DOES IT PAY TO BE GREEN?

A STUDY INTO THE FINANCIAL PERFORMANCE OF MALAYSIAN GREEN DEVELOPERS

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The Government of Malaysia recognises green technology as one of the key drivers of national economic growth. Policies are re-oriented to promote and develop green production, including implementation of incentives and green tax reductions. On the other hand, the industry faces challenges in realizing more green buildings. Other than technological know-how, there are also uncertainties on financial impacts to a developer to adopt green technology. This paper examines the financial performance of green developers in Malaysia and focuses on the analysis of financial statement, financial ratios and the distress analysis of listed green developers in Malaysia. Wilcoxon signed-rank test is applied to validate the differences between green developers and the industry. The green developers enjoy higher assets growth compared to the industry and the debt ratio is higher than the industry as a whole. The results play an important reference to policies makers and strategists in the industry.

Keywords: financial performance, green developer, Malaysia

INTRODUCTION

Ministry of Energy, Green Technology and Water, Malaysia (MEGTW) was established on 9 April 2009 as a result of the reshuffle and restructuring of ministries. Before that, MEGTW was known as the Ministry of Energy, Water and Communication (MEWC). Following the Cabinet reshuffle, a new function which is Green Technology is included in MEGTW. MEGTW is responsible for the planning, formulating policies and programs in green technology and this demonstrates the determination of the Government of Malaysia in addressing current global issues like environment pollution, ozone layer depletion, global warming and issues related to it.

Building sector is one of the four key sectors in the National Green Technology Policy. Among the initiatives of MEGTW in the building sector includes Green Township. MEGTW is responsible to coordinate the implementation of legislation, policies, guidelines, programs, activities and role of responsible agencies in the implementation of Green Neighbourhood. The government has allocated RM1.5 billion as soft loans to the private sector through the Green Technology Financing Scheme. Building owners who have been certified the Green Building Index (GBI) will be granted income tax exemptions which are equal to the capital expenditure to obtain the certificate. Home buyers who has received the GBI certificate from the property developer will be given stamp duty exemptions on documents of transfer.

Despite the government's effort and encouragement, GBI certified only four townships in 2012, in which one is rated Platinum, two rated Silver and one rated as Certified. No township was certified in 2013 and in 2014 and there were two townships certified with the rating Certified.

Zainal Abidin (2010) revealed that although the developers in Malaysia are aware of the rising issues on sustainability, little efforts were generated from them in implementing it. More effort is necessary to boost this application and stimulate further actions and strategies towards a sustainable built environment.

Hoffman and Henn (2008) agree that the green building movement has overcome formidable technological hurdles in recent years. In China, Zhang (2011) concludes that higher costs have hindered the extensive application of green technologies.

Research for Netherland sustainable construction (Bueren & Priemus, 2002) suggested that it is not the technical factors but institutional factors that underlie the fact that sustainable construction has failed to force a definitive breakthrough.

Researchers agree that in current conditions, awareness and technology are not the main barriers of implementing green technology. What is the hurdle in implementing more green and sustainable features in the building and township? What is the question that a developer will ask before they decide to build green or not?

Does it pay to be green?

Researchers started investigations on the relationship between environment performance and financial performance since 1990s. By examining a sample from S&P 500, Hart and Ahuja (1996) found that pollution abatement is a cost burden on firms and detrimental to competitiveness. The results indicated that efforts to prevent pollution and to reduce emissions dropped to the 'bottom line" within one to two years of initiation and those firms with the highest emission levels stand the most profitable.

Stefan and Paul (2008) mentioned in their research that the conventional wisdom concerning environmental protection comes at an additional cost imposed on firms, which may erode their competitiveness. However, during the last decade, this paradigm has been challenged (Stefan, 2008).

Rao and Holt (2005) studied the South East Asia ISO14001 certified companies and identified that integrated green supply chain ultimately leads to competitiveness and economic performance.

By looking at factors affecting firms to adopt proactive environment strategy and if it leads to improving financial performance, Clarkson *el al.* (2011) concluded that there are robust positive relationships between environment performance and financial performance and green strategy cannot be easily mimicked by other firms.

The trend shows that care to the environment leads to a better financial performance. Is this also applicable to developers in Malaysia?

METHODOLOGY

There is no clear definition of green developers in Malaysia. This paper describes green developers as developers who incorporate additional green technologies in their projects and market themselves as developers that promote green and sustainable development.

This analysis will focus on analysis of financial statement, financial ratios and the distress analysis of listed green developers in Malaysia, compared to the industry as a whole.

The required financial data was obtained from the companies' Annual Report filed with BURSA Malaysia (http://www.bursamalaysia.com). Full details of the balance sheet, income statements and cash flow statements of each company were extracted from the Annual Reports.

