

PROFITABILITY AND CAPITAL STRUCTURE OF THE PROPERTY AND CONSTRUCTION SECTORS IN MALAYSIA

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ABSTRACT

This study examines the profitability and capital structure among property developers and constructors in emerging market of Malaysia. Using the sample of 25 property companies and 20 construction companies for a period of eight years, the present study suggests that developers are more profitable than contractors due to the fact that their capital gearing and debt equity ratio are less than those of contractors. The results from the regression analysis indicate that capital gearing is negatively related with net profit margins and price earning ratio for both property and construction sectors. The findings show unequal business relationship with regards to debt and profit even though their business is very interrelated.

Keywords: Profitability, capital structure, property developer, contractor.

INTRODUCTION

The construction and property sectors have played an important role in development of the Malaysian economy; particularly in the late 1980s to the mid-1990s. Through the creation of fixed assets, these sectors complement the other sectors in the economy by providing a basis of generating output, revenue, profit as well as employment, all of which are the necessary ingredients for promoting economic growth. However, these sectors are quite sensitive to economic conditions, with their prices soaring during booming times and melting during slumping times. For instance, the falling of property prices in the early 1990s caused problems for financial institutions which use properties as collateral. Experience elsewhere has shown that a collapse of the property sector market can even lead to severe outcomes including bank failures.

Prior to the Asian economic crisis, the construction sector had grown considerably, particularly since 1990. This sector grew rapidly at 13.4 percent per annum during 1990-1997 arising from the active property market and accelerated development of government infrastructure projects. It then reduced drastically in 1998 to register a negative growth of 23 per cent following the Asian financial crisis which saw the Malaysian economy turn into a severe downturn. However, efforts undertaken by the government and private sector

in 1998 to revive these industries by lowering of interest rates has shown positive results. The construction sector registered productivity, employment and output growth of 2.3%, 0.8% and 3.1 %, respectively, in 2000. The improvement is attributed to the utilisation of modern construction techniques and upgrading of the construction workforce.

Even though the construction sector has shown improvement starting from 1999 onward and acts as a catalyst for a wide range of economic activities in the country, their contribution to the total Gross Domestic Product (GDP) is generally small, i.e. 4, 3.6, 3.4 and 3.3 per cent in 1998, 1999, 2000 and 2001 respectively. Comparing with their property counterpart, local constructions are generally small and less profitable. The reason as mentioned by Ball, Farshchi and Grilli (2000) is that there is not much value added by contractors. Furthermore, they are dependent on developers' interim payments for much of the construction finance. Therefore, they become more financially dependent.

The purpose of this paper is to provide insight into the performance of property developers and contractor's profitability and factors impacting capital structure decisions of these sectors in Malaysia. Thus, the key contributions of the study are to explore and expand on existing research from a different perspective. It is the first study to provide comprehensive evidence on the performance of property and construction in the emerging market such as Malaysia over the time period from 1996 to 2003. Second, the present study focus on comparing these industries is justified since they are related in nature with minor contribution to economic growth. Third, the study sheds light on the implication of their relationship or lack of it and their competitiveness in contributing to the country economy.

The major findings of our analysis can be summarized as follows. First, developers are larger and more profitable compared to contractors' counterparts. However, their capital gearing and debt equity ratio are less than those of contractors. This is due to the fact that contractors are heavily burden with debt and thus, the need to service this debt is very high. This led to low pre-tax profit margin as well as profit margin. Second, for the construction sector, we find a highly significant negative relationship between capital gearing with all other variables. *i.e.* profit, pre tax profit and price earning ratio. For the property sector, the study finds a highly significant negative relationship only between capital gearing and profit and pre tax profit. However, a significant positive relationship between profit and pre tax profit and between profit and price earning ratio are found for both sectors. Finally, using the aggregated annual data for the whole sample period, the results report statistically significantly differences between the mean values for all the financial indicators except for price-earning ratio.

The remainder of the paper is organized as follows. Section 2 provides discussion of the background literature; section 3 contains a discussion of the data and measures of

performance. A presentation of the methodology and the results contained in sections 5 and 6 presents the summary and conclusions.

