AN ANALYSIS OF DETERMINANTS AFFECTING THE PROFITABILITY OF PROPERTY AND CONSTRUCTION SECTORS IN MALAYSIA

By

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ABSTRACT

This study analyses the factors influencing the profitability of 76 property companies and 28 construction companies listed in the Bursa Malaysia, from year 2009 to 2013. Profitability is proxied by return on equity (ROE) while the independent variables are quick ratio (QR) for liquidity, debt ratio (DR) and debt to equity ratio (DER) for leverage and finally, revenue (REVENUE) and total assets (TA) for firm size. Using panel data regression, the results indicated that size is the only variable that has significant relationship with profitability, with a positive relationship. The other variables are not significantly related to profitability. This shows that as far as the listed property and construction companies are concerned, size, as measured by total assets and revenue, is significant in determining the variation in the net profit. Based on this finding, it is recommended that other financial and non-financial variables including macroeonomics variables be included in the regression model for future studies on both sectors.

Keywords : Corporate Finance, Property Sector, Construction Sector, Profitability, Liquidity, Firm Size, Leverage, Financial Ratios, Malaysian Public-Listed Companies.

ABSTRAK

Kertas kerja ini menganalisis faktor-faktor yang mempengaruhi keuntungan 76 syarikat hartanah dan 28 syarikat pembinaan yang tersenarai di Bursa Malaysia, dari tahun 2009 hingga 2013. Keuntungan didorong oleh pulangan ekuiti (ROE) manakala pembolehubah bebas adalah nisbah cepat (QR) untuk kecairan , nisbah hutang (DR) dan hutang kepada nisbah ekuiti (DER) untuk memanfaatkan dan akhirnya, pendapatan (PENDAPATAN) dan jumlah aset (TA) untuk saiz firma. Dengan menggunakan regresi data panel, hasil menunjukkan bahawa saiz adalah satu-satunya pembolehubah yang mempunyai hubungan yang signifikan dengan keuntungan, dengan hubungan positif. Pembolehubah lain tidak berkaitan dengan keuntungan. Ini menunjukkan sejauh mana syarikat hartanah dan pembinaan tersenarai, ukuran, seperti yang diukur oleh jumlah aset dan hasil, adalah penting dalam menentukan perbezaan dalam keuntungan bersih. Berdasarkan penemuan ini, disarankan agar pembolehubah kewangan dan bukan kewangan yang lain termasuk pembolehubah makroekonomi dimasukkan dalam model regresi untuk kajian masa depan kedua-dua sektor.

Kata kunci: Kewangan Korporat, Sektor Hartanah, Sektor Pembinaan, Keuntungan, Kecairan, Saiz Firma, Leverage, Nisbah Kewangan, Syarikat Tersenarai Awam Malaysia.

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LIST OF ABBREVIATION

BURSA	Bursa Malaysia
CEO	Chief Executive Officer
CR	Current Ratio
DER	Debt to Equity Ratio
DR	Debt Ratio
EU	European Union
GDP	Gross Domestic Product
GRETL	Gnu Regression, Econometrics and Time-series Library
IR	Interest Rate
KLSE	Kuala Lumpur Stock Exchange
MM	Modigliani-Miller theorem
PLCs	Public-Listed Companies
QR	Quick Ratio
REVENUE	Sales Revenue
ROA	Return On Assets
ROE	Return On Equity
SME	Small Medium Enterprise
SIZE	Firm Size
TA	Total Assets

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

From an economic perspective, Malaysia was initially developed based on agriculture, before turning into a modern industrialised economy. When the country entered upper-middle income phase, it then moved towards a serviced-based and then knowledge-based economy.

Several economic plans and policies have been established and put in place to spearhead the economy. Among them are the Malaysia plans, new economic policy, national development policy, national vision policy since 2010, and the national transformation policy. Common focus amongst these policies are restructuring of society, achieving socio-economic goals, increasing income, human capital development as well as transformation of the Government, economy, social and politics.

It is understood that rapid and sustainable growth of a business organisation relates very much to how efficient is the financial management. Financial management is commonly divided into two main functions, acquisition and investment of funds (Shapiro, 2006). How well a company performs is determined by financial decisions in obtaining necessary resources and maximising its profits to add value to shareholders' interest. Hence, decisions concerning capital structure are vital.

High liquidity does not necessarily mean that the company is highly profitable whilst company with more debts may not reflect that the company is in trouble. This is especially so for the companies in the construction sector as their debt exposure is relatively greater than other companies because they are usually involved in mega projects that may cost billions of dollars.

Companies' financial performance also depend, to a varying extend, on the creditors, investors and authoritative bodies such as the customs department and the internal revenue department. In addition, macroeconomic factors such as the GDP and inflation are also influencing companies' financial performance.

Past researchers have concluded that the profitability of corporations is greatly affected by variables such as capital structure, ownership structure, legal environment and organisational culture (Loderer & Martin, 1997; Demsetz & Villalonga, 2001). However, on the property sector, most researches investigated the performance of REITs (Real Estate Investment Trusts). Only a few studies paid attention to the performance of real estate companies and capital structure, and even fewer included the non-listed companies.

The main reason for such lack of attention could be due to its complexity and availability of data. One of the few studies included a study of profitability of Hong Kong property and construction firms conducted by Chiang, Chan and Hui (2002) and on the performance of real estate corporations, such as Nourse (1994), McDonagh (2002) and Tay, Liow and Ooi (2003).

1.2 Overview of the Malaysian Property Market

In a vibrant developing country, Malaysia being the free capital market with abundant opportunities for growth, provides a strong playing field for property developers, contractors and investors. Malaysia has a rather young population. With a total population of 28.3 million as per census 2010, with average annual population growth rate of 2.0 percent (period from the year 2000 to 2010), coupled with rising urbanisation at the rate of 71.0 percent in year 2010, demand for residential properties especially in the urban areas, have observed an uptrend over the last decades.

The population density of major cities in Malaysia according to the 2010 Malaysian General Census indicated the highly populated areas being in various parts of greater Kuala Lumpur in Federal Territory and Selangor states and part of Iskandar Malaysia in the state of Johor. These are the places with population of more than 1 million.

The Malaysian Government having Vision 2020 in mind, continuously keep track of the progress to ensure that Malaysia becomes a developed nation as planned. The Government has taken initiatives to encourage continuous infrastructure development as well as constructions of commercial real properties to cater for the growing population and business demands. Once an existing geographical area is saturated, new townships will be created to create demand and expand the market and thus opening more opportunities for property developers.

The Malaysian property market is categorised under four broad sectors namely (1) industrial properties, such as factories (light industrial and heavy industrial) and

warehouses; (2) commercial properties, such as hypermarkets, shops, offices and shopping complexes; (3) leisure properties, such as hotels and resorts; and (4) residential properties, such as condominiums, apartments, townhouse, terrace houses, semi-detached houses and bungalows.

Property development activities such as residential and commercial properties are usually concentrated in major cities with high concentration of population and employment opportunities. Property investment in Malaysia has always been the preferred investment tool to both locals as well as foreigners. This is due to the fact that many believe that investing in real properties most often than not, provide investors good return on investment due to appreciation in properties' value. Some even use it as a source of passive income through rentals, as a source of retirement income.

Additionally, with the recent reforms and changes in the legal system and economic policy by the Government, property investment in Malaysia is now even more attractive with the abolition of the rent control, Real Property Gain Tax (RPGT) and upliftment of certain regulations and restrictions on property ownership, for instance, concerning foreign ownership, provision of low cost housing, improved government housing loan, reduction in cost of home ownership (stamp duty exemption for low cost houses; 50 percent stamp duty exemption on the instrument of transfer and 50 percent stamp duty exemption to loan agreement) and housing credit guarantee scheme for those without fixed income to own affordable houses.

Property development is a lucrative business gauging from the number of property development projects and developers in the market, with the number increasing each year. Property market is cyclical in nature. Its cycle is dynamic and reactive, responding to interacting forces like government policies, current economy and social aspects (Tien, 2000).

1.3 Overview of the Construction Sector in Malaysia

The construction sector in Malaysia generally comprises of residential and non-residential construction and infrastructure or civil engineering construction. The construction market is highly competitive and is dominated by big public-listed companies which own or are affiliated with local contractors and developers. Foreign players can also be found but mainly in areas involving green building, energy-efficient building and smart building.

The construction sector becomes a substantial economic driver of the Malaysian economy considering its interaction with other industry branches, for instance, metal processing, mechanical engineering, civil engineering, tourism sector and property development. It supports social development and meeting the needs of basic infrastructure requirements. This sector directly contributed RM41.28 billion to Malaysia's Gross Domestic Product (GDP) as of 2013, accounting to 4.2 percent of its GDP with an expansion of 12.9 percent over previous year, creating more than 800,000 job opportunities locally.

Table 1.1 and 1.2 show the GDP by kind of economic activity at constant 2005 prices from the year 2009 to 2013 and at current prices from 2011 to 2013, respectively.

Table 1.1
GDP by Kind of Economic Activity at Constant 2005 Prices; From 2009 to 2013 – RM million

Sector	2009	2010	2011	2012	2013
Agriculture	50,063	51,263	54,250	54,963	56,095
Mining & Quarrying	66,386	66,182	62,607	63,243	63,680
Manufacturing	152,150	170,261	178,237	186,748	193,237
Construction	19,270	21,459	22,464	26,640	29,554
Services	335,027	359,829	385,550	410,339	434,460
Plus Import Duties	6,898	7,600	8,653	100,001	10,586
GDP at Purchasers' Prices	629,885	676,653	711,760	751,934	787,611

Source : Department of Statistics (2014)

Table 1.2
GDP by Kind of Economic Activity at Current Prices, From the Year 2011 to 2013

Sector	Percentage Change from Corresponding Period of Preceding year			Percentage Share to GDP		
	2011	2012	2013	2011	2012	2013
Agriculture	26.3	-9.3	-2.9	11.8	10.0	9.3
Mining & Quarrying	6.7	5.4	1.6	10.4	10.3	10.0
Manufacturing	10.0	6.1	3.4	24.3	24.2	23.9
Construction	9.6	23.4	12.9	3.3	3.9	4.2
Services	9.4	9.1	6.9	49.2	50.4	51.5

Source : Department of Statistics (2014)

The main objective of construction companies is striving to improve their service quality to fulfill customers' satisfaction. As customers become more and more knowledgeable, their needs and expectation intensify. This poses as a great challenge to the construction companies to build using highest quality materials while keeping the costs as low as possible.

Companies become more and more competitive in order to protect their market share or just to sustain their businesses for the longest term. In the course of reducing and controlling cost-related activities, executives in construction companies including their top management personnel are expected to evaluate, analyse and review the performance of their companies regularly, in view of the current issues, business environment and the characteristics of the construction sector.

In the recent years, new issues surfaced and post a threat to the sustainability of construction companies with regards to increasing material costs, wages, quality culture, political issues and the Goods and Service Tax (GST) which was enforced since April 1st, 2015. All these contribute to higher operating costs and longer time consumption which have caused financial distress. The main concern is the low and unreliable rate of profitability of the construction industry (Egan, 1998).

1.4 Problem Statement

According to the World Bank report, after the Asian financial crisis of 1997-1998, Malaysia continued to post solid growth rates, averaging 5.5 percent per year from 2000 to 2008. Malaysia was hit by the Global Financial Crisis in 2009 but recovered

rapidly, posting average growth rate of 5.7 percent since 2010. The rapid economic growth was accompanied by a dramatic reduction in poverty from 49.3 percent in 1970 to 1.0 percent in 2014.

