand, Akben-Selcuk (2016, p. 1) in Turkey suggested otherwise, stating “a convex relationship or that

younger firms start to see a decline in their profitability from the beginning but they may become profitable again at an old age". Ilaboya & Ohiokha (2016, Abstract) showed a "positive relationship between firm age and profitability", citing the "learning by doing" hypothesis which states that "increased knowledge of effective production techniques through time increases the company's productivity" (Garnsey, 1998 as cited in Ilaboya & Ohiokha 2016, p.32). On the contrary, Rahman & Yilun (2021, 112) in China found "a negative relationship between the two, explaining that the older the firm is, the more rules and regulations will exist within the firm. They further elaborate that it takes longer for information to travel from lower to higher levels of management, which in turn makes the decision-making process of the firm to be longer, and employees may be bound by complicated regulations within the firm when conducting business with other firms in the capital market, thereby decreasing efficiency and increasing the chances that the firm will suffer losses as a result" (Rahman & Yilun, 2021, p. 112).

Considering that the top players in the Philippine real estate industry are in the lower end of the spectrum as to years from the date of incorporation to the date of observation, the authors take the stance that firm age has a negative impact on profitability. Hence:

H1: Firm age has a negative impact on profitability.

2.1.2 Firm Size

Firm size is among the most widely studied determinants of profitability. On the one hand, Doan (2020) found that firm size yielded a negative impact on profitability in Vietnam, specifically in Ho Chi Minh and Hanoi. The negative relationship between size and profitability was attributed to the larger real estate firms' tendency of spreading their investments without focusing on a market segment with actual needs, taking profitability at the backseat in terms of priority. On the other hand, studies by Hoang & Linh (2021) in Vietnam and Rizki et al. (2019) in Indonesia showed a positive relationship between size and profitability. Cited reasons include large real estate firms' ability to adapt to technological advancement or macroeconomic environment, as well as to take advantage of their position in negotiating the purchasing cost for the vacant land, implementing marketing strategies and attracting customers. Considering the competitive landscape of the Philippine real estate sector where the top firms account for the more than a majority's share based on total assets, it is hypothesized that firm size will yield a positive impact on profitability. Hence:

H2: Firm size has a positive impact on profitability.

2.1.3 Firm Revenue Growth

Revenue growth is one of the drivers identified to have a positive impact on firm profitability as concluded in the studies of Rizki et al. (2019), Diaz & Hindro (2017), and Toan, et al. (2017). Intuitively, higher sales are expected to generate higher profit for a company (Diaz & Hindro, 2017). Synonymously, intensifying sales growth would increase net income and profitability (Rizki et al., 2019). A higher level of revenues gives a company a greater ability to cover various expenses that may arise from running the business, thereby resulting in a greater profitability for the firm. Hence:

H3: Firm revenue growth has a positive impact on profitability.

2.1.4 Liquidity

Various studies also investigated the impact of liquidity to a firm's profitability but have yielded varying results across different countries. A positive relationship was shown in the studies of Hoang & Linh (2021), Kaluarachchi (2021) for Japan, and Doan (2020), while a negative relationship was found in the studies of Kaluarachchi (2021) for Sri Lanka, Rizki et al. (2019), and Diaz & Hindro (2017). This positive relationship highlights the importance of liquidity as an indicator of the company's ability to meeting its financial obligation, thereby exhibiting greater financial capacity and ability to have a high level of activity to continue its operations profitably (Doan, 2020). Stated differently, "when the liquidity index increases, the amount of cash reserves and cash equivalents increases, thereby helping businesses reduce transaction costs and financial risks, along with strengthening the faith of the investors" (Hoang & Linh., 2021, p. 9). Moreover, the higher level of market operations a real estate business has, the more notable achievements they could potentially accomplish. "These will cause the business to increase sales and hence improve its profitability" (Hoang & Linh., 2021, p. 9). On the other

hand, a negative relationship can be attributed to differences in industry and country factors and practices, as well as management capabilities (Kaluvarachchi, 2021). In addition, it has also been “related with piling inventories, which is a huge part of real estate companies’ current assets, and the culprit in increasing maintenance costs” (Diaz & Hindro, 2017, p. 412).

It is hypothesized that liquidity negatively contributes to the profitability of a real estate firm in line with the risk-return theory which states that the higher the risk, the higher the return and vice versa. “Assuming a constant level of total assets, the higher a firm’s ratio of current assets to total assets or the lower the ratio of current liabilities to total assets, the less profitable the firm and the less risky it is” (Gitman & Zutter, 2012, p. 631). Hence, “a trade-off exists between a firm’s profitability and its liquidity” (Gitman & Zutter, 2012, p. 601) since more liquid assets have generally lower earnings potential than less liquid ones. This is highly likely to be the case with the Philippine real estate industry with several players who have various big-ticket projects that have substantial earnings potential but take a significant turnaround time to complete and sell. Hence:

H4: Liquidity has a negative impact on profitability.