LITERATURE REVIEW

A number of recent papers have examined the profitability and capital structure in many developed Asian economies such as Hong Kong, Singapore and other industrialized countries. As important as this issue is, however, there has been no attention given to the profitability and capital structure in developed country like Malaysia compared to the newly industrialize economies of Asia. Recent investigation by Chiang et al (2002) on the inter-relationship between profitability, cost of capital and capital structure among property developers and contractors focus on the Hong Kong market and find that developers are among the largest and most profitable in the world compared to their contractor counterparts. Their analysis of financial data also suggests that gearing is generally higher among contractors than developers. Similar results are obtained by Chiang and Chan (2001) who also study the Hong Kong property market and find that developers are large and profitability by international standard, whilst their local building contractors are small and their markets are highly competitive.

There are a few studies conducted in either the property or construction sectors in the developed country. For instant, Barkham (1997) who studied UK property market concludes that property development firms borrow more than property trading firms. On a similar note, research by Ooi (1999b) concludes that UK developers employ more debt than contractors. He attributed the higher leverage to the fact that most property development projects are funded through project financing, which usually involves higher gearing. Another study by Ooi (1999a) on the capital structure determinants of 83 property companies quoted in the UK between 1989 and 1995 finds that contrary to the theoretical predictions, corporate performance and tax burden do not appear to play any major role in the debt-equity choice of property companies. The empirical evidence further shows that asset structure, type of property companies, level of development undertakings, and business risks have a significant impact on the corporate leverage policy of property companies. Gau and Wang (1990) were amongst the first to apply the theory of capital structure directly to real estate investment decisions at the project level. Based on a sample of 1,423 apartment and commercial property transactions in Vancouver between 1971 and 1985, they observed that the level of debt employed in a property acquisition is directly related to the cost of the investment and inversely to the size of its depreciation tax shield, expected costs of financial distress and market interest rates.

A small group of studies focused on the stock prices of real estate and its relationships with stock market and debt issues. Liow (1997) analyses common stock returns for Singapore property firms for the period 1975 through 1995. Overall, the results provided show that property stocks are highly correlated with the stock market. He also discovered

that property firms' performance is closely tied to the property market. An event study by Howe and Shilling (1988) has shown that stock prices of real estate companies in the USA do not react to debt issues in the same manner as share prices of other corporations.

DATA AND MEASURES OF PERFORMANCE

Data

The number in the sample consists of 25 out of 93 property companies and 20 out of 42 construction companies listed under Bursa Malaysia Main Board included for this study. The eight-year study period started in 1996 which is at the end of the economic boom period, and ended in 2003 where the economic recovery programme is at the last phase. Tables 1 and 2 contain the names of the firms for property and construction, respectively. Their selection criterion is based on the availability of the financial data in their annual reports and is obtained from DataStream.

Table 1: Property firms

1.	Amfirst Property Trust
2.	Asiatic Development
3.	Bandar Raya Dev.
4.	Boustead Properties Bhd.
5.	Daiman Development
6.	Fima
7.	Guocoland (Malaysia)
8.	IQB
9.	IOI Properties
10.	Island & Peninsular
11.	Keck Seng Malaysia
12.	Metro Kajang
13.	Negara Properties
14.	Oriental Interest
15.	Paramount
16.	Petaling Garden
17.	RB Land Holdings
18.	Selangor Dredging
19.	Selangor Properties
20.	Sime UEP Properties
21.	SP Setia
22.	Sunrise
23.	Talam
24.	United Malayan Land
25.	Worldwide Holdings

Table 2: Construction firms

1.	ACP Industries Bhd
2.	Cement Inds.Of Malaysia
3.	Ekovest
4.	Gamuda
5.	Hume Industries Mal.
6.	IJM
7.	Kim Hin Industries
8.	Kumpulan Jetson
9.	Lafarge Malayan Cement
10.	Lion Forest Inds.
11.	MTD Capital
12.	Mui Properties
13.	Nam Fatt
14.	Press Metal
15.	Road Builder Hdg.
16.	Rock Chemicals Inds.
17.	Tasek
18.	UAC
19.	WCT Engineering
20.	YTL Cement

As mentioned earlier, the main objective of this study is to examine profitability differences between property and construction sectors. In line with this objective, two sets of data were carried out first, to test whether the differences between the property and construction sectors are statistically significant and second, to examine the capital structure determinants of both sectors.