In 2010, Malaysia launched the New Economic Model (NEM), which aims for the country to reach high-income status by 2020 while ensuring that growth is also sustainable and inclusive. The NEM includes a number of reforms to achieve economic growth that is primarily driven by the private sector and moves the Malaysian economy into higher value-added activities in both industry and services.

As published in the Property Insight Journal in year 2014, Moody's senior vice president Stephen Schwartz opined that after several years of rapid gains in residential property prices, macroeconomic conditions in Malaysia are turning less positive for the property market. Nevertheless, a soft landing is anticipated for property prices, supported by robust, albeit decelerating GDP growth, and stable housing demand from middle-income households. In such a scenario, Malaysian developers should be resilient to downward property price pressures.

According to the agency, Malaysia has seen a rapid rise in residential property prices, of more than 40 percent in real terms since early 2009, against a backdrop of increased urbanization, rising living standards and a long period of low interest rates. Middle-income households will also be a key to Malaysia's largest listed property developers' resilience as property price growth slows. While sales volumes will moderate, they will remain supported by developers' product offerings that are targeted at middle-income households.

In the Malaysian Prime Minister's 2009 budget speech, a sum of RM35 billion would be expended during the period of 2009 to 2014 to provide better infrastructure facilities in the city. A total of RM8.1 billion was allocated for infrastructure facilities to enhance the quality of lives of the rural community including efforts to develop Sabah and Sarawak states.

Where construction sector is concerned, the gross output posted a strong growth of 19.30 percent in the year 2013, an increase of RM21.2 billion. The growth was supported by the ongoing projects under the Economic Transformation Program (ETP). The overall performance for the construction sector in 2013 as compared to the previous year, 2012 is shown in Table 1.3 below.

Table 1.3
Key Indicators of Construction Sector, 2012 and 2013

Key Indicator	2012	2013	Annual Growth (%)
Gross Output (RM billion)	110.1	131.3	19.3
Cost of Input (RM billion)	73.1	89.5	22.5
Value added (RM billion)	37.0	41.8	12.9
Total persons engaged (Number)	1,027,900	1,075,950	4.7
Salaries & wages (RM billion)	22.4	25.3	12.9
Value of fixed assets (RM billion)	14.1	15.6	10.8

Source: Department of Statistics Malaysia (2014)

According to the report on survey of construction industries 2014, published by the Department of Statistics, construction activities in 2013 were concentrated mostly in

the central region, contributing 51.0 percent of the total gross output of the country, which amounted to RM67.0 billion. Southern region was next with ongoing projects of infrastructure development in Johor contributing 15.4 percent of the total gross output of Malaysia, amounting to RM20.3 billion.

The Malaysian Construction Sector 2015 Outlook reported in the Bursa Malaysia Stock Market Analysis Digest published by Malaysian Industrial Development Finance Berhad (MIDF) stated that the construction sector's earnings prospect remains strong backed by the mega highways and rail-lines development projects. Large and small-capitalisation local construction companies are set to reap the benefits of construction job awards. It will spur construction job opportunities for companies to replenish their order book and keep their earnings visible over the next few years.

This was reflected in the Malaysian Budget 2015, which offered exciting construction activities for the country, as stated in the article published on Malaysian Construction Sector 2015 Outlook. The multiplier effect from physical infrastructure projects will continue to be the catalyst to the other sectors as well as to attract domestic and foreign investments to support the country's economic growth. This will reaffirm robustness of the construction sector.

The objective of this study is to analyse the relationship between selected variables, namely, liquidity, financial leverage and firm size with profitability. The efficiency of a business is measured by the amount of profit gained and how well the company is being managed; generally, the more efficient the business is being managed, the

greater would be the profit. This is possible due to company's capability to scout for and attract greater talents to run the company. When the company is financially strong and well-managed, the interests of its shareholders and stakeholders will be well taken care of.

Many studies have been conducted on the determinants of variable, financial and non-financial, affecting the profitability of companies from various industries as well as countries as presented in Table 1.4.

Table 1.4
Previous Studies on Determinants of Variables Affecting Profitability

No.	Industry	Authors	Country
1	Property	Chau, Wong & Newell (2003)	Hong Kong
		Hammes & Chen (2005)	Europe
		Hasmori, Kamruzzaman, Said & Gani (2012)	Malaysia
		Ong (2011)	Malaysia
		Shakir (2015)	Malaysia
		Soetanto & Liem (2014)	Indonesia
		Ting (2002)	Malaysia
		Wahab, Amin & Yusop (2012)	Malaysia
2	Construction	Alfan (2013)	Malaysia
		Ali, Al-Suliani & Al-Gahtani (2013)	Saudi Arabia
		Bakar, Tabassi, Razak & Yusof (2012)	Malaysia
		Latif, Affandi, Shukur & Mahmood (2013)	Malaysia
		Lim (2013)	Malaysia
		Ramezanalivaloujerdi, Rasiah & Narayanasamy (2015)	Malaysia
		Yoo & Kim (2015)	Korea
		Zaid, Ibrahim & Zulqernain (2014)	Malaysia

Table 1.4 (Continued)

No.	Industry	Authors	Country
3	Property & Construction	Chiang, Chan & Hui (2002)	Hong Kong
		Mahmood & Zakaria (2015)	Malaysia
4	Aviation	Vieira (2010)	International
5	Banking	Ahmad (2016)	Pakistan
		Lartey, Antwi & Boadi (2013)	Ghana
		Prasanjaya & Ramantha (2013)	India
		Velnampy & Niresh (2012)	Sri Lanka
6	Consumer	Ismail, Yabai & Low (2014)	Malaysia
7	REITs	Alias & Soi (2011)	Malaysia & United Kingdom
		Chan, Choong & Asri (2012)	Malaysia
8	Manufacturing	Ahmad, Salman & Shamsi (2015)	Pakistan
		Akbas & Karaduman (2012)	Turkey
		Amato & Wilder (1985)	United States of America
		Kartikasari & Merianti (2016)	Indonesia
		Niresh & Velnampy (2014)	Sri Lanka
		Pervan & Visic (2012)	Croatia
		Sinthupundaja & Chiadamrong (2015)	Thailand
		Sivathaasan, Tharanita,Sinthuja & Hanitha (2013)	Sri Lanka
9	Pharmaceutical	Innocent, Mary & Matthew (2013)	Nigeria
10	Public-listed companies	Adlina (2015)	Malaysia
		Asimakopolous, Papadogonas & Samitas (2009)	Greece
		Chin (1997)	Malaysia
		Devi & Devi (2014)	Pakistan
		Dogan (2013)	Turkey
		Evgeny (2015)	Russia

Table 1.4 (Continued)

No.	Industry	Authors	Country
10	Public-Listed Companies	Ilaboya & Ohiokha (2016)	Nigeria
		Kang & Kim (2011)	Korea
		Koralun-Bereznicka (2016)	Austria, Belgium, Germany, Spain, France, Italy, Netherlands, Poland & Portugal
		Kouser, Bano, Azeem & Ul-Hassan (2012)	Pakistan
		Pervan & Visic (2012)	Croatia
		Sarnua (2005)	Malaysia
		Serrasqueiro (2009)	Portugal
		Singapurwoko & El-Wahid (2011)	Indonesia
		Tan (1999)	Malaysia

For financial variables, the property and real estate companies in Indonesia have been relatively less efficient in controlling costs and operating at an optimal scale of operations purely due to technicalities (Soetanto & Liem, 2014).

For Malaysia, there were mixed conclusions in that several property developers with low gearing ratio recorded relatively high profitability; however, few other studies found that leverage is not significantly related to profitability. In Russia (Ilyukhin, 2015) and Pakistan (Ahmad, Salman & Shamsi, 2015), financial leverage has significant negative impact on profitability.

For liquidity and firm size, a study conducted in Ghana by Lartey, Antwi and Boadi (2013) concluded that liquidity has significant positive relationship with profitability. Nonetheless, studies conducted in Europe, Sri Lanka, Korea and Croatia showed that

firm size is not significantly related to profitabililty. However, for studies conducted in Malaysia, Turkey and Thailand, generally there is a significant positive relationship between size and profitability.

Based on available literature, few studies had been conducted in property and construction sectors in Malaysia. From these previous studies, the results remained inconclusive. Hence, researchers raised this issue and recommended for more in-depth research to include more companies in the sample as well as incorporating more data. Therefore, this study will address the issues raised by them.

1.5 Research Questions

Based on the problem statement, the following research questions are developed for this study:

1) Is there any significant relationship between liquidity and profitability in the property and construction sectors in Malaysia?
2) Is there any significant relationship between leverage and profitability in the property and construction sectors in Malaysia?
3) Does the size of a company have any impact on profitability in the property and construction sectors in Malaysia?

1.6 Research Objectives

The research objectives are developed to provide answers to the research questions. The research objectives of the study have been established to determine variables

affecting the profitability of property and construction sectors for a period of five years from 2009 to 2013.

Based on the research questions, the research objectives of this study are developed as follows:

1) To examine the relationship of liquidity and profitability in the property and construction sectors in Malaysia
2) To investigate the relationship between leverage and profitability in the property and construction sectors in Malaysia.
3) To determine the relationship between size of company on profitability of the property and construction sectors in Malaysia.

1.7 Significance of the Study

This study aims to extend the current literature on determinants of profitability specifically on property and construction public-listed companies in Malaysia. Although many studies on the determinants of profitability of Malaysian companies have been conducted, hardly any of them significantly looked at the property and construction sectors.

For example, Wahab, Amin and Yusop (2012) investigated the determinants of capital structure of Malaysian property developers via debt ratio, liquidity and growth. In another study, Ismail, Yabai and Low (2014) used qualitative method in assessing the performance of consumer companies. Vieira (2010) studied the relationship between liquidity and profitability in the aviation sector. Ong (2011), Alfan (2013) and Latif,

Affandi, Shukur and Mahmood (2013) used internal variables affecting the profitability of a company such as liquidity, size, capital structure, whilst the study by Zaid, Ibrahim and Zulqernain (2014) used external variables such as GDP, term premium and inflation for companies listed in the Bursa Malaysia.

The studies cited above have called for extension of such study on different sectors, over a longer period time and using data of more recent years. Following that, this research uses more data, from the year 2009 to 2013, with data sample comprising of 76 property and 28 construction companies in Malaysia.

This study examines the determinants of the profitability of the property development and construction companies. In dealing with this matter, it is expected to improve general knowledge of financial management, sustainability and effect of capital structure in any organisation. Since the findings of previous studies are mixed, the current research will strive to seek ways to enhance the works of other scholars in effort to find a more obvious variables being determinants of profitability in the property and construction sectors in Malaysia.

1.8 Scope and Limitation of the Study

This study is not focusing on the differences between the various industries and business sub-sectors. Instead, it analyses variables affecting the profitability of property and construction sectors in Malaysia. It confines only to two sectors, i.e., property and construction, with companies listed in the Main Board of Bursa Malaysia, comprising 76 property and 28 construction firms for a duration of five

years, from the year 2009 to 2013. This research uses secondary data from financial statements published in the companies' annual reports obtained either from respective company website or Bursa Malaysia website.