2.1.5 Solvency

Solvency’s impact on the profitability of real estate firms is consistently shown to be negative by the likes of Hoang & Linh (2021), Kaluarachchi (2021), Doan (2020), Rizki et al. (2019), and Diaz & Hindro (2017). The reasons cited for the relationship in these studies included a great deal of real estate firms’ “capital being allocated in interest payment instead of other profitable areas” since they operate with a “significant amount of long-term debt rather than short-term debt, thus taking many years to pay off” (Hoang & Linh, 2021, p. 11), “the escalation of leverage illustrating an increase of interest payments that ultimately reduce profitability” (Kaluvarachchi, 2021, p. 33), and “the debilitating consequence of paying interest and principal when the firm is underperforming as well as conditions that limit the flexibility of real estate companies in running the firm” (Diaz & Hindro, 2017, p. 414). These studies also provide empirical support to the Pecking Order theory (Myers & Majluf, 1984) as cited by Rizki et al. (2019), which suggests that profitable businesses use less debt because they can rely on internal financing without tapping external sources unless necessary, thus advocating the importance of profitability to support a firm.

On the other hand, other well-known alternatives in explaining capital structure decisions by firms are the Trade-Off Theory (Modigliani & Miller, 1963) and Agency Theory (Jensen & Meckling, 1976). The former states that more profitable firms are expected to incur higher debt which allows to take advantage of tax shields brought about by leverage, thereby reaching an optimal structure with the lowest cost of capital, while the latter advocates for good governance and higher levels of debt to minimize agency costs that arise from conflicts of interests between the principal (the firm) and various agents (managers, stockholders, bondholders) of the firm, both of which suggest the contrary, which is a positive relationship between leverage and profitability. Hence:

H5: Solvency has a negative impact on profitability.

2.1.6 Efficiency

Efficiency provides measures on how effective a firm is managing its assets and liabilities arising from its day-to-day operations, particularly the working capital accounts such as accounts receivable, inventories and accounts payable. Working capital management’s effect on profitability has also been shown to have conflicting effects. Rizki et al. (2019) employed the cash conversion cycle (CCC), which “measures the length of time required for a company to convert cash invested in its operations to cash received as a result of its operations” (Gitman & Zutter, 2012, p. 603), to show a negative effect on profitability, affirming other studies cited in the same but was not elaborated. On the other hand, Kaluarachchi (2021), focusing on inventory, suggested a positive relationship between the two for Sri Lanka but negative for Japan, citing differences in classification of subject countries as to growth (i.e., developed vs. developing countries). Diaz & Hindro (2017, Abstract) broke down the cash conversion cycle into its “three components – days account receivable, days inventories and days account payable.” Their study suggested a “negative relationship between the number of days account receivable and profitability”, stating that a “long account receivable negatively affects liquidity because of the firm’s slow collection” (p. 411). On the other hand, the same study argued that both the number

of days inventories and days account payable have positive significant relationship with profitability. This is because maintaining higher level of inventories allows the company to serve unexpected demand, and having longer periods to pay suppliers make companies more liquid by conserving cash, both of which may increase profitability. Toan et al. (2017) utilized the same approach as Diaz & Hindro (2017), except that accounts payable period was found to have a negative effect on profitability but was not explained in detail.

Another perspective on efficiency is measuring how well a company is in utilizing its assets in generating revenues, as measured by the asset turnover ratio. Hoang & Linh (2021, p. 10) found a “positive relationship between the former and profitability”, explaining that “the acceleration in sales indicated by a higher asset turnover ratio means that companies generate more revenue per dollar of assets” which translates to better profitability. Kaluarachchi (2021) concluded a positive relationship in the same with profitability, following a similar reasoning.

Therefore, the authors take the stance that good working capital management prevents potential losses from uncollectible accounts, inventory write-downs and damaged credit reputation with suppliers, while optimal utilization of a firm’s asset base yields higher revenues in the long run, both of which ultimately boosts the firm’s profitability. Hence:

H6: Efficiency has a positive impact on profitability.

2.2 External Factors

Apart from firm-specific factors, macroeconomic indicators were also used as factors affecting profitability in similar studies on real estate firms in Vietnam, Sri Lanka, Japan, and Indonesia (Kaluarachchi, 2021; Doan, 2020; Rizki et al., 2019).

2.2.1 GDP Growth

GDP growth is an indicator of a country’s economic growth. Kaluarachchi (2021), Doan (2020) and Rizki et al. (2019) found that a country’s GDP growth has a positive relationship with a real estate firm’s profitability. Kaluarachchi (2021) further stated that the development of an economy reflects the higher purchasing power of its citizens. On the other hand, Doan (2020) showed that economic growth creates a good condition for real estate firms to improve their profit, suiting the reality of real estate, as this builds trust of investors in real estate market and concerned firms. Lastly, Rizki et al. (2019) explained that increase in GDP growth will increase property consumption and property investment will increase property sales, thereby leading to increased property performance. Hence:

H7: GDP growth has a positive impact on profitability.