Table 3 presents the first set of data which includes capital gearing ratios, debt to equity ratios, pre-tax margin, net profit margin and price-earning ratios and are firm-specific. This set of data will be used to highlight the differences of the two sectors in terms of their profitability and capital structure.

Table 3: Definitions of financial indicators

1. Capital gearing (gearing) =	$\frac{\text{preference shares} + \text{total debt}}{\text{Total capital} + \text{short term borrowing}}$
2. Debt/Equity =	$\frac{\text{debt}}{\text{Equity capital} + \text{reserves}}$
3. Pretax profit margin =	$\frac{\text{pretax profit}}{\text{Sales}}$
4. Net Profit margin (profit)=	$\frac{\text{profits after tax}}{\text{Sales}}$
5. P/E ratio (PERatio)=	$\frac{\text{current share price}}{\text{earnings per share}}$

Meanwhile, the second set of data includes capital gearing (*Gearing*), total fixed asset (*TotalFA*), net profit margin (*Profit*) and price-earning ratios (*PERatio*) are also firm-specific. This set of data will be used to examine the determinants of capital structure as well as to further substantiate the conclusions drawn from the first. Data for the total fixed asset are in natural logarithms.

Tables 4 and 5 provide descriptive statistics on the variables for property and construction sectors that will be employed in our regression estimation. All variables in both tables appear to exhibit a reasonable mean values except for profit in the construction sector which is very low compared to other variables. The tables also show extreme values for the minimum and maximum for variables profit and price earning ratio in both sectors. For instance, the maximum and minimum range for profit in property sector is about 20 percent while the price earning ratio in construction sector is about 23 percent. Overall, the property sector shows higher profit and lower gearing, while the construction sector shows the opposite, i.e. low profit and higher gearing.

Table 4: Descriptive statistics for property sector

Variables	Number of Observations	Minimum	Maximum	Mean	Std. Dev.
Gearing	200	16.080	18.650	17.190	1.113
Total Fix Asset	200	20.003	20.353	20.176	0.122
Profit	200	9.840	31.790	20.780	3.000
P/E Ratio	200	10.700	23.150	18.500	1.560

Table 5: Descriptive statistics for construction sector

Variables	Number of Observations	Minimum	Maximum	Mean	Std. Dev.
Gearing	160	24.600	29.990	26.930	1.693
Total Fix Asset	160	19.729	20.531	20.302	0.283
Profit	160	2.760	10.640	7.870	1.130
P/E Ratio	160	6.190	29.880	18.280	2.640

Correlation coefficient

Tables 6 and 7 present the results of the correlation coefficient between variables for property sector and construction sectors, respectively. It is difficult to see any clear pattern of association between the variables. However, similar with previous findings in many of the literature, the present study shows a significant negative relationship of 32.9 percent and 40.4 percent between gearing and profit and between gearing and pre tax profit, respectively, for the property sector. This is logical since high gearing led to high debt services and thus low profit from operations. Another important coefficient to note is the highly significant positive relationship between profit and pre tax, and profit with price earning ratio. Similarly, the high gearing negative correlation with profit, pre tax and price earning are also evidenced for the contraction sector.

Table 6: Correlation coefficient among variables for property sector

	Gearing	Total Fixed Asset	Profit	Price-Earning Ratio	Pre Tax Profit
Gearing	1.000				
Total Fix Asset	0.130	1.000			
Profit	-0.329*	0.168	1.000		
Price-Earning Ratio	0.130	-0.185	0.431*	1.000	
Pre Tax Profit	-0.404*	0.139	0.842*	-0.185	1.000

Note: Significance at the 5% level is indicated by * (2 tailed).

Table 7: Correlation coefficient among variables for construction sector

	Gearing	Total Fixed Asset	Profit	Price-Earning Ratio	Pre Tax Profit
Gearing	1.000				
Total Fix Asset	0.212	1.000			
Profit	-0.539*	-0.031	1.000		
Price-Earning Ratio	-0.473*	-0.182	0.261	1.000	
Pre Tax Profit	-0.573*	-0.149	0.922*	0.233	1.000

Note: Significance at the 5% level is indicated by * (2 tailed).