In order for the companies to be included in the sample of this study, data for the variables must be complete and available throughout the period, which is from the year 2009 to 2013. List of companies of these sectors were obtained from MalaysiaStock.Biz. This research uses variables such as profitability, liquidity, leverage and size as performance indicators. Financial ratios such as return on equity (ROE), quick ratio (QR), debt ratio (DR), debt to equity ratio (DER), sales revenue (REVENUE) and total assets (TA) are used to examine the relationship between the variables.

However, this study faces several limitations in terms of data collection. It was discovered that 14 out of 118 companies in the property and construction sectors do not have complete data throughout the period of the study, and therefore have to be excluded from the sample of the study.

Since this study focuses on the determinants of profitability of property and construction sectors in Malaysia, the sample of this study is limited to Malaysian public-listed companies of both sectors. Hence, the results may not be accurately representative of private firms of the same sectors in Malaysia. As it is geographically concentrated, the results may not be representative to other countries of similar sectors.

1.9 Organisation of the Study

This dissertation is divided into five chapters; Chapter 1 provides the introduction to this research where it provides the background of studies complete with overviews of the selected sectors i.e. property and construction. It also reports on the problem statement, research questions and objectives, outlining the significance, scope and limitation of the study. Chapter 2 presents the discussions of previous literatures and reviews related studies about the determinants of profitability of property and construction companies. Chapter 3 dicusses the research methodology of the study by presenting the research design and also the framework for analysis. Chapter 4 discusses the findings of the study. Finally, Chapter 5 provides the conclusion on the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter discusses the empirical evidence on the studies that examined the determinants of the profitability of a firm. The literature concerning the property and construction sectors in Malaysia are rather limited, therefore, the review will take into account theoretical underpinning of profitability from other industries and countries as well.

2.1 Theoretical Framework

Trade-off theory claims that by including market imperfections, firms seem to get an optimal, value-maximising debt-equity ratio by trading off the advantages of debt against the disadvantages (Myers, 1984). So, firms will set to increase the debt level to take advantage of maximum tax benefit.

Based on Modigliani and Miller (1958) irrelevance theory, it was stated that in a world of perfect markets where companies and investors have symmetry market information and in the absence of taxes, transaction costs and bankruptcy costs, the capital structure is irrelevant and will not affect the value of the firm.

2.2 Empirical Studies on Property and Construction Sectors

Property development companies are multi-faceted businesses, encompassing activities ranging from renovation, re-leasing of existing buildings to the purchase of barren land and the sale of improved land or parcels to others. Developers buy land, finance real estate deals, build or have builders build projects, create, control and engineered the process of development from the beginning to the end. Thus far, the studies which examined factors affecting the profitability of property companies are rather limited, especially in the Malaysian context.

Most previous studies on profitability of property sectors surrounded assessment of investment style and stock performance of REITs. A study on stock performance of the property sector conducted by Chan, Choong and Asri (2012), with sampling of 36 firms in Malaysia for the period of 2003 to 2007 using financial analysis found that return on assets (ROA), return on equity (ROE) and earnings per share (EPS) have strong significant relationship with the stock performance.

In a study by Ong (2011), the financial performance of property development companies was evaluated over a period of five years using financial ratios, growth rate and volatility and it was found that they are significant in determining the financial performance. The methodology was also used by Alfan (2013) and Latif *et al.* (2013) who proved that financial ratios can be used to determine variables affecting the profitability of property companies in Malaysia.

For the construction sector, it comprises of three main components i.e., buildings, infrastructure and industrial. Building construction is further divided into residential and non-residential (commercial or institutional). Infrastructure refers to highways, railways, light railway transit, light heavy civil engineering including public works, dams, bridges, expressways, water/wastewater and utility distribution. Industrial includes refineries, process chemical, power generation, mills and manufacturing plants.

Latif *et al.* (2013) revealed that there is no significant relationship between liquidity and leverage with profitability in the construction companies in Malaysia. However, firm size shows negative effect on profitability. Conversely, Zaid *et al.* (2014) discovered that liquidity and size is positively correlated to profitability but not leverage. The results are inconclusive from one researcher to another.

In the study by Mahmood and Zakaria (2015), it was found that construction companies have higher gearing ratio compared to property companies. The findings also show unequal business relationship where leverage and profitability are concerned even though their businesses are closely interrelated. Nonetheless, the results revealed that capital gearing is negatively related to profitability for both property and construction sectors.

In a combined analysis of the performance of both property and construction sectors, Table 2.1 shows the summary of the findings of previous literature that are related to the profitability.

Table 2.1
Summary of Previous Findings on Property and Construction Sectors

Author(s)	Origin of Sample	Liquidity	Leverage	Size
Chiang, Chan & Hui (2002)	Hong Kong		Property: (Negative) Construction: (Negative)	
Hammes & Chen (2005)	11 European countries		Property: (Negative)	Property: (Positively weak)
Latif, Affandi, Shukur & Mahmood (2013)	Malaysia	Construction: (Not significant)	Construction: (Not significant)	Construction: (Negative)
Lim (2013)	Malaysia		Construction: (Negative)	Construction: (Positive)
Mahmood & Zakaria (2015)	Malaysia		Property: (Negative) Construction: (Negative)	
Ramezanalivaloujerdi, Rasiah & Narayanasamy (2015)	Malaysia		Construction: (Positive)	
Wahab, Amin & Yusop (2012)	Malaysia		Property: (Postiive)	
Yoo & Kim (2015)	Korea			Construction: (Negative)
Zaid, Ibrahim & Zulqernain (2014)	Malaysia	Construction: (Positive)	Construction: (Negative)	Construction: (Positive)

Broadening the scope of analysis, it was found that there are many situations that affect the profitability of an organisation including both financial and non-financial variables. In financial terms, micro and macro economic factors such as liquidity, capital structure, company size, growth of sales, GDP, currency, interest rates and term premium are the main variables included in studies of firm profitability.

For non-financial factors, corporate governance, board size, board composition and CEO compensation are some of the variables analysed by past researchers thus far. In

a study regarding airline companies, Vieira (2010) found that there is a positive correlation between liquidity and profitability where companies with a better liquidity ratio recorded better performance during the financial crisis in the year 2008. Therefore, it stands that liquidity is a significant factor in determining the profitability of companies regardless of the nature of the business of the firm. As for other variables, they remain inconclusive.

2.3 Past Evidence on Determinants of Profitability

Performance is the ability of a company to effectively manage resources and make gains in as many ways possible in order to develop competitive advantages in the market. It can be split into financial and non-financial performances (Sinthupundaja & Chiadomrong, 2015).

In this study, profitability is used as an indicator for firm performance. Profitability is the level of profit in relation to the volume of activities of the organisation and is used as an index of both performance and efficiency despite it being generally known that profitability does not necessary mean efficiency of management (Ilaboya & Ohiokha, 2016).

Profitability ratios measure the operating success of a company for a given period of time. Previous literatures on profitability share some basic assumptions about variables in financial ratios that are being challenged and were previously held to be true and these are shown in Table 2.2.

Table 2.2
Listing of Previous Literatures on Profitability

No	Authors
1	Adlina (2015)
2	Ahmad (2016)
3	Ahmad, Salman & Shamsi (2015)
4	Alfan (2013)
5	Chin (1997)
6	Dogan (2013)
7	Hammes & Chen (2005)
8	Ilaboya & Ohiokha (2016)
9	Ilyukhin (2015)
10	Innocent, Mary & Matthew (2013)
11	Ismail, Yabai & Low (2014)
12	Koralun-Bereznicka (2016)
13	Lartey, Antwi & Boadi (2013)
14	Latif, Affandi, Shukur & Mahmood (2013)
15	Lim (2013)
16	Mahmood & Zakaria (2015)
17	Niresh & Velnampy (2014)
18	Ong (2011)
19	Pervan & Visic (2012)
20	Ramezanalivaloujerdi, Rasiah & Narayanasamy (2015)
21	Sarnua (2005)
22	Sinthupundaja & Chiadamrong (2015)
23	Sivathaasan, Tharanita,Sinthuja & Hanitha (2013)
24	Tan (1999)
25	Velnampy & Niresh (2012)

Table 2.2 (Continued)

No	Authors
26	Vieira (2010)
27	Wahab, Amin & Yusop (2012)
28	Yoo & Kim (2015)
29	Zaid, Ibrahim & Zulqernain (2014)

Assumptions discussed above underpin the theoretical framework of profitability used in this study to determine whether these are financially specific or have supporting evidence. Evidence in the studies suggest that some of the variables entrenched assumptions which are sector-specific rather than it being able to be used in a universal perspective. These variables may differ from sector to sector and country to country.

2.3.1 Profitability

Previous researchers used profitability to indicate the level of company performance. Profitability is the most important measure of performance. Therefore, financial performance indicators are used to specify the particular actions to be taken which are then measured for their effectiveness (Ali, Al-Suliani & Al-Gahtani, 2013). Financial ratios such as net profit margin, net income, earnings per share, return on assets, return on equity, net operating income, growth and gross profit margin are used separately or together to measure profitability in order to test their significance against several independent variables.

This research uses return on equity (ROE) as the proxy for profitability and it was used in previous studies on profitability of property or construction or both sectors by Ong (2011), Alfan (2013), Zaid *et al*. (2014), Yoo and Kim (2015).

Soetanto and Liem (2014) evaluated the performance of property and real estate companies listed in the Indonesian Stock Exchange and found that the sector has been relatively less efficient in controlling costs and operating at an optimal scale of operations. It was concluded that the inefficiency was purely technical.

Shakir (2015) examined the relationship between board composition and performance of property companies listed in Bursa Malaysia. Panel data of 81 firms were used in the analysis for a period of seven years spanning from 1999 to 2005. The results on good governance were inconclusive.

On account of board size, the author indicated that smaller boards were preferred with lesser numbers of external directors with more executive working directors in order to avoid information asymmetry and to also allow unambiguous leadership.

On the same issue, Kang and Kim (2011) stressed on the importance of corporate governance in effectively constraining real activity-based earnings. Another non-financial study on profitability was conducted by Bakar, Tabassi, Razak and Yusof (2012) in identifying the factors determining growth and analysing the impact of the factors influencing both the growth and performance of the construction companies. Large-size construction companies of G7 categories were selected for the study. The conclusion was that management has the strongest positive influence on growth.

This was further supported by Kang and Kim (2011) where they found that the management will eventually influence the firm's performance followed by product quality, human factor and customer orientation.

Hammes and Chen (2005) examined the performance of property companies in 13 European countries between the period of 1990 to 2003, and it was found that there was negative effect of borrowing on firm performance in most countries. More tangible assets contribute negatively to profitability except for the roll of collateral for borrowing. It was summarised that capital mobility ensures equalisation of profits.

In a study by Ong (2011), the financial performance of property development companies in Malaysia was evaluated over a 5-year period, and it was found that financial analysis was a feasible performance measurement providing reliable and quantifiable results that was economical to carry out.

This was further supported by Alfan (2013) in his performance review of construction companies in Malaysia before, during and after the financial crisis and which was then used to predict the future performance of these companies. Using financial ratios, it was discovered that by studying past financial performance, it could help companies to eliminate any future inconsistencies thus ensuring that better value is achieved and creating the ability to formulate a series of new strategies to take profitability to greater heights.

In their research to examine determinants of profitability in the construction sector, Zaid *et al.* (2014) reported that external factors such as the GDP has no significance

on profitability. This conclusion was supported based on a similar study by Adlina (2015) by using the financial data of 161 public-listed companies from the period of 2001 to 2012 in the exploration of determinants affecting profitability of Malaysian companies during the financial crisis in 2008.