2.2.2 Inflation Rate

Inflation as a macroeconomic factor generally exhibited a positive relationship with profitability as concluded by Kaluarachchi (2021), Doan (2020) and Rizki et al. (2019). The Bank of Indonesia shared that “the volatility in the commercial property price index has the same direction with the consumer price index (CPI) as an inflation indicator” (Rizki et al., 2019, p. 128). Therefore, an “increase in property prices would increase net income and would then increase profitability” (Rizki et al., 2019, p. 128). Doan (2020), however, highlighted that this must hold true for economies with vividly mild inflation, specifically one-digit inflation rates, such as in Vietnam, and, for this research, in the Philippines, with inflation rates mostly falling within the BSP target inflation range of 2-4% in the period covered by this study. Consequently, economies with increasing inflation, such as in Sri Lanka, results in a negative impact on profitability as “higher inflation increases the cost of production which ultimately reduce the profitability of the real estate companies in the economy” (Kaluarachchi, 2021, p. 33). Hence:

H8: Inflation rate has a positive impact on profitability.

2.2.3 Interest Rate

Interest rates, as considered to be one macroeconomic factor by Rizki et al. (2019), indicated a negative effect on profitability because real estate products can be treated by the buying public either as an investment product or a consumption product. In the case of the former, Rizki et al. (2019)

further explained that demand for real estate products would be higher in periods of low interest rates as returns in these investments would yield higher profit. As for the latter case, Rizki et al. (2019) suggested that decline in interest rates lowers the cost of borrowing thereby increasing buyers' purchasing power, resulting in increased sales and profitability. "The Philippines' loan growth and borrowers' inclination to take out new loans have been affected by the central bank's series of policy rate increases since the second quarter of 2022" (Chipongian, 2024, para. 1). "As of end-November 2023, bank lending grew by 7% year-on-year, slower than the previous month's 7.1%, decelerating since recording a growth of 10.2% in March last year" (Chipongian, 2024, para. 4). Hence:

H9: Interest rate has a negative impact on profitability.

3 Data and Methodology

This study utilizes annual data from 2013 to 2022 of 39 real estate companies classified under the Property sector according to the classification system used by the Philippine Stock Exchange (PSE). One company, together with eight real estate investment trusts (REITs) that are part of the said sector, was omitted in the analysis due to the absence of revenues in the entire period covered by the study (See Table 3: PSE Property Sector).

Table 3. PSE Property Sector

Company Name	Symbol	Listing Date
Arthaland Corporation	ALCO	March 19, 1996
Anchor Land Holdings, Inc.	ALHI	August 8, 2007
Ayala Land, Inc.	ALI	July 5, 1991
Ayala Land Logistics Holdings Corp.	ALLHC	February 28, 1990
Altus Property Ventures, Inc.	APVI	June 26, 2020
Araneta Properties, Inc.	ARA	November 14, 1989
A Brown Company, Inc.	BRN	February 8, 1994
Cityland Development Corporation	CDC	August 2, 1983
Crown Equities, Inc.	CEI	August 16, 1994
Cebu Holdings, Incorporated	CHI	February 14, 1994
Cebu Landmasters, Inc.	CLI	June 2, 2017
Century Properties Group, Inc.	CPG	June 16, 1976
DoubleDragon Corporation	DD	April 7, 2014
D.M. Wenceslao & Associates, Incorporated	DMW	June 29, 2018
Empire East Land Holdings, Inc.	ELI	June 28, 1996
Ever Gotesco Resources and Holdings, Inc.	EVER	September 27, 1994
Filinvest Land, Inc.	FLI	October 25, 1993
Global-Estate Resorts, Inc.	GERI	November 23, 1995
8990 Holdings, Inc.	HOUSE	December 9, 2010
Golden MV Holdings, Inc.	HVN	June 29, 2016
Philippine Infradev Holdings, Inc.	INFRA	February 27, 1978
Keppel Philippines Properties, Inc.	KEP	September 11, 1989
City & Land Developers, Incorporated	LAND	December 13, 1999
MRC Allied, Inc.	MRC	November 20, 1990
Megaworld Corporation	MEG	June 15, 1994
Omico Corporation	OM	May 2, 1969
Philippine Estates Corporation	PHES	January 21, 1985
Primex Corporation	PRMX	August 10, 2001
Robinsons Land Corporation	RLC	October 16, 1989
Philippine Realty and Holdings Corporation	RLT	September 7, 1987
Rockwell Land Corporation	ROCK	May 11, 2012
Shang Properties, Inc.	SHNG	June 13, 1991
Sta. Lucia Land, Inc.	SLI	September 14, 1987

Company Name	Symbol	Listing Date
SM Prime Holdings, Inc.	SMPH	July 5, 1994
SOCResources, Inc.	SOC	January 5, 1994
Vistamalls, Inc.	STR	November 17, 1970
Suntrust Resort Holdings, Inc.	SUN	February 11, 1959
PTFC Redevelopment Corporation	TFC	December 19, 1955
Vista Land & Lifescapes, Inc.	VLL	June 25, 2007

Source: PSE EDGE (n.d.)

The two largest real estate companies in the Philippines as of 2022 are SMPH and ALI. SMPH accumulated the largest asset base of PHP874 billion, while ALI ranked second with total assets of PHP780 billion. In terms of revenues, however, ALI is the industry leader, with PHP123 billion in revenues, while SMPH secured the second slot, with revenues of PHP106 billion.