EMPIRICAL RESULTS

In examining the differences of the means from the two samples of property and construction firms, the one-way analysis of variance using two independent-sample *t*-tests are carried out to determine how likely the population means are equal. Table 8 shows the means of the various financial indicators as derived from the two samples of property and construction firms and their mean differences.

Differences between means

On annual basis, the results of differences between means are mixed. Debt equity ratio, for example, shows significant differences only in 1997, 1998 and 2001, while capital gearing shows significant difference in 1996, 2001 and 2002. Similar mixed results are also found for the pre-tax profit margin and net profit margin. However, for the price-earning ratio, the results show insignificant difference for the entire period. When all annual data are aggregated, the results report statistically significantly differences between

the mean values for all the financial indicators except for price-earning ratio as shown in the last column.

The detailed explanations of each variable are as follows. For the debt-to-equity ratio, it is suggested that developers generally are less geared than their contractor counterparts over the years. For instance, for every ringgit of equity, contractors in general borrow 58.12 ringgit, whereas developers borrow 29.30 ringgit.

For capital gearing, the ratio indicates relatively low leverage for developers. Their capital gearing is only 17.19 percent, while for contractors is 26.93 percent. Table 8 also shows the pre-tax profit results of 9.26 per cent for contractors, and 23.32 per cent for developers. It is the only financial indicator, except for 1998, that has the sample means statistically significantly different from each other.

For net profit margin, it indicates relatively high profitability of developers. The last column suggests that, the property developers make an average net profit margin of 20.79 per cent as compared to contractors that make an average net profit margin of 7.88 per cent. That is only 38% of that of property firms. In individual years, property firms generally make sound profits, while construction firms incur a low net profit as much as 2.76 per cent and 3.73 per cent in 2001 and 1998 respectively.

The last ratio is price-earning ratio. The last column shows that the average price-earning ratio of property developers is 18.50, while the average price-earning ratio of contractors is 18.28. This means that for every ringgit of earning, construction stock commands on average a price that is slightly lower than that which a property stock does.

Table 8: Average values of financial indicators for property and construction sectors: 1996-2003

MEAN	1996	1997	1998	1999	2000	2001	2002	2003	1996-2003
Debt/equity ratio									
Property	38.03	24.47	28.71	30.15	29.71	25.47	28.59	29.25	29.30
Construction	60.46	44.74	60.42	64.12	53.21	67.28	63.51	51.21	58.12
Differences in means	-22.43	-20.27*	-31.71*	-33.97	-23.50	-41.81*	-34.92	-21.96	-28.82*
Capital Gearing (%)									
Property	16.59	16.49	18.27	18.65	18.62	16.08	16.29	16.53	17.19
Construction	29.99	26.46	26.60	25.87	24.60	27.79	28.30	25.83	26.93
Differences in means	-13.40*	-9.97	-8.33	-7.22	-5.98	-11.71*	-12.01*	-9.30	-9.74*
Pre-tax profit margin (%)									
Property	34.65	34.38	19.47	30.09	10.35	19.34	13.44	24.86	23.32
Construction	11.92	11.21	6.51	9.05	11.68	3.30	11.88	8.53	9.26
Differences in means	22.73*	23.17*	12.96	21.04*	-1.33*	16.04*	1.56	16.33*	14.06*
Net profit margin (%)									
Property	29.25	28.56	15.32	31.79	9.84	18.76	11.00	21.76	20.79
Construction	10.48	9.07	3.73	10.29	10.64	2.76	9.82	6.21	7.88
Differences in means	18.77*	19.49*	11.59	21.50*	-0.80	16.00	1.18	15.55*	12.91*
P/E ratio									
Property	23.15	16.71	10.70	22.47	22.38	20.86	16.32	15.38	18.50
Construction	29.88	17.37	6.19	26.67	19.52	12.68	15.94	18.00	18.28
Differences in means	-6.73	-0.66	4.51	-4.20	2.86	8.18	0.38	-2.62	0.22

Notes: "Difference" is the mean value of property firms minus that of construction firms.