A conclusion can be drawn based on these studies whereby a profitability-driven management strategy limits company growth and may prolong the economic downturn. However, another research revealed that high growth in the previous period fosters profitability in the current period. This was tested by Yoo and Kim (2015) in their study on the relationship between growth and profitability on 264 SME construction companies in Korea over a 15-year period from 2000 to 2014.

2.3.2 Liquidity

Besides profitability, liquidity of a company is vital to ensure the sustainability of operations. Liquidity describes the level at which an asset can be bought or sold without compromising the price in the shortest time possible in the market.

Vieira (2010), in his course to verify the relationship between liquidity and profitability over the short and medium term, observed how this relationship was affected by the financial crisis of 2008. The author confirmed that there was a positive correlation between liquidity and profitability. Companies with better liquidity ratio survive and could even have better performance during challenging situations.

Such positive and significant relationships were shared by the studies of Latif *et al.* (2013), Adlina (2015), Sarnua (2005) and Tan (1999). After analysing 7 banks listed

on the Ghana Stock Exchange for a period of six years from 2005 to 2010, Lartey *et al.* (2013) found a weak but positive relationship between profitability and liquidity. Table 2.3 shows the summary of evidence by various authors on the relationship of liquidity (IV) and profitability (DV).

Table 2.3
Summary of Evidence: The Relationship between Liquidity (IV) and Profitability (DV)

Positive	Negative	Insignificant
Positive relationship between CR and profitability and QR and profitability; especially QR (Tan, 1999)	Negative impact on firm performance in manufacturing industry in Thailand Y2006-Y2010 (Sinthupundaja and Chiadamrong, 2015)	CR insignificant to profitability on studying manufacturing industry in Croatia Y2002-Y2010 (Prevan and Visic, 2012)
Positive relationship on Malaysian PLCs 1998-2003 (Sarnua, 2005)		
Positive correlaion between liquidity and profitability. Companies with better liquidity ratio have better performance during financial crisis. (Vieira, 2010)		
Positive relationship on PLCs in Istanbul (Dogan, 2013)		
Significant relationship with profitability (Zaid et al., 2014)		
Positive relationship with ROA (Adlina, 2015)		
Weak positive relationship for banking in Pakistan: QR and Profitability : Positive. NWC and profitability : Positive. CR and profitability : Negative. (Ahmad, 2016)		

2.3.3 Leverage

Companies have two fund resources to acquire additional assets and they are either using debt, equity or both to finance them. Generally, firms will use more external financing in their capital structure. Elgonemy (2002) mentioned four basic elements of debt financing that must be considered, namely, business risk, the need for financial flexibility, the degree of owner's risk aversion and tax considerations.

Trade-off theory for capital structure established that companies can take advantage of debt for a better return on equity. Pandey (2009) stated that a company should plan its capital structure to both maximise the use of funds and to be able to adapt more easily to changing conditions.

The relationship between capital structure and profitability has been discussed quite extensively over the past decades. In Miller and Modigliani's (1958) irrelevance theory, it was argued that capital structure has no relation whatsoever with a firm's value. Subsequently, as a result of an extended study in 1963, the same authors had argued that in the presence of corporate income tax and the cost of capital, the market value of the firm is positively significant to the long-term debt in its capital structure.

Mahmood and Zakaria (2015) in their study of profitability and capital structure differences between property and construction sectors in Malaysia had discovered that most developers have relatively low leverage despite the size of their operations, and that the companies showed relatively high profitability. Using net profit margin to measure profitability to test against capital gearing ratio, debt to equity and price-earnings ratios as independent variables, it was discovered that there is a negative correlation between profitability and capital structure.

In the study of profitability of real estate companies in 11 European countries from the year 1990 to 2003, Hammes and Chen (2005) concluded that there is negative effect of borrowing on performance in most of the countries. Other studies supporting this result are Lim (2013) and Ramezanalivaloujerdi *et al.* (2015) of construction companies in Malaysia, including studies done on mixed sectors by Chin (1997), Tan

(1999), Adlina (2015), Ahmad *et al.* (2015), Ilyukhin (2015) and Sinthupundaja and Chiadamrong (2015).

Conversely, some analyses showed a non-significant relationship between leverage and profitability, such as that by Latif *et al.* (2013) who examined the construction companies in Malaysia. Other groups of researchers which found leverage to have a positive impact on profitability are Sivathaasan, Tharanika, Sinthuja and Hanitha (2013) in their studies on manufacturing companies in Sri Lanka; Kouser, Bano, Muhammad and Masood (2012) and Kartikasari and Merianti (2016).

The majority of past analyses suggest that leverage has a negative impact on profitability. Table 2.4 shows the summary of evidence on the relationship of leverage (IV) and profitability (DV).

Table 2.4
Summary of Evidence on the Relationship between Leverage (IV) and Profitability (DV)

Positive	Negative	Insignificant
DR and profitability have significantly positive relationship (Pervan & Visic, 2012)	Negative relationship with profitability: when DR increases, IR increases, profit reduced (Chin, 1997)	Insignificant relationship between debt and profitability (Latif et al., 2013)
Profitabitlity and leverage has significant relationship in top 5 developers in Malaysia (Wahab et al., 2012)	Negative relationship (Tan, 1999)	Mixed conclusions from the study of 3 firm sizes, 13 industries in 9 EU countries (Koralun-Bereznicka, 2016)
Capital structure positively significant impact on profitability (Sivathaasan et al., 2013)	Negative effect of borrowing on performance in most firms in EU (Hammes & Chen, 2003)	
Profitability has significant relationship with leverage (Ramezanalivaloujerdi et al., 2015)	Negative association between capital structure and profitability (Velnampy & Niresh, 2012)	

Table 2.4 (Continued)

Positive	Negative	Insignificant
	Negative relation between ROA and Leverage (Dogan, 2013) Negative relationship (Innocent et al., 2013) Negative relationship, lower debt gives higher profit (Lim, 2013)	
	Negative significance between capital structure and profitability (Zaid et al., 2014)	
	Negative relationship (Adlina, 2015)	
	Significantly negative relationship (Ahmad et al., 2015)	
	Financial leverage has negative impact on performance (Evgeny, 2015)	
	Capital gearing is negatively related with net profit (Mahmood & Zakaria, 2015)	
	Leverage has no impact on firm performance (Sinthupundaja & Chiadamrong, 2015)	

2.3.4 Firm Size

In every industry there are firms of various sizes. The size of a firm can be measured using sales or revenue, total assets and also the number of employees. For this study, revenue and total assets are used as proxies to measure firm size.

There is a positive relationship between size and profitability as shown by Alias and Soi (2011), in their analysis on the performance of REITS in both Malaysia and United Kingdom. This result was supported by other studies done on other industries by Adlina (2015), Ilaboya and Ohiokha (2016) and Kartikasari and Merianti (2016).

In contrast, Latif *et al.* (2013) examined the factors affecting profitability of construction companies in Malaysia and found that there is a negative relationship between size of firm and profitability. Similar result was achieved by Yoo and Kim

(2015) in their studies on the relationship between growth and profitability in a sample of 264 SME construction companies in Korea between the period of 2000 to 2014. Echoing the result of negative relationship between size and profitability is the study done by Kouser *et al.* (2012) for Pakistan on inter-relationship between profitability, growth and size of non-financial companies and also a study conducted by Ammar, Hanna, Nordheim and Russel (2003) on electrical contractors.

In an investigation on the relationship between firms' characteristics factors through their financial strategies on 242 Thai manufacturing companies in six industries for a period of five years, Sinthupundaja and Chiadamrong (2015) concluded that firm size has negative impact on profitability. Similar result is also found in Pervan and Visic (2012) where in Croatia, comparison between medium and large enterprises were made and the result of the study showed that size has weak positive significance on profitability.

Koralun-Bereznicka (2016) in her studies on corporate size-performance relation across countries and industries, used a sample comprises of private firms of three sizes from 13 industries from nine European Union countries, namely Austria, Belgium, Germany, Spain, France, Italy, Netherlands, Poland and Portugal, for a period of 11 years from 2000 to 2010. ROE was used as a measure of profitability and total assets to represent firm size. The findings were a mixed conclusion where size-performance relation is not obvious neither in terms of its signification or direction. Niresh and Velnampy (2014) echoed the mixed results in their report that there is a weak positive relationship in Sri Lanka manufacturing industry but profitability of the firms will decrease with the growth of asset ulitisation.

Also found was variability of the size-performance relationship in both country and industry dependent, but with a slight dominance of the latter factor. Table 2.5 shows the summary of the relationship between profitability as the dependent variable and firm size as the independent variable.

Table 2.5
Summary of Evidence on the Relationship between Size (IV) and Profitability (DV)

Positive	Negative	Insignificant
Positive effect for manufacturing firms in Tayside Region (Glancey, 1998)	Negative relationship for electrical contractors with Profitability (Ammar et al., 2003)	May be positive or negative after a certain threshold. Market share is more important (Amato & Wilder, 1985)
Significant effect for Greek manufacturing firms (Papadogonas, 2005)	Negative impact and less significant for non-financial companies in Pakistan (Kouser et al., 2012)	Weak effect on the performance of property companies in EU (Hammes & Chen, 2005)
Positive relationship for PLCs in Malaysia (Sarnua, 2005)	Negative relationship with profitability for Malaysian construction companies (Latif et al., 2013)	Positive relationship but insignificant effect for manufacturing companies Y2008-Y2012 (Sivathaasan et al., 2013)
Positive and significant relationship for firms in Portugal (Serrasqueiro, 2009)	Negative effect for construction firms in Korea (Yoo & Kim, 2015)	No obvious significance between size and performance in studying 13 industries in EU (Koralun-Bereznicka, 2016)
Positive correlation between the increase in market capitalisation and profit margins on REITs in Malaysia and United Kingdom (Alias & Soi, 2011)		
TA has positive significant effect for non-financial companies in Indonesia (Singapurwoko & El-Wahid, 2011)		
Positive and significant for manufacturing companies in Turkey (Akbas & Karaduman, 2012)		
Weak positive relationship for manufacturing industry in Croatia, Y2002-Y2010 (Pervan & Visic, 2012)		
Positive relationship on PLCs in Istanbul Y2008-Y2011 (Dogan, 2013)		
Positive relationship for local construction companies Y2005-Y2009 (Lim, 2013)		

Table 2.5 (Continued)

Positive	Negative	Insignificant
Positive relationship on PLCs in Istanbul Y2008-Y2011 (Dogan, 2013)		
Positive relationship for local construction companies Y2005-Y2009 (Lim, 2013)		
Significantly positive simultaneously with CAR, ROA, LDR and Size for banks in Indian Stock Exchange (Prasanjaya & Ramantha, 2013)		
Positive correlation for companies in Pakistan (Devi & Devi, 2014)		
Significant positive on Malaysian PLCs Y2000-Y2012 (Zaid et al., 2014)		
Positive relationship with ROA for PLCs in Malaysia during financial crisis Y2001-Y2012 (Adlina, 2015)		
Positive impact in Thai manufacturing companies Y2006-Y2010 (Sinthupundaja & Chiadamrong, 2015)		
Significantly positive relationship in PLCs in Nigeria, Y2006-Y2010 (Ilaboya & Ohiokha, 2016)		
Total sales significantly affect profitability for Manufacturing firms in Indonesia (Kartikasari & Merianti, 2016)		

2.4 Summary

This chapter briefly discussed the theoretical framework underpining theories of capital structure and empirical results from previous studies on property and construction sectors. This discussion also included past evidence on determinants of profitability, liquidity, leverage and firm size. However, due to limited researches on the sectors under study, the review includes studies related to profitability from other industries and countries.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter discusses the research methodology used in this study which includes the framework of the study, development of hypotheses, research design, operational terms, sample of the study, descriptive statistics, regression analysis and a summary at the end of the chapter.