“In 2022, SM Prime’s mall business unit opened four malls in the Philippines, namely, SM City Roxas, SM City Tanza, SM City Sorsogon and SM City Tuguegarao” (SM Prime, 2023, p. 8). “SM Prime’s residential business unit, on the other hand, launched three residential developments in the Philippines, namely, Vail Residences in Cagayan de Oro, Now Residences in Pampanga and Zeal Residences in General Trias, Cavite” (SM Prime, 2023, p. 9). “As for ALI, project launches in 2022 were focused on residential developments, which include ALP’s Ciela Phase 2A Batch 1 at Carmona, Cavite, Miravera at Altaraza, Bulacan, and Arcilo at Nuvali, Laguna; and Alveo’s Verdea at Silang, Cavite, and South Palm Grove at Areza in Lipa, Batangas” (Ayala Land, 2023, p. 145).

The third largest real estate company in 2022, with revenues of PHP59 billion and total assets of PHP409 billion, is Megaworld Corporation. Notable projects comprising the revenues of the company mostly came from the following projects: Park McKinley West, The Ellis, Uptown Parksuites Tower 1 & 2, Vion Tower, Manhattan Plaza Tower 2, Bayshore Residential Resort 2 & Phase 2, Gentry Manor, San Antonio Residence, Park McKinley West-Tower C, Belmont Hotel Iloilo, St. Mark Residences, Uptown Arts Residences, Grand Westside Hotel, The Albany Luxury Residences-Yorkshire & Kingsley, Maple Grove Commercial District, The Florence, Uptown Ritz Residence, and Mactan Belmont Luxury Hotel (Megaworld, 2023). Fourth on the list revenue-wise is Robinsons Land Corporation, followed by 8990 Holdings, Inc., while Vista Land & Lifescapes, Inc., followed by Robinsons Land Corporation, rank fourth and fifth asset-wise, respectively. These aforementioned companies represent a combined 67.38% of the total asset base and 72.78% of the total revenues of all the listed real estate companies as included in the Property sector of the PSE.

Two dependent variables on profitability, namely ROA and ROE, are tested individually with ten independent variables - firm age, firm size, firm revenue growth, liquidity, solvency, efficiency (cash conversion cycle and total asset turnover), GDP growth, inflation rate, and interest rate. The independent variables are classified into two categories - internal factors and external factors. The financial data utilized to measure the dependent variables and independent variables on internal factors were gathered using the database of Refinitiv Eikon. In addition, the macroeconomic data such as GDP growth and inflation rates were collected from the PSA, while interest rates were gathered from the Philippine Dealing System (PDS) Group. There are a total of 366 observations included in this study (See Table 4: Summary of Variables).

Table 4. Summary of Variables

Variable Name	Variable	Calculation	Hypothesized Relationship with Profitability
Dependent			
Profitability	ROA _{it}	The net income for year <i>t</i> divided by the total assets as of the end of year <i>t</i> of company <i>i</i> .	N/A
	ROE _{it}	The net income for year <i>t</i> divided by the total shareholders’ equity as of the end of year <i>t</i> of company <i>i</i> .	N/A

Independent Internal Factors			
Age	A_{it}	The number of years from the date of incorporation of company i to the end of year t .	-
Size	S_{it}	The natural logarithm of the total assets of company i as of the end of year t .	+
Revenue Growth	RG_{it}	The revenues for year t divided by the revenues for year $t-1$ of company i , minus 1.	+
Liquidity	CR_{it}	The current assets divided by the current liabilities of company i as of the end of year t .	-
Solvency	DE_{it}	The total liabilities divided by the total shareholders' equity of company i as of the end of year t .	-
Efficiency	CCC_{it}	The days receivable outstanding (365/Revenues/Gross trade accounts receivable) plus days inventory outstanding (365/Cost of revenues/Inventories) minus days payable outstanding (365/Cost of revenues/Trade payables) of company i for year t , divided by 365.	+
	$TATO_{it}$	The revenues for year t divided by the total assets as of the end of year t of company i .	+
Independent External Factors			
GDP Growth	$GDPG_t$	The GDP growth rate for year t based on constant 2018 prices as reported by PSA.	+
Inflation Rate	INF_t	The inflation rate for year t based on the Consumer Price Index (CPI) as reported by PSA.	+
Interest Rate	INT_t	The prevailing 10-year Philippine benchmark reference rate on the last trading day of year t as reported by PDS (PDST-R2 rates for years 2013-2017 and Bloomberg Valuation Service (BVAL) rates for years 2018-2022).	-

Table 5 presents the descriptive statistics of the variables covered in this study (See Table 5: Descriptive Statistics of Variables).