* The null hypothesis that the population means are equal is rejected at a significance level of 0.05

In order to establish the time-series interaction between variables for the property and construction sectors, we use panel data for all the selected companies and across the entire sample period. Using yearly observations for both sectors and all variables over the period 1996 through 2003, we regress the total fixed assets, net profit margin, price-earning ratio on the capital gearing ratio. The following OLS regression model is used to estimate the coefficient of each independent variable:

$$S_{it} = \alpha + \beta + \delta + \chi + \varepsilon_t$$

where S_{it} is the capital gearing on sector i in year t and the coefficients β , δ and χ are respectively, total fixed asset, profit and price-earning ratio and to be estimated. The ε_t is the residual and assumed to be uncorrelated.

Table 9: Regression results for property

	<i>Coefficients</i>	<i>Std. Dev.</i>	<i>T-Ratio</i>	<i>P-Value</i>
Constant	-10.06	48.38	-0.21	0.837
NPM	-0.254	0.1213	-2.10*	0.005
PERatio	-0.3389	0.3126	-1.09	0.288
LnTotal Fix Asset	2.954	3.631	0.81	0.425
R-Squared: 19.0%				
F-Stat: 1.64				

* Significant at 5 % level

Table 10: Regression Results for Construction

	<i>Coefficients</i>	<i>Std. Dev.</i>	<i>T-Ratio</i>	<i>P-Value</i>
Constant	25.61	38.03	0.67	0.510
NPM	-1.2417	0.479	-2.59*	0.020
PERatio	-0.900	0.543	-1.66**	0.117
LnTotal Fix Asset	2.042	2.735	0.75	0.466
R-Squared: 46.9				
F-Stat: 4.63				

* Significant at 5 % level. ** Significant at 10 % level.

Regression results

Tables 9 and 10 show the empirical results of the analysis. The OLS regression analysis shows that the explanatory variables altogether have an *R*-squared of 19 percent and 46.9 percent for property and construction sectors, respectively. The *t*-statistics indicate the relative importance of each explanatory variable. The regression shows that net profit margin is negatively statistical significant explanatory variables with *t*-statistics of 2.59 and 2.10 for construction and property sectors, respectively. This suggests that the null hypothesis of no linear relationship between gearing and net profit margin is rejected for both sectors. The null hypothesis of no linear relationship between gearing and price earning ratio is also rejected but only for the construction sector at 10 percent level.

CONCLUSIONS

This paper assesses the profitability and capital structure among property developers and contractors in Malaysia. The study uses a sample of 25 property companies and 20 construction companies for a period of eight years from 1996 through 2003.

We have argued that this research is both interesting and highly relevant because it provide insight into the performance of property developers and contractor's profitability and factors impacting capital structure decisions of these firms to the Malaysia economy. Thus, the key contributions of the study are to explore and expands on existing literature from a Malaysian perspective. The present study attempts to fill this gap and is the first study to provide comprehensive evidence on the performance of property and construction in the developing market such as Malaysia over the time period from 1996 to 2003.

Our results provide evidence that developers in Malaysia are larger and more profitable compared to contractors' counterparts. This is because their capital gearing and debt equity ratio are less than those of contractors. The results suggest that contractors are heavily burden with debt and the need to service this debt is very high and thus, this led to low pre-tax profit margin as well as profit margin. The results are consistent to the findings of Chiang et al (2002) and Chiang and Chan (2001) on the industrialised market of Hong Kong. The results from the regression analysis indicate that capital gearing is negatively related with net profit margin and price earning ratio for both property and construction sectors. The simple argument for the result is that the high gearing firms have to service their large amount of debt which in turn will reduce their profit margin and PE ratio, regardless of sector size.

Overall, the findings of the present study suggest an unequal business relationship between property and construction sectors; particularly financial indicators related to debt and profit, even though their business is very interrelated. Some argue that the capital intensiveness of property development and the labour intensiveness of construction have led to the profitability and divide between the two related sectors. The findings should enhance further financial institutions and markets to better facilitate the property and construction financing needs

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