3.1 Conceptual Framework

In the conceptual framework, there are two tiers of the main variables to be tested. As seen in the Figure 3.1 below, the first tier (Tier 1) being the independent variables, concerning financial strategies for internal and external funding, which are measured by the level of liquidity and leverage; and firm characteristic represented by the size of the operations as reflected in the total revenue and total assets in the income statement and balance sheet, respectively. The second tier (Tier 2), being the dependent variable, evaluates the firms' profitability as measured by the return on equity ratio.

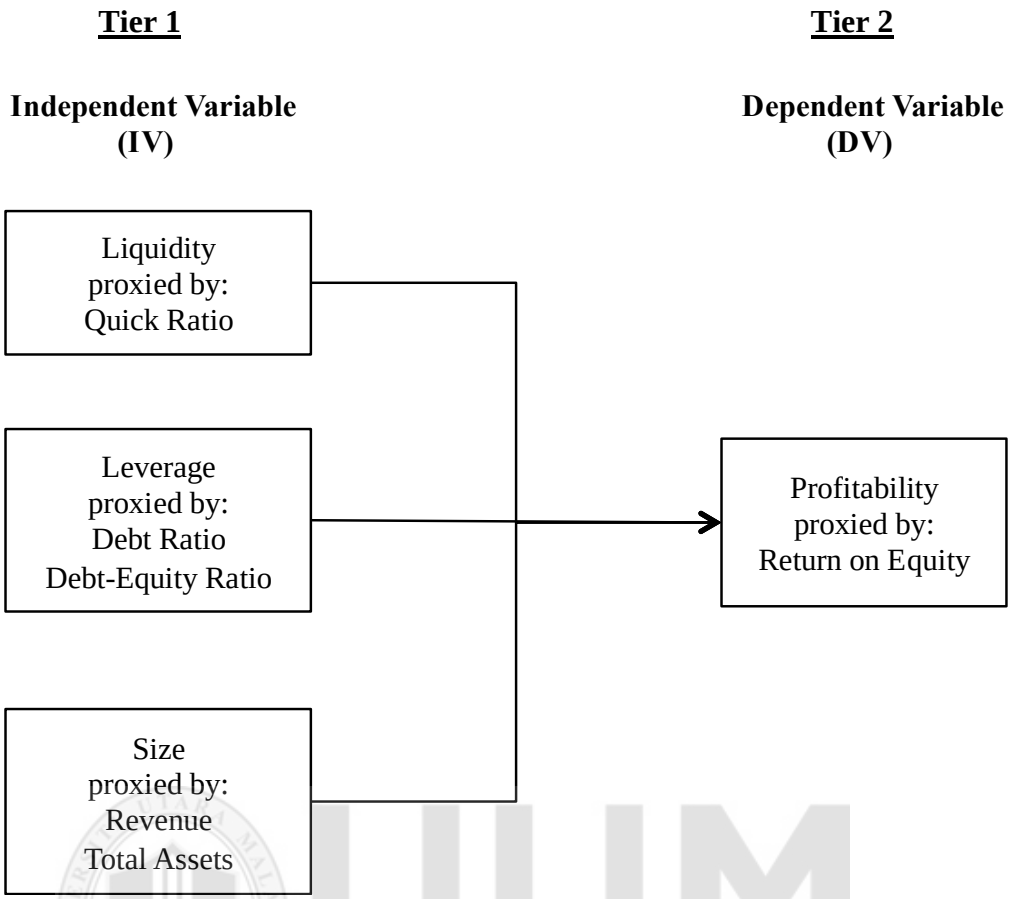

Figure 3.1
Overview of Independent and Dependent Variables

3.2 Development of Hypotheses

3.2.1 Profitability

There are different measures of profitability used in various researches namely return on assets, return on equity, net profit margin and gross profit margin (Ilaboya, 2008). Majority of studies used the return on asset and return on equity ratios to measure profitability (Chin, 1997; Tan, 1999; Vieira, 2010; Ong, 2011; Chan *et al.*, 2012; Pervan & Visic, 2012; Alfan, 2013; Dogan, 2013; Lartey *et al.*, 2013; Lim, 2013; Sivathaasan *et al.*, 2013; Ismail *et al.*, 2014; Zaid *et al.*, 2014; Adlina, 2015 and Ilyukhin, 2015).

Profitability ratios measure the operating success of a company for a given period of time. When the profit figure is expressed as a percentage of sales or capital employed, these ratios can be easily compared with those of previous years. In this study, return on equity (ROE) is used to measure profitability.

Return on Equity (ROE) measures profitability of an organisation by calculating how many dollars of profit is generated by each dollar of shareholder's equity. The formula used for ROE is as follows:

ROE (percent) = Net Income/Shareholders' Equity

ROE is used extensively in many previous studies as it is a measure of profitability and efficiency in utilising its shareholders' equity to turn into profits. The higher the ROE the better it reflects of the strength of the organisation. A rising trend of ROE demonstrates that an organisation is able to generate profit without relying too much on the capital. It also indicates how well the organisation's management deploys the shareholders' capital.

However, it is important to note that if the organisation has more debt, the lesser shareholders' equity is needed and thus projecting a higher ROE. Additionally, it is more meaningful to make comparisons of ROE within the same industry as some industries tend to have higher ROE than others.

3.2.2 Liquidity and Profitability

Liquidity ratios measure the company's ability to pay its maturing obligations and to meet unexpected cash needs in the short run. A reasonable level of liquidity is essential for the survival of a company. Liquidity problems may also be caused by overtrading. Quick Ratio (QR) is used to measure liquidity in this study.

Quick Ratio (QR), also known as acid-test ratio, limits the numerator to most liquid current assets only since inventory cannot be readily converted into cash as it is most often sold on credit. In times of need to meet urgent and immediate financial obligations, the company has to use assets which can be converted into cash instantly. Formula used to calculate the QR is:

Quick Ratio (QR) = (Current Assets – Inventory)/Current Liabilities

Higher ratio is more favourable as it indicates that a company has stronger financial position to meet immediate financial obligations. General rule of thumb is to obtain a quick ratio of greater than 1.0.

Previous studies conducted by Tan (1999), Sarnua (2005), Vieira (2010), Lartey *et al.* (2013), Zaid *et al.* (2014), Adlina (2015), and Ahmad (2016) agreed that liquidity of a firm has a positive relationship with profitability.

Meanwhile, Sinthupundaja and Chiadamrong (2015) disagreed with the opinion and stated that liquidity has a negative effect on profitability. Other authors, Pervan and

Visic (2012) and Latif *et al.* (2013), found insignificant relationship between liquidity and profitability.

Therefore, this research hypothesises that liquidity has a positive relationship with profitability and hypothesis 1 is developed as follows:

Hypothesis 1 (H1): There is a significant positive relationship between liquidity and profitability in the property and construction sectors in Malaysia.

3.2.3 Leverage and Profitability

Leverage ratio looks at how much capital comes in the form of debt or loans, or determines the ability of a company to meet its financial obligations as each becomes due. The lower the number, the less dependent the company is on borrowings to support its operations.

In this study, the following calculations are used to measure leverage:

1. Debt to Equity (DER)
2. Debt Ratio (DR)

Debt to Equity Ratio (DER) indicates how much of capital is contributed by creditors as compared to the capital contributed by the shareholders. It also provides representation on the ability of the company to meet obligations to creditors in the event of financial distress. The formula used to calculate the DER is as follows:

Debt to Equity Ratio = Total Liabilities/Total Equity

The results shall mean that for every dollar owned by the company's shareholders, it owes that certain amount to its creditors. Generally, a high ratio is unfavourable as it indicates that the company is over-exposed to debts. This puts the company at higher risk towards economic decline and bankruptcy. However, a lower ratio may also indicate that the company is not taking advantage of leveraging on its increased profits to generate higher returns.

Debt Ratio (DR) indicates the degree of a company's leverage which also measures risk. The formula used to calculate the DR is as follows:

Debt Ratio = Total Liabilities/Total Assets

When the ratio is high, it indicates that the company is highly indebted relative to its total assets. High debt level means more money will be spent on servicing the principal and interest payments and therefore shall take a toll on the company's cash flow. However, too low a ratio means that the company is not taking advantage of leveraging its resources to churn out higher returns for its assets.

Past studies such as those by Chin (1997), Tan (1999), Hammes and Chen (2005), Velnampy and Niresh (2012), Dogan (2013), Innocent, Mary and Matthew (2013), Lim (2013), Zaid *et al.* (2014), Adlina (2015), Ahmad *et al.* (2015), Ilyukhin, (2015) and Mahmood and Zakaria (2015) achieved similar results that debt level or leverage is negatively significantly associated with profitability.

Conversely, in the studies by Pervan and Visic (2012), Wahab *et al.* (2012), Sivathaasan *et al.* (2013) and Ramezanalivaloujerdi, Rasiah and Narayanasamy (2015) it was found that leverage has positive significant impact on profitability. Moreover, the findings in Latif *et al.* (2013) and Sinthupundaja and Chiadamrong (2015) reported insignificant relationship between leverage and profitability

Therefore, this study hypothesises that leverage of a firm has negative impact on profitability and hypothesis 2 is developed as follows:

Hypothesis 2 (H2): There is a negative significance between leverage and profitability in the property and construction sectors in Malaysia.

3.2.4 Size and Profitabiliy

Most articles stated that in order to gauge the size of an organisation, various methods of measurement are used, ranging from size of capital, revenue, net worth, number of employees so on and so forth.

In this study, following calculations are used to determine the size of companies:

1. Sales Revenue (REVENUE)
2. Total Assets (TA)

Sales Revenue (REVENUE) is the income received from selling products or services, before subtracting expenses, during a specific period of time. The figure can be obtained from the Income Statement. Net income derives from deducting expenses from the revenue.

Investors often analyse a company's revenue and net income to determine the financial state of a business. Running a test on total revenue can provide important information about a company. For instance, a company can maximise its revenue by determining if a product is elastic or otherwise. When the product is elastic, it cautions the company about price changes. As demand is sensitive towards price change, when a small incremental change in price happens, the demand for the goods will generally decrease. A firm can avoid making costly pricing mistakes when it knows how to price its products and services accordingly.

Total Assets (TA) is a combination of current (short-term) assets, fixed assets, financial investments and intangible assets that are reported on companies' balance sheets. The amounts are represented by book value, which comprises of the original cost of the asset. An asset in a company is a resource with economic value that a corporation owns and control with the expectation that it will provide continuous cash flow, a good return in the future and can be converted to cash at any point of time. It has been assumed that the amount of assets a company owns determines the size the company. Previous studies which found that there are positive correlation between size and profitability, some significant and some rather weak are listed in Table 3.1.