Table 5. Descriptive Statistics of Variables

Variable	Mean	Standard Deviation	Minimum	Maximum
Dependent				
ROA_{it}	4.23%	6.56%	-27.35%	69.48%
ROE_{it}	8.52%	13.01%	-139.05%	86.86%
Independent Internal Factors				
A_{it}	35.40	17.72	4.33	104.9
S_{it}	9.60	1.98	5.73	13.68
RG_{it}	53.75%	543.42%	-99.55%	10200.00%
CR_{it}	4.53	6.09	0.01	41.49
DE_{it}	1.10	1.05	0.01	9.08
CCC_{it}	12.48	201.11	-1820.33	3349.59
$TATO_{it}$	0.16	0.12	0.00001	0.86
Independent External Factors				
$GDPG_t$	4.91%	4.94%	-9.52%	7.57%
INF_t	3.09%	1.51%	0.70%	5.80%
INT_t	4.83%	1.31%	3.00%	7.07%

Utilizing the previously mentioned variables, a multiple linear regression model is employed for the purpose of this research based on Hoang & Linh (2021), Kaluarachchi (2021), Doan (2020), Rizki et al. (2019) and Toan et al. (2017) with the following form for each of the dependent variables:

$$ROA_{it} = c + A_{it} + S_{it} + RG_{it} + CR_{it} + DE_{it} + CCC_{it} + TATO_{it} + GDPG_t + INF_t + INT_t + \varepsilon_{it} \quad (1)$$

$$ROE_{it} = c + A_{it} + S_{it} + RG_{it} + CR_{it} + DE_{it} + CCC_{it} + TATO_{it} + GDPG_t + INF_t + INT_t + \varepsilon_{it} \quad (2)$$

where i represents company i , t represents time t with $i = 1, \dots, N$, $t = 1, \dots, T$. c corresponds to a constant term while ε_{it} is a disturbance term.

4 Results and Discussion

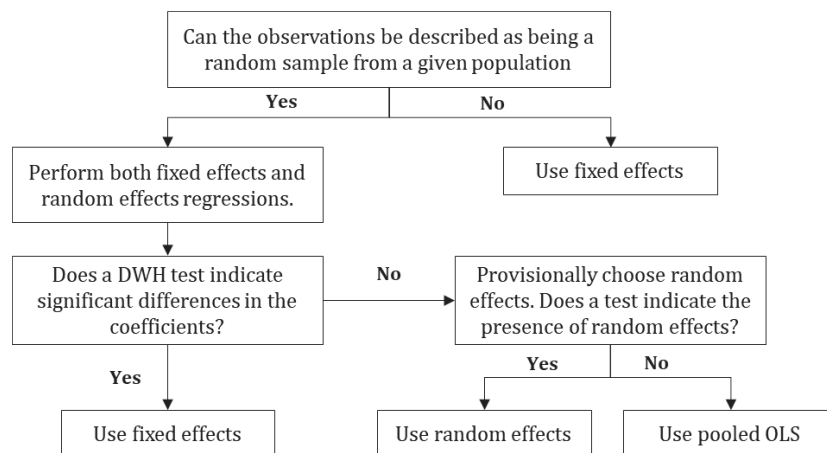
Following the rules-of-thumb set by Gujarati, (2000), the resulting correlations suggests that there is no indication of severe multicollinearity in the regression (See Table 6: Correlation Matrix of Independent Variables).

Table 6. Correlation Matrix of Independent Variables

	A _{it}	S _{it}	RG _{it}	CR _{it}	DE _{it}	CCC _{it}	TATO _{it}	GDPG _t	INF _t	INT _t
A _{it}	1.0000									
S _{it}	-0.3454	1.0000								
RG _{it}	-0.0241	-0.0494	1.0000							
CR _{it}	0.1824	-0.4566	-0.0502	1.0000						
DE _{it}	-0.3698	0.4081	-0.0383	-0.3636	1.0000					
CCC _{it}	-0.0064	-0.0552	-0.0460	0.0043	0.1549	1.0000				
TATO _{it}	0.0241	-0.1095	-0.0546	-0.0725	0.1116	-0.0585	1.0000			
GDPG _t	-0.0467	-0.0608	0.0443	0.0059	-0.0222	-0.0031	0.1301	1.0000		
INF _t	0.0749	0.0884	0.0976	-0.0202	-0.0265	-0.0355	-0.0639	0.1691	1.0000	
INT _t	0.0566	0.0704	0.1042	-0.0193	-0.0065	-0.0216	0.0134	0.5090	0.7224	1.0000

For the analysis, this paper adopts the framework suggested by Dougherty (2011) for choosing which regression model to use (See Figure 1: Choice of Regression Model for Panel Data):

Figure 1. Choice of Regression Model for Panel Data



Source: Dougherty (2011)

Both the fixed effects (FE) and random effects (RE) regression were performed on the ROA and ROE models. The specification test by Hausman (1978) was then used to test if significant differences exist between the coefficients of the RE and FE regression. The null hypothesis that the difference in coefficients is not systematic was rejected under the ROE model but was not rejected under the ROA model. Hence, a Lagrange Multiplier Test by Breusch and Pagan (1980) was conducted afterwards to determine the presence of random effects in the regression. The null hypothesis of no random effects was rejected for both the ROE and ROA models, precluding the use of pooled OLS. Lastly, robust estimates were used for both models to account for possible existence of heteroskedasticity. Therefore, a robust RE and FE models were selected for the ROA and ROE models, respectively. The results of the regression for both models are summarized in the next two tables (*Table 7: Robust random effects regression on ROA model and Table 8: Robust fixed effects regression on ROE model*).

Table 7. Robust random effects regression on ROA model

Variables	Coefficient	Standard Error	p-value		
Internal Factors				R ²	0.3170
A _{it}	0.000201	0.000338	0.552	Hausman test:	
S _{it}	-0.004711	0.002745	*0.086	chi ²	22.24
RG _{it}	0.000797	0.000148	***0.000	Prob > chi ²	0.0081
CR _{it}	-0.002120	0.000838	**0.011		
DE _{it}	0.000590	0.003334	0.859	BP-LM test:	
CCC _{it}	-0.000162	0.000070	**0.021	chi ²	23.18
TATO _{it}	0.111154	0.047111	**0.018	Prob > chi ²	0.0000
External Factors					
GDPG _t	-0.013393	0.058316	0.818		
INF _t	0.292879	0.206246	0.156		
INT _t	0.032752	0.326060	0.920		
Constant	0.064418	0.040788	0.114		

Notes: ***, ** and * denote two-tail significance at the 1%, 5% and 10% levels, respectively.

Table 8. Robust fixed effects regression on ROE model

Variables	Coefficient	Standard Error	p-value		
Internal Factors				R ²	0.5863
A _{it}	-0.000971		0.634	Hausman test:	
S _{it}	0.001497	38.76	0.884	chi ²	38.76
RG _{it}	0.001816	0.0000	***0.000	Prob > chi ²	0.0000
CR _{it}	-0.001361	0.001276	0.293		
DE _{it}	0.020771	0.009985	**0.044	BP-LM test:	
CCC _{it}	-0.000521	0.000010	***0.000	chi ²	58.21
TATO _{it}	0.423802	0.070289	***0.000	Prob > chi ²	0.0000
External Factors					
GDPG _t	-.0724224	0.139446	0.607		
INF _t	.1807003	0.333085	0.591		
INT _t	.1081195	0.461760	0.816		
Constant	.0207821	0.087232	0.813		

Notes: ***, ** and * denote two-tail significance at the 1%, 5% and 10% levels, respectively.

With ROA as the dependent variable, the independent variables which are statistically significant are firm revenue growth (RG) and efficiency as measured by the total asset turnover (TATO), which positively affect profitability, whereas firm size (S), current ratio (CR) and efficiency as measured by the cash contribution cycle (CCC), negatively affect it. The independent variables of solvency (DE), inflation rate (INF), and interest rate (INT) also positively affect ROA, while firm age (A) and GDP

growth (GDPG) negatively affect the same, although the statistical significance of their relationship with profitability cannot be found with the collected data.

Firm revenue growth (RG) has a positive relationship (coefficient: 0.000797; p-value: 0.000) with profitability in the ROA model, affirming Hypothesis H3 of this study and the studies of Rizki et al. (2019), Diaz & Hindro (2017), and Toan, et al. (2017) that higher level of revenues should give a real estate firm a better opportunity to yield a higher profit. Efficiency as measured by the total asset turnover (TATO) also exhibits a positive effect (coefficient: 0.111154; p-value: 0.018) on ROA, consistent with Hypothesis H6 of this study and the studies of Hoang & Linh (2021) and Kaluarachchi (2021), explaining that efficiency in utilizing a firm's asset base should be able to produce greater revenues that ultimately result in improved profitability. In the same model, firm size (S) exhibits a negative relationship (coefficient: -0.004711; p-value: 0.086) with profitability, contradicting Hypothesis H2 of this study but affirming the results of Doan (2020), explaining large real estate firms' tendency to put profitability at the backseat in terms of priority in exchange for greater amounts of investments. Agency Theory (Jensen & Meckling, 1976) may also provide explanation on this relationship since conflicts of interest between various stakeholders are likely to be more prevalent as a company's size increases. Likewise, liquidity (CR) was shown to negatively affect (coefficient: -0.002120; p-value: 0.011) ROA in line with Hypothesis H4 and with the studies of Kaluarachchi (2021), Diaz & Hindro (2017), as well as the Risk-Return Theory by Gitman & Zutter (2012), given that it is normal for real estate firms to have inventories as the largest portion of their current assets. Notably, efficiency as measured by the cash conversion cycle (CCC) shows a negative effect (coefficient: -0.000162; p-value: 0.021) on profitability, negating Hypothesis H6 in this study. While this may seem to contradict with the results on total asset turnover (TATO) as another measure of efficiency, the results can nonetheless be understood in the context of liquidity (CR) since efficiency under the cash conversion cycle (CCC) involves managing current assets such as accounts receivable, inventories and accounts payable. Furthermore, the conclusion is also aligned with Diaz & Hindro (2017), particularly on the number of days account payable since delaying payments with suppliers, which lowers the cash conversion cycle (CCC), gives the company more liquidity by allowing it to maximize the use of cash set aside for these payments until the end of the agreed-upon credit terms, thereby helping profitability.

On the other hand, with ROE as the dependent variable, the independent variables which are statistically significant and positively affect profitability are still firm revenue growth (RG) and efficiency as measured by the total asset turnover (TATO), but with the addition of solvency (DE), whereas efficiency as measured by the cash contribution cycle (CCC) still negatively affects it. The independent variables of firm size (S), inflation rate (INF), and interest rate (INT) also positively affect ROE, while firm age (A), liquidity (CR) and GDP growth (GDPG) negatively affect the same, although the statistical significance of their relationship with profitability cannot be found with the collected data.