Table 3.1
List of Previous Studies on Positive Relationship between Size and Profitability

No	Authors
1	Adlina (2015)
2	Akbas & Karaduman (2012)
3	Alias & Soi (2011)
4	Asimakopolous et al. (2009)
5	Devi & Devi (2014)

Table 3.1 (Continued)

No	Authors
6	Dogan (2013)
7	Glancey (1998)
8	Ilaboya & Ohiokha (2016)
9	Latif et al. (2013)
10	Lim (2013)
11	Niresh & Velnampy (2014)
12	Papadogonas (2005)
13	Pervan & Visic (2012)
14	Prasanjaya & Ramantha (2013)
15	Ramezanalivaloujerdi et al. (2015)
16	Sarnua (2005)
17	Serrasqueiro (2009)
18	Singapurwoko & El-Wahid (2011)
19	Sinthupundaja & Chiadamrong (2015)
20	Sivathaasan et al. (2013)
21	Tan (1999)
22	Zaid et al. (2014)

Therefore, this study hypothesises that size of a firm has a significantly positive relationship with profitability and hypothesis 3 is developed as follows:

Hypothesis 3 (H3): There is an significant positive relationship between firm size and profitability in the property and construction sectors in Malaysia.

3.3 Operational Terms

In any research, precision in terms used and its consistency, when measuring the performance of companies is of utmost importance. This is essential when knowledge

is disseminated without causing further confusion to readers. Having said that, following are the terms used when tabulation is done in determining variables affecting the profitability of property development and construction companies.

3.3.1 Profitability

Achieving profitability is the main goal of all business ventures. Without it, no business can sustain for long. Management will undertake the important task to measure current and past profitability to project future profitability. It is measured by income and expense. Most studies used return on assets (ROA) as indicator of profitability.

However, in this study, return on equity (ROE) is used as profit measurement to determine a company's productivity and how efficient the equity is used in the financial strategies of top management of companies to generate more profit for their companies. Similar studies which use ROE as a proxy for profitability are Ilyukhin (2015), Yoo and Kim (2015), Ahmad (2016) and Koralun-Bereznicka (2016).

3.3.2 Liquidity

A company's liquidity is very important especially during a financial crisis. Liquidity refers to a company's ability to quickly obtain cash, usually from its current assets in case of unforeseen financial setback. At time of emergency, the company has to stay afloat to tide over the financial turbulence. The quicker the company can turn its current assets into cash to fulfill its financial obligations the safer it is from bankruptcy or a forced shutdown.

3.3.3 Leverage

Generally, investment strategy of using various financial instruments or borrowed capital is used to finance assets. The greater the leverage, the greater will the possible gain or potential loss is to a company. Financial leverage if planned wisely can provide many advantages to the company's financial status.

3.3.4 Size

Firm size refers to the extent and speed of growth for a specific business. It is generally measured using sales revenue or turnover. It is believed that the larger firms obtain better cost advantages due to their scale of operation. For this study, sales revenue and total assets are used as indicators for the size of the firm.

3.4 Research Design

This study is conducted based on the data obtained from published annual reports of the companies listed in the Bursa under property development and construction industries. A total of 76 property and 28 construction companies' data were obtained for a period of five years from 2009 to 2013. 14 companies were excluded in the sample due to incomplete data throughout the period of the study. The data is extracted from Bursa Malaysia database, individual company website and website of the KLSE Investors.

Data collected from the Income Statement and Balance Sheet are used to tabulate various financial ratios. From the ratios, the independent and dependent variables are identified and analysed using correlation and regression analyses. In order to learn

about the performance of these two sectors, liquidity, leverage and size variables will be analysed to determine their effects on the profitability of these companies.

Liquidity is measured by the current ratio which is defined as the current assets divided by the current liabilities. This ratio shows the company's capability to meet its financial obligations in the event of any emergency. It also shows the management how liability can take its toll on the company's performance and to ensure that strong current assets position is to be maintained at all times. During emergency, the company will rely on its current assets to serve the liabilities while keeping the company afloat.

Leverage refers to how much debt is used to finance the company's operations. Being highly leveraged shows that a company has more debt than operating cash and equity. This carries greater financial risk which may lead to default or bankruptcy. However, leverage also plays an important role in the growth of the company if the debt is used wisely. It is favourable when the debt can generate greater returns than the interest expense.

While studying the effect of size of company on its profitability during the period of 2009 to 2013, total assets and sales revenue are used as proxies for size and the return on equity will be the proxy for profitability. Assumptions are made that the larger the company, the lower its operational costs and the more profitable a company is going to be. This is due to size having the advantages of better bargaining power over the suppliers, mass production for standardized products and larger firms seem to be more efficient in their operations.

3.5 Sampling of the Study

The original sample of this study comprises of 118 property and construction companies listed in Bursa Malaysia. However, the final sample consists only of 76 listed property development companies and 28 listed construction companies in Malaysia. This is due to the elimination of 14 companies which did not have complete data for all the variables to be measured (profitability, liquidity, leverage and size) throughout the period of study from 2009 to 2013. Appendices 1 and 2 display the names of companies listed in the property and construction sectors in Malaysia and the list of the companies excluded in the sample of the study.

After the selection process, this study used company financial data extracted from the balance sheet, income statement and ratio summary. Each company's financial information related to the dependent variable and independent variables were obtained from independent investors' datastream.

In deciding for a sampling method, it is imperative to ensure that the procedure does not result in a biased sample of the variables under study. A study can be biased to some degree of correlation between the study variable and a directly-biased variable. In this research, the study encompasses independent variables such as liquidity, leverage and size, which are hypothesised to have an effect on profitability of the property development and construction companies in Malaysia.

Other variables, qualitative in nature, for instance, CEO salary, board size, board composition, corporate governance are not included in this research. Under these

circumstances, measures have been taken to avoid intrinsic biasness to every possible extent, in particular, those that directly affect the variables under study. As this study focused on property and construction companies listed in the Bursa Malaysia, other industries and countries are not taken into consideration to facilitate the researcher to arrive at a generalised conclusion about the chosen sectors in the local environment.

3.6 Descriptive Statistics

Data retrieved from financial statements published in respective companies' website or the Bursa for the period of 2009 to 2013 was analysed using GRETL statistical package to measure the relationship between the dependent variable and independent variables. Panel data regression analysis is used to observe effect of these variables on profitability. Descriptive statistics summarises the data and with that, broken down to measures of mean, minimum, maximum and standard deviation. The correlation coefficient will reveal any significant relationship between the variables.

These statistics are used to simplify large data into manageable form but in a sensible way. Simplification comes with limitations for instance, when a large data is being described in a single indicator, the risk of data distortion or missing important detail is inevitable. Nonetheless, five financial ratios, quick ratio (QR), debt ratio (DR), debt to equity ratio (DER), revenue and total assets (TA) representing three independent variables namely liquidity, leverage and size are analysed to test their effects on profitability. One financial ratio from each variable will be tested against the ROE.

3.7 Regression Analysis

In this study, data was analysed using GRETL software to measure the relationship between the dependent variable and independent variables. Panel data regression analysis is used as a technique to sort out which of these variables does indeed have an impact on profitability in the property and construction sectors in Malaysia. The standard regression assumption tests were conducted to ensure the accuracy of the regression model.

3.8 Summary

This chapter described the methods used in this research from the conceptual framework to the development of hypotheses, operational terms used to avoid any ambiguity to how the research was designed and sampling was estalished. This also included definition of descriptive statistics and regression analysis used to test the significant impact of dependent variable (profitability) on independent variables (liquidity, leverage and firm size).

CHAPTER FOUR

FINDINGS

4.0 Introduction

This chapter discusses the findings of the data analysed, using a sample consisting of a total of 76 property and 28 construction companies in Malaysia over the period of five years from 2009 to 2013.

4.1 Descriptive Statistics

The data collected for the companies selected in the sample of the study were analysed using GRETL software to measure the relationship between variables in this study. Panel regression method was applied to test the hypotheses, considering the main purpose of this study is to examine the hypotheses concerning the relationship between profitability and liquidity, leverage and firm size.

Data retrieved from the financial statements of individual audited accounts of the selected sectors run from 2009 to 2013 and were uploaded into the GRETL software. The descriptive statistics in Table 4.1 show all variables that are being studied in this study.

Table 4.1
Descriptive Statistics of the Variables Selected for the Study

Variables	Mean	Minimum	Maximum	Std. Dev.
Return on Equity (ROE)	0.032717	-1.6621	5.9988	0.33782
Quick Ratio (QR)	27.290	0.0000	2983.5	172.35
Debt Ratio (DR)	1.5769	0.0000	169.25	10.621
Debt-Equity Ratio (DER)	0.41109	-1.0090	95.359	4.1784
Sales Revenue (REVENUE)	8.9961	0.0000	14.748	2.9609
Total Assets (TA)	12.674	0.0000	15.660	1.5098

Table 4.1 presents that average profitability (ROE) for both property and construction industries over the period under study, from 2009 to 2013, stands at 3.27 percent with a standard deviation of 33.78 percent. The range of profitability is from a very low minimum of -1.6621 to a rather extreme maximum of 5.9988. This shows that capital budgeting of a company is vital to determine its profitability status. This also indicates that some companies used more debts to their advantage than the others and thus using lesser shareholders' equity resulting in higher ROE.

Liquidity as measured by quick ratio (QR) shows an average of 27.290. This shows that on average, the companies in the sample have a relatively high liquidity level. Higher ratio is more favourable as it indicates that a company is more financially secured in the short term to meet immediate financial obligations. Moreover, for such industries, it is common to have large sum of current assets due to the size of projects undertaken and the importance of the companies being liquid at all times, especially during the work in progress.

For leverage, the debt ratio (DR) recorded a mean of 1.5769. The second measure for leverage, debt to equity ratio (DER) recorded an average of 0.41109. This indicates that 41.11 percent of the total assets in the sectors under study are represented by debt. The minimum and maximum values of DER -1.009 and 95.359 respectively, with a standard deviation of 417.8 percent. Generally, a high ratio is unfavourable as it indicates that the company is over-exposed to debts and may not be able to meet its financial obligations when needed. However, a lower ratio may also indicate that the company is not taking advantage of leveraging on its increased profits to generate higher returns.

For size, the sales revenue (REVENUE) recorded a mean or an average of 8.9961, which is equivalent to RM8,070,736.33. The second measure of firm size using the total assets (TA) indicated an average of 12.674, which is equivalent to RM318,061,487.50. The large gap in the mean in these 2 industries is substantiated by the fact that there are various sizes of companies in the property and construction sectors, applicable more to the former than the latter. It also shows that the more assets a firm has, the more revenue it is able to generate, which in return increases the profit of the firm.

4.2 Correlation Analysis

Table 4.2 shows the correlation between the variables in this study. Profitability has positive correlation with leverage as measured by DER and size being measured by REVENUE. However, it has negative correlation with liquidity (QR), leverage measured by DR and size measured by TA. Profitability has a strong positive relationship with REVENUE at 0.1818.

Besides profitability, liquidity reported negative correlation with leverage and size, except for total assets (TA) which reveals a positive correlation at 0.0556. For leverage, it shows negative correlation with size. The result indicates that all variables are not highly correlated, ranging from 0.0059 to 0.3902.

Table 4.2
Correlation Among the Variables Selected for the Study

	ROE	**QR**	**DR**	**DER**	**REVENUE**	**TA**
ROE	1.0000	-0.0029	-0.0011	0.0059	0.1818	-0.0066
QR		1.0000	-0.0225	-0.0134	-0.1131	0.0556
DR			1.0000	0.3419	-0.1881	-0.2252
DER				1.0000	-0.1229	-0.0825
REVENUE					1.0000	0.3902
TA						1.0000

4.3 Panel Regression

Table 4.3 presents the results of panel regression between profitability as the dependent variable and the independent variables, namely liquidity, leverage and size for public-listed companies in property and construction sectors in Malaysia for the period of 2009 to 2013.