In the ROE model, both firm revenue growth (RG) (coefficient: 0.001816; p-value: 0.000) and efficiency as measured by the total asset turnover (TATO) (coefficient: 0.423802; p-value: 0.000) also shows positive effects on profitability. Similarly, a negative relationship was found with efficiency as measured by the cash conversion cycle (CCC) (coefficient: -0.000521; p-value: 0.000) and ROE. However, solvency (DE) now exhibits a positive relationship (coefficient: 0.020771; p-value: 0.044) with profitability. This is against Hypothesis H5 of this paper, as well as the results of the studies of Hoang & Linh (2021), Kaluarachchi (2021), Doan (2020), Rizki et al. (2019) and Diaz & Hindro (2017), and contrary to the Pecking Order Theory (Myers & Majluf, 1984). Nonetheless, this finding can be supported by the Agency Theory (Jensen & Meckling, 1976), similar in the discussion of the effect of firm size (S) on the ROA model, and the Trade-Off Theory (Modigliani & Miller, 1963).

5 Conclusion

In the ROA model, significant determinants of profitability include firm size (-), firm revenue growth (+), liquidity (-), efficiency measured using the cash conversion cycle (-) and efficiency measured using total asset turnover (+), while revenue growth (+), solvency (+), efficiency measured using the cash conversion cycle (-) and efficiency measured using total asset turnover (+) are

significant determinants of profitability. Hence, this study suggests that the profitability of real estate firms in the Philippine context can be improved by pushing for top line growth, coupled with a more aggressive working capital policy, efficient utilization of productive assets and taking advantage of leverage, as these are expected to yield a positive impact on their profitability.

The goal of this paper is to capture the overall property industry determinants of profitability in the Philippine real estate industry, consistent with available literature in this area of study. However, future research may consider extending the study to various company-level information, such as capital structure decisions, industry-specific ratios such as revenue per square meter or occupancy rates for each type of property, as well as a more granular analysis of the real estate companies along specific categories (e.g., leasing, commercial, residential). These can be taken into account by other researchers for purposes of future studies that would utilize or build from the information provided in this paper. Another direction for future research that can be considered is expanding into other industries aside from real estate.

References

- Akben-Selcuk, E. (2016). Does firm age affect profitability? Evidence from Turkey. *International Journal of Economic Sciences*, Vol. V(3), pp. 1-9. <https://www.eurrec.org/ijoes-article-719>
- Ayala Land, Inc. (2023). *2022 Annual Report*.
- Ballesteros, M., Ancheta, J., & Ramos, T. (2017). The comprehensive Agrarian Reform Program after 30 years: Accomplishments and forward options (Discussion paper series no. 2017-34). Philippine Institute for Development Studies. <https://pidswebs.pids.gov.ph/CDN/PUBLICATIONS/pidsdps1734.pdf>
- Bangko Sentral ng Pilipinas (BSP) (n.d.). *Philippine stock market capitalization*. <https://www.bsp.gov.ph/statistics/OtherRealSectorAccounts/Table%2043.pdf>
- Breusch, T., & Pagan, A. (1980). The Lagrange multiplier test and its applications to model specification in econometrics. *Review of Economic Studies* 47(1): pp. 239–253. <https://doi.org/10.2307/2297111>
- Chipongian, L. (2024, January 23). BSP's high rate affects borrowers' sentiment. *Manila Bulletin*. <https://mb.com.ph/2024/1/23/article-1762>
- Department of Agrarian Reform (DAR) (1988). *Comprehensive Agrarian Reform Law of 1988* (Republic Act No. 6657). <http://www.lis.dar.gov.ph/documents/9293>
- Department of Environment and Natural Resources (DENR) (2022, July 12). *LMB, LRA to share databases for efficient land transactions*. <https://lmb.gov.ph/news/lmb-lra-to-share-databases-for-efficient-land-transactions/>
- Diaz, J., & Hindro, M. (2017). Factors affecting the profitability of Indonesian real estate publicly-listed companies. *Asian Journal of Finance & Accounting* 9(1), p. 396. <https://doi.org/10.5296/ajfa.v9i1.11193>
- Doan, T. (2020). Profitability of real estate firms: Evidence using GMM estimation. *Management Science Letters*, 10(2), pp. 327-332. https://www.researchgate.net/publication/338304713_Profitability_of_real_estate_firms_Evidence_using_GMM_estimation
- Dougherty, C. (2011). *Introduction to econometrics*, 4th edition. Oxford University Press.
- Gitman, L., & Zutter, C. (2012). *Principles of managerial finance*, 13th Edition. Pearson.
- Gujarati, D. (2000). *Basic econometrics*, 3rd edition. China Renmin University Press.
- Hausman, J. A. (1978). Specification Tests in Econometrics. *Econometrica*, 46(6), pp. 1251–1271. <https://doi.org/10.2307/1913827>
- Hoang, L., & Linh, D. (15 July 2021). Determinants of profitability: Case study of real estate companies in Hochiminh Stock Exchange. *Journal of Social and Political Sciences*, 4(3). <https://doi.org/10.31014/aior.1991.04.03.297>
- Ilabaya, O., & Ohiokha, I. (2016). Firm age, size and profitability dynamics: A test of learning by doing and structural inertia hypotheses. *Business and Management Research*, 5(1). <https://doi.org/10.5430/bmr.v5n1p29>
- Jensen, M., & Meckling, W. (1976). Theory of the company: Managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics*, 3(4): pp. 305–360.

- Kaluarachchi, N. D. (2021). Determinants of profitability in the real estate industry: A comparative study between Sri Lanka and Japan. *IOSR Journal of Economics and Finance (IOSR-JEF)*, 11(6), pp. 26-34.
- Land Management Bureau (LMB) (n.d.). *DENR, LRA to combine online databases*. <https://lmb.gov.ph/index.php/resources/publications/90-resources/i-news/253-denr-lra-to-combine-online-databases>
- Megaworld Corporation (2023). *2022 Annual Report*.
- Modigliani, F., & Miller, M. (1963). Corporate income taxes and the cost of capital: A correction. *The American Economic Review*, 53(3), pp. 433-443
- Myers, S., & Majluf, N. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*. 13(2), pp. 187-221. [https://doi.org/10.1016/0304-405X\(84\)90023-0](https://doi.org/10.1016/0304-405X(84)90023-0)
- National Economic and Development Authority (NEDA) (2020). *Report on National Income Accounts (Q1-Q3 2020)*. <https://neda.gov.ph/wp-content/uploads/2020/11/Report-on-NIA-Q1-Q3-2020.pdf>
- Patinio, F. (2022, July 24). 'Build, Build, Build' continues: Building more for better lives. Philippine News Agency. <https://www.pna.gov.ph/articles/1179572>
- Patinio, F. (2022, May 30). *BBB infra projects hallmarks of Duterte administration*. Philippine News Agency. <https://www.pna.gov.ph/articles/1175414>
- Philippine Dealing System (PDS) Group (n.d.). *PHP BVAL benchmark rates - Benchmark tenors*. https://www.pds.com.ph/index.html%3Fpage_id=56718.html
- Philippine Dealing System (PDS) Group (n.d.). *PDST reference rates*. https://www.pds.com.ph/index.html%3Fpage_id=3617.html
- Philippine Statistics Authority (PSA) (2023a). *Annual national accounts linked series (2000-2022)*. <https://psa.gov.ph/statistics/national-accounts/data-series>
- Philippine Statistics Authority (PSA) (2023b). *Summary inflation report consumer price index (2018=100): December 2022*. <https://psa.gov.ph/price-indices/cpi-ir/node/1683481208>
- Philippine Statistics Authority (PSA) (2019). *2019 Annual Survey of Philippine Business and Industry (ASPBI) - Real Estate Activities Sector: Preliminary Results*. <https://psa.gov.ph/content/2019-annual-survey-philippine-business-and-industry-aspbi-real-estate-activities-sector>
- Philippine Stock Exchange Electronic Disclosure Generation Technology (PSE EDGE) (n.d.). *Company list*. <https://edge.pse.com.ph/companyDirectory/form.do>
- Public-Private Partnership Center (PPPC) (2023, December 7). *Newly enacted PPP Code optimizes public-private collaborations*. https://ppp.gov.ph/in_the_news/newly-enacted-ppp-code-optimizes-public-private-collaborations/
- Remo, A. (2023, December 8). Navigating the future of Philippine real estate. *Inquirer*. <https://business.inquirer.net/436281/navigating-the-future-of-philippine-real-estate>.
- Rahman, M., & Yilun, L. (2021). Firm size, firm age, and firm profitability: Evidence from China. *Journal of Accounting, Business and Management (JABM)*, 28(1), p. 101.
- Rizki, A., Anggraeni, L., & Hardiyanto, A. (2019). Significant impact of working capital and macroeconomic condition on profitability in property industry. *Jurnal Aplikasi Bisnis dan Manajemen (JABM)*, 5(1), p. 121. <https://doi.org/10.17358/jabm.5.1.121>
- SM Prime Holdings, Inc. (2023). *2022 Annual Report*.
- Statista (2023). *Real estate industry in the Philippines - statistics & facts*. <https://www.statista.com/topics/8509/real-estate-industry-in-the-philippines/>
- Suarez, A. (2022, July 22). Highs and lows of PH real estate. *Inquirer*. <https://business.inquirer.net/354002/highs-and-lows-of-ph-real-estate-2>
- Ta-asan, K. (2023, February 16). Remittances hit record high in 2022. *BusinessWorld*. <https://www.bworldonline.com/top-stories/2023/02/16/505132/remittances-hit-record-high-in-2022/>
- Toan, L., Nhan, V., Anh, L., & Man, L. (2017, July 18). The relationship between working capital management and profitability: Evidence in Vietnam. *International Journal of Business and Management*, 12(8), pp. 175-181.
- Warusawitharana, M. (2018). Profitability and the lifecycle of firms. *The B. E. Journal of Macroeconomics*, 18(2). <https://doi.org/10.1515/bejm-2017-0124>