Table 4.3
Results of the Fixed-Effect Panel Regression

Variables	Coefficient	Std. Error	t-ratio	p-value
Return on Equity	0.0487808	0.129702	0.3761	0.7070
Quick Ratio	4.58E-05	8.68E-05	0.5281	0.5977
Debt Ratio	0.00051628	0.00151423	0.3410	0.7333
Debt-Equity Ratio	0.00155779	0.00374236	0.4163	0.6774
Sales Reveneue	0.026167	0.00560585	4.668	0.0000039***
Total Assets	-0.0200539	0.0108078	-1.855	0.0641 *

* significant at 0.10 (10 percent)
** significant at 0.05 (5 percent)
*** signficant at 0.01 (1 percent)

The F test statistic value of 0.410 (p-value < 0.001) shows that the overall model is significant and adequate. In addition to that, the Durbin-Watson statistic is 1.8932 indicating the absence of auto correlation problem with the data used in the regression model.

Size as measured by revenue has a signifiant positive relationship with ROE with a coefficient of 0.0262 (p-value < 0.001), which means that when one unit changes in the sales revenue, ROE will increase by 0.0262 unit. The positively significant relationship between sales revenue and return on equity shows that the more sales achieved the more profit will be generated and thus producing higher profitability for the company.

The result is supported by recent previous findings of Singapurwoko and El-Wahid (2011), Akbas and Karaduman (2012), Chan *et al.* (2012), Prasanjaya and Ramantha (2013) and Devi and Devi (2014). These studies discovered that bigger companies

have larger network that could reach out to more clients and have better market penetration that allows them to charge premium prices to achieve higher profits.

Conversely, size as measured using total assets shows rather negative significance towards ROE with a reading of -0.0201. The negative impact total assets has on profitability is consistent with the studies of Ammar *et al.* (2003), Latif et al. (2013), Enqvist, Graham and Nikkinen (2014) Yoo and Kim (2015) and Kartikasari and Merianti (2016) where more assets in the company may take time to be converted into cash.

The process of making a sale or completion of a mega project to record revenue may take several years. However, there is another finding which shows that positive relationship between firm size and profitability applies but to a specific threshold size, where upon it may become negative (Amato & Wilder, 1985).

4.4 Results and Findings

The findings of this research reveal that there is a mixed conclusion to the relationship between the dependent variable and independent variables. The results reflect that profitability of a company is indeed dependent on some, if not all, financial strategies.

Therefore, the main objective, which is to analyse the determinants affecting the profitability of the property and construction sectors in Malaysia, has been answered. The multiple regression coefficient reveals the extent to which liquidity, leverage and

firm size have on the profitability ratio. These findings are summarised in the following Table 4.4.

Table 4.4
Summary of Hypotheses Testing

Variables	Financial Ratio	Hypotheses	Relationship with Profitability	Findings
Liquidity	Quick Ratio	H1	Positive	Insignificant
Leverage	Debt Ratio	H2	Positive	Insignificant
	Debt to Equity Ratio			
Size	Sales Revenue	H3	Positive	Significant
	Total Assets		Negative	

H1. There is a significant positive relationship between liquidity and profitability in the property and construction sectors in Malaysia.

The level of liquidity positively impacts the profitability of the companies in the sample of the study ($p<0.05$), but the effect was rather weak on the dependent varible. The alternate hypothesis above is therefore rejected.

H2. There is a negative significant relationship between leverage and profitability in the property and construction sectors in Malaysia.

Leverage of the firm is insignificantly related to the dependent variable, over the years of 2009 to 2013 ($p<0.05$). However, it reports that leverage, measured by debt ratio and debt over equity ratio, has positive impact on the dependent variable ($p<0.05$). Therefore, the hyphothesis presented above is rejected.

H3. There is a significant positive relationship between firm size and profitability in the property and construction sectors in Malaysia.

Size of company has mixed results in testing its significance on dependent variable, under the study over the years of 2009 to 2013. The results reported that size of company measured by revenue is positively significantly related to dependent variable. However, total assets is significantly negatively related to the dependent variable. Therefore, the hypothesis testing statement is hereby accepted but with mixed effect on the dependent variables.

4.5 Summary

This chapter discusses the findings based on the descriptive statistics, correlation analysis and panel regression and finally summarises the hypotheses testing done on the independent variables and dependent variables.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.0 Introduction

This chapter summarises the findings of this research on the determinants of variables affecting profitability of property development and construction companies in Malaysia from 2009 to 2013. This chapter provides the summary of major findings, implications of the study, recommendation for future research before ended with concluding remarks. Finally, recommendations for further studies are also provided .

5.1 Summary of Findings

This study analyses determinants affecting profitability of property and construction sectors in Malaysia for a period of five years from 2009 to 2013. For this purpose, a total of 104 public-listed companies from these two sectors are taken into consideration. The statistical test result shows that there is a significant relationship between firm size and profitability.

This study reports that sales revenue has positive impact on return on equity, which is a proxy for profitabililty. This finding indicates that the larger the size of a company the lower its costs in producing one unit of product through a competitive advantage in the economies of scale. This is due to larger size enables a company to have better

bargaining power over its suppliers, mass production for standarized products and higher efficiency in its operations.

This finding is consistent with the results of previous studies on the relationship between firm size and profitability conducted by Lim (2013) and Zaid *et al*. (2014) in the construction sector. Other studies specifically on size affecting profitability in other sectors supporting this finding are Dogan (2013), Sinthupundaja and Chiadamrong (2015) and Ilaboya and Ohiokha (2016).

Firm size measured by total assets shows significant negative impact on ROE. This indicates that the more assets a company owns, it may not necessary mean that the firm is more profitable. An asset in a company is a resource with economic value with the expectation that it will provide continuous cash flow, a good return in the future and be easily converted to cash when necessary.

It is a norm to see high total assets in property development and construction companies being their land bank, developed buildings and houses yet to be sold, machineries and equipment but these assets will take time to be converted into cash. In addition to that, construction companies usually show high gearing reflecting their low equity base which results in cost of equity double that of development companies (Chiang *et al*., 2002).

This finding is consistent with the results of similar and previous studies on the relationship between firm size and profitability conducted by Latif *et al.* (2013) and Yoo and Kim (2015). In other industries, the consistency can be observed in the

studies of Ammar *et al.* (2003), Sarnua (2005), Enqvist *et al.* (2014), Kartikasari and Merianti (2016) and Koralun-Bereznicka (2016).

5.2 Implications of the Study

Profitability is vital in determining the financial performance of a company. However, there are limited studies on profitability analysis available for reference for both the property and construction sectors, more so on the former. Hence, this study focuses on the analysis of determinants affecting the profitability of property and construction sectors in Malaysia. The period of study is five years from 2009 to 2013. The time frame was chosen in consideration that very few studies were done post global financial crisis for property and construction sectors.

This study discovered that out of three variables, there is one variable, namely firm size which significantly influences the profitability of property and construction sectors in Malaysia. The other two variables, namely liquidity and leverage, though showing positive relationship, do not significantly affect profitability.

This explains the level of liquidity and leverage of the company in these two sectors relate positively to profitability up to a certain degree. Thereafter, it may not be so due to other factors such as inefficient financial control, high interest rates, unclear budget limits for financial decisions, capital budgeting and corporate governance.

For size, the larger the size of the company, the more advantages it has to make it more profitable for instance, it can take advantage of economies of scale and mass

producing the same products at the lowest cost. Besides that, large companies have the bargaining power to negotiate for better business terms from raw material suppliers, banks, trade creditors, corporate clients and so on. This is because people and companies in general prefer to do business with reputable and reliable companies that usually come with size. Size projects security, efficiency and success.

The results from this research would have implications for future industry researchers, academicians, company executives, financial professionals, economists, consultants, policy makers and the property and construction boards. They can use these findings as reference to further investigate the subject matter to make it relevant to current period and situation. Property and construction sectors are dynamic and reactive to forces like new government and industry policies, political, social and present economic conditions.

By referring to past financial performance and analyses in this study, top management and financial experts could project, strategise and make appropriate capital budgeting decisions to ensure the profitability of their companies is sustained or preferably, continually growing.

5.3 Recommendation for Future Research

As this study focuses strictly on propery and construction sectors per se, it does not include any analysis between sub-sectors of the industries. 14 out of 118 companies have been eliminated from the sample upon failing to fulfill the criteria of having full data throughout the period of the study. Since this research is limited to Malaysian

public-listed companies of both sectors, the results may not accurately representative of private firms of the same sectors in Malaysia. As it is geographically concentrated, the results may not be representative of other countries of similar sectors.

In order to choose a better and more accurate sampling technique, future researchers may want to consider the characteristics or behaviour and social interactions that are relevant to the subject matter. Ideally, in order to provide a more holistic result, non-financial variables have to be considered and studied as well. It is widely known that sales alone would not bring profits to a company without its human capital and the system that binds both the software and hardware of the running of an organisation.

Historically, it was found that besides measurable variables, the country's economic conditions and business cycle do have some degree of influence in the overall performance of any organisation. Some past studies called for further consideration on the non-financial variables such as the firm's Chief Executive Officer (CEO), board size, firm characteristics, human factor, corporate governance and other external factors, namely GDP, national economics, which could have some impact on the profitability and overall performance of the property and construction sectors.

Further studies may be inclusion of these issues to provide a more holistic results. It is also highly recommended to do research over longer period of time. More observations will result in more information which will provide more accuracy to the study.

5.4 Concluding Remarks

The sample of the study consists of public-listed companies in the property and construction sectors in Malaysia. It is researched based on secondary data collected from the Bursa and related websites, with five year period of study from 2009 to 2013.

Unlike most studies with similar subject matter, this research observed a combination of two giant sectors, property development and construction in Malaysia whilst analysing several variables simultaneously such as liquidity (proxied by quick ratio), leverage (proxied by debt ratio and debt to equity ratio) and firm size (proxied by sales revenue and total assets). Data collected were tested using fixed-effect panel data estimator.

The results of the analysis showed that firm size has significant relationship to profitability of property and construction sectors. Generally, property and construction industries are highly productive in Malaysia. These giant companies carried out mega projects of development and construction works that take years to complete. It is interesting to note that it is the norm to see fluctuations in their income statements to the extent of having very low sale or none at all during the work-in-progress stages. This is due to lack of income through sales revenue but continued expenses being incurred for spendings on the operations during development or construction phases. The large amount of revenue will be recorded when the projects are completed and sales effected.

Strong growth in revenue, as a result from market penetration in terms of market power and experience, would produce higher profits to the company. Large firms have the advantage in better and more efficient research and development process which enable companies to enjoy economies of scale.

Depending on availability of data, further studies on profitability within similar sectors may include other non-financial variables with longer time frame would be recommended to produce a more accurate result.

This chapter summarizes the overall study in this research and is expected to provide a platform for future researchers on this subject matter. It is also expected to contribute to the knowledge of profitability in the property development and construction sectors in Malaysia.

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APPENDICES

Appendix I: List of Public-Listed Property Firms Used for Sample.

No	Actual Population	Used Data	Unused Data
Property			
1	A&M Realty Berhad	A&M Realty Berhad	Global Oriental Berhad
2	AMDB Berhad	AMDB Berhad	GSB Group Berhad
3	Asian Pac Holdings Berhad	Asian Pac Holdings Berhad	I-Berhad
4	BCB Berhad	BCB Berhad	Jiankun International Berhad
5	Bina Darulaman Berhad	Bina Darulaman Berhad	Media Inc. Berhad
6	Bertam Alliance Berhad	Bertam Alliance Berhad	Multi-Usage Holdings Berhad
7	Berjaya Assets Berhad	Berjaya Assets Berhad	Tiger Synergy Berhad
8	Country Heights Holding Berhad	Country Heights Holding Berhad	
9	Crescendo Corporation Berhad	Crescendo Corporation Berhad	
10	Country View Berhad	Country View Berhad	
11	Daiman Development Berhad	Daiman Development Berhad	
12	Damansara Realty Berhad	Damansara Realty Berhad	
13	DPS Resources Berhad	DPS Resources Berhad	
14	Eastern & Oriental Berhad	Eastern & Oriental Berhad	
15	Ecofirst Consolidated Berhad	Ecofirst Consolidated Berhad	
16	Ecoworld Development Group Berhad	Ecoworld Development Group Berhad	
17	Encorp Berhad	Encorp Berhad	
18	Enra Group Berhad	Enra Group Berhad	
19	Eupe Corporation Berhad	Eupe Corporation Berhad	
20	Ewein Berhad	Ewein Berhad	
21	Farlim Group (Malaysia) Berhad	Farlim Group (Malaysia) Berhad	
22	Global Oriental Berhad	Glomac Berhad	
23	Glomac Berhad	Grand Hoover Berhad	
24	Grand Hoover Berhad	Gro Mutual Berhad	
25	Gro Mutual Berhad	GuocoLand (Malaysia) Berhad	
26	GSB Group Berhad	HCK Capital Group Berhad	
27	GuocoLand (Malaysia) Berhad	Hua Yang Berhad	
28	HCK Capital Group Berhad	Ibraco Berhad	
29	Hua Yang Berhad	Ideal United Bintang International Berhad	
30	I-Berhad	IGB Corporation Berhad	
31	Ibraco Berhad	Iskandar Waterfront City Berhad	
32	Ideal United Bintang International Berha	JKG Land Berhad	
33	IGB Corporation Berhad	Karambunai Corp Berhad	
34	Iskandar Waterfront City Berhad	KEN Holdings Berhad	
35	Jiankun International Berhad	KSL Holdings Berhad	
36	JKG Land Berhad	Land and General Berhad	
37	Karambunai Corp Berhad	LBI Capital Berhad	
38	KEN Holdings Berhad	LBS Bina Group Berhad	
39	KSL Holdings Berhad	Lien Hoe Corporation Berhad	
40	Land and General Berhad	Magna Prima Berhad	

No	Actual Population	Used Data	Unused Data
Property			
41	LBI Capital Berhad	Mah Sing Group Berhad	
42	LBS Bina Group Berhad	Malton Berhad	
43	Lien Hoe Corporation Berhad	Majuperak Holdings Berhad	
44	Magna Prima Berhad	MKH Berhad	
45	Mah Sing Group Berhad	MK Land Holdings Berhad	
46	Malton Berhad	Malaysia Pacific Corporation Berhad	
47	Media Inc. Berhad	Malaysian Resources Corporation Berhad	
48	Majuperak Holdings Berhad	MUI Properties Berhad	
49	MKH Berhad	NAIM Holdings Berhad	
50	MK Land Holdings Berhad	Oriental Interest Berhad	
51	Malaysia Pacific Corporation Berhad	OSK Holdings Berhad	
52	Malaysian Resources Corporation Berha	Paramount Corporation Berhad	
53	Multi-Usage Holdings Berhad	Pasdec Holdings Berhad	
54	MUI Properties Berhad	Plenitude Berhad	
55	Naim Holdings Berhad	Petaling Tin Berhad	
56	Oriental Interest Berhad	Sapura Resources Berhad	
57	OSK Holdings Berhad	SBC Corporation Berhad	
58	Paramount Corporation Berhad	Selangor Dredging Berhad	
59	Pasdec Holdings Berhad	Seal Incorporated Berhad	
60	Plenitude Berhad	SHL Consolidated Berhad	
61	Petaling Tin Berhad	South Malaysia Industries Berhad	
62	Sapura Resources Berhad	Selangor Properties Berhad	
63	SBC Corporation Berhad	S P Setia Berhad	
64	Selangor Dredging Berhad	Sunsuria Berhad	
65	Seal Incorporated Berhad	Symphony Life Berhad	
66	SHL Consolidated Berhad	Tadmax Resources Berhad	
67	South Malaysia Industries Berhad	TAHPS Group Berhad	
68	Selangor Properties Berhad	Talam Transform Berhad	
69	S P Setia Berhad	Tanco Holdings Berhad	
70	Sunsuria Berhad	Thriven Global Berhad	
71	Symphony Life Berhad	Tropicana Corporation Berhad	
72	Tadmax Resources Berhad	UEM Sunrise Berhad	
73	TAHPS Group Berhad	Y&G Corporation Berhad	
74	Talam Transform Berhad	YNH Property Berhad	
75	Tanco Holdings Berhad	Yong Tai Berhad	
76	Thriven Global Berhad	YTL Land Development Berhad	
77	Tiger Synergy Berhad		
78	Tropicana Corporation Berhad		
79	UEM Sunrise Berhad		
80	Y&G Corporation Berhad		
81	YNH Property Berhad		
82	Yong Tai Berhad		
83	YTL Land Development Berhad		

Appendix II: List of Public-Listed Construction Firms Used for Sample.

No	Actual Population	Used Data	Unused Data
Construction			
1	ARK Resources Berhad	ARK Resources Berhad	Lebtech Berhad
2	Ahmad Zaki Resources Berhad	Ahmad Zaki Resources Berhad	Merge Energy Berhad
3	Bina PURI Holdings Berhad	Bina PURI Holdings Berhad	Puncak Niaga Holdings Berhad
4	Brem Holding Berhad	Brem Holding Berhad	Sycal Ventures Berhad
5	Crest Builder Holdings Berhad	Crest Builder Holdings Berhad	TSR Capital Berhad
6	DKLS Industries Berhad	DKLS Industries Berhad	WCE Holdings Berhad
7	Ekovest Berhad	Ekovest Berhad	Zecon Berhad
8	Fajarbaru Builder Group Berhad	Fajarbaru Builder Group Berhad	
9	Gadang Holdings Berhad	Gadang Holdings Berhad	
10	Gamuda Berhad	Gamuda Berhad	
11	Ho Hup Construction Company Berhad	Ho Hup Construction Company Berhad	
12	Hock Seng Lee Berhad	Hock Seng Lee Berhad	
13	IJM Corporation Berhad	IJM Corporation Berhad	
14	Ireka Corporation Berhad	Ireka Corporation Berhad	
15	Jaks Resources Berhad	Jaks Resources Berhad	
16	Kumpulan Jetson Berhad	Kumpulan Jetson Berhad	
17	Lebtech Berhad	MelatiI Ehsan Holdings Berhad	
18	MelatiI Ehsan Holdings Berhad	Mitrajaya Holdings Berhad	
19	Merge Energy Berhad	MTD ACPI Engineering Berhad	
20	Mitrajaya Holdings Berhad	Mudajaya Group Berhad	
21	MTD ACPI Engineering Berhad	Muhibbah Engineering (M) Berhad	
22	Mudajaya Group Berhad	Protasco Berhad	
23	Muhibbah Engineering (M) Berhad	Prinsiptek Corporation Berhad	
24	Protasco Berhad	Pintaras Jaya Berhad	
25	Prinsiptek Corporation Berhad	TRC Synergy Berhad	
26	Pintaras Jaya Berhad	Triplc Berhad	
27	Puncak Niaga Holdings Berhad	WCT Holdings Berhad	
28	Sycal Ventures Berhad	Zelan Berhad	
29	TRC Synergy Berhad		
30	Triplc Berhad		
31	TSR Capital Berhad		
32	WCE Holdings Berhad		
33	WCT Holdings Berhad		
34	Zelan Berhad		
35	Zecon Berhad		

Appendix III: Output of GRETL

Results of the Fixed-Effect Panel Regression

Model 1: Fixed-effects, using 520 observations
Included 5 cross-sectional units
Time-series length: 104
Dependent variable: Return On Equity (ROE)

Variable	Coefficient	Std. Error	t-ratio	p-value	
ROE	0.0487808	0.012702	0.3761	0.7070	
QR	4.58242e-05	8.67732e-05	0.5281	0.5977	
DR	0.000516280	0.00151423	0.3410	0.7333	
DER	0.00155779	0.00374236	0.4163	0.6774	
REVENUE	0.0261670	0.00560585	4.668	3.90e-06	***
TA	-0.0200539	0.0108078	-1.855	0.0641	*

Mean dependent var	0.032717	S.D. dependent var	0.337821
Sum squared resid	56.57823	S.E. of regression	0.333073
LSDV R-squared	0.044771	Within R-squared	0.041145
LSDV F(121, 462)	2.655905	P-value(F)	0.005130
Log-likelihood	-161.1149	Akaike criterion	342.2297
Schwarz criterion	384.7680	Hannan-Quinn	358.8936
rho	0.052825	Durbin-Watson	1.893193

Joint test on named regressors -
Test statistic: F(5, 510) = 4.37682
with p-value = P(F(5, 510) > 4.37682) = 0.00065424

Test for differing group intercepts -
Null hypothesis: The groups have a common intercept
Test statistic: F(4, 510) = 0.409651
with p-value = P(F(4, 510) > 0.409651) = 0.801733

Appendix III: Output of GRETL (Continued)

Descriptive Statistics of the Variables Selected for the Study.

Summary Statistics, using the observations 1:1 - 104:5

Variables	Mean	Median	Minimum	Maximum
ROE	0.03272	0.02430	-1.6621	5.9988
QR	27.290	2.5150	0.0000	2983.5
DR	1.5769	0.2000	0.0000	169.25
DER	0.4111	0.1818	-1.0090	95.359
REVENUE	8.9961	9.7168	0.0000	14.748
TA	12.674	12.660	0.0000	15.660

Variable	Std. Dev.	C.V.	Skewness	Ex. Kurtosis
ROE	0.3378	10.325	9.7467	190.59
QR	172.35	6.3155	13.510	204.96
DR	10.621	6.7352	11.331	149.89
DER	4.1784	10.164	22.630	511.74
REVENUE	2.9609	0.3291	-1.7432	3.2725
TA	1.5098	0.1191	-3.5278	27.850

Variable	5% perc.	95% perc.	IQ range	Missing obs.
ROE	-0.1529	0.2113	0.069125	0
QR	0.1305	68.563	6.8375	0
DR	0.00205	0.7900	0.3365	0
DER	0.001205	0.6639	0.32698	0
REVENUE	0.0000	12.532	2.2365	0
TA	10.866	14.756	1.3017	0

Appendix III: Output of GRETL (Continued)

Correlation Among the Variables Selected for the Study.

Correlation Coefficients, using the observation 1:001 - 5:104

5 percent critical value (two-tailed) = 0.0860 for n=520

	ROE	**QR**	**DR**	**DER**	**REVENUE**	**TA**
ROE	1.0000	-0.0029	-0.0011	0.0059	0.1818	-0.0066
QR		1.0000	-0.0225	-0.0134	-0.1131	0.0556
DR			1.0000	0.3419	-0.1881	-0.2252
DER				1.0000	-0.1229	-0.0825
REVENUE					1.0000	0.3902
TA						1.0000