The financial performance which includes financial growth, financial ratios and distress analysis is then computed for each company. The financial performance was then aggregated in total to represent the industry. The financial performance for green developers was also aggregated to represent green developers.

The financial performance analysed include: total revenue growth, total assets growth, total liabilities growth, net assets growth, market capitalisation growth, net profit margin, sales to assets ratio, debt ratio and distress analysis – Altman Z-score.

Altman Z-score is used to predict coporate defaults and measure the finanial distress status of companies. The formula is as follow:

$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6 X_4 + 0.999X_5$

X_1 = Working capital / Total assets

X_2 = Retained earnings / Total assets

X_3 = Earnings before interest and tax / Total assets

X_4 = Market value of equity / Book value of total liabilities

X_5 = Sales / Total assets

With

Z > 2.99 is "safe" zones

1.81 < Z < 2.99 is "grey" zones

Z < 1.81 is distress zones

Wilcoxon signed-rank test was then applied to identify if there were any statistically significant differences between the financial performance of green developers and the industry as a whole. Wilcoxon signed-rank test is a non-parametric statistical hypothesis test. It is commonly used to compare two matched sample, in this case the green developers and the industry. It is used as an alternative to paired Student's t-test when the pupolation is not normally distributed.

The steps involved are described as follow:

 i) find the absolute difference for each pair of matched data

 ii) rank the absolute differences from smallest to largest, employed tie ranks where necessary

 iii) assign "+" to rank if $x_a - x_b > 0$ and "-" if $x_a - x_b < 0$

 iv) calculate the sum of rank and compare with the coresponding wilcoxon statistic, w

FINDING

Refer to Table 1, the first financial performance measure is the total revenue growth, the green developers enjoyed 2.6% to 29.5% growth in total revenue from 2007 to 2012. This gave a Compile Annual Growth Rate (CAGR) of 10.5%. Overall, the industry suffered a -1.1% growth in total revenue in 2008 due to the global financial crisis and achieved 21.3% growth in 2011. The CAGR of the industry for total revenue growth is 7.5%.

Total assets growth for green developers range from 5.5% to 41.1% throughout the study period. That accumulates a CAGR at 13.8% for total assets growth. The industry, for the same period, recorded total assets growth range from 3.2% to 23.1%, which contribute 8.8% of CAGR. The table shows the growth of net assets for green developers are higher than the industry at all-time throughout the study period.

The total liabilities is another important financial measurement which should be looked into together with total assets. The growth of total liabilities for green developers is CAGR at 17.2% throughout the years. It ranges from 4.8% to as high as 61.8%. The industry has 2.4% to 35.1% growth in total liabilities and concludes a lower CAGR at 9.2%.

Deduct total liabilities from total assets will give the net assets value. Green developers, despite having high total liabilities growth, have cumulated a 10.7% net assets growth for the study period; it is 2.3% higher than the industry net assets growth at 8.4% CAGR.

Market capitalisation is the product of share prices and the number of shares outstanding. It is the market value of a company. In spite of a few years of negative growth, the green developers recorded a 19% CAGR in market capitalisation. In the same period, industry recorded 13.6% of growth in market capitalisation.

The growth in different financial items have shown that although the green developers loan at a faster rate than the industry, the assets, net assets, market value and revenue also grow at a faster pace than the industry.

Table 1: Total revenue growth, total assets growth, total liabilities growth, total net assets growth, market capitalisation growth for green developers and the industry

Total Revenue Growth	2007	2008	2009	2010	2011	2012	CAGR
Green Developers	12.6%	5.8%	2.6%	21.7%	29.5%	14.7%	10.5%
Industry	13.0%	-1.1%	5.7%	10.5%	21.3%	11.1%	7.5%
Difference	-0.5%	6.9%	-3.1%	11.1%	8.2%	3.6%	3.0%

Total Assets Growth	2007	2008	2009	2010	2011	2012	CAGR
Green Developers	9.4%	5.5%	9.0%	11.6%	19.1%	41.1%	13.8%
Industry	8.6%	3.2%	7.7%	6.9%	11.5%	23.1%	8.8%
Difference	0.8%	2.3%	1.3%	4.7%	7.6%	18.0%	5.0%

Total Liability Growth	2007	2008	2009	2010	2011	2012	CAGR
Green Developers	8.7%	4.8%	9.9%	21.1%	20.1%	61.8%	17.2%
Industry	6.4%	2.4%	5.3%	6.7%	10.5%	35.1%	9.2%
Difference	2.4%	2.4%	4.7%	14.5%	9.6%	26.7%	8.0%

Net Assets Growth	2007	2008	2009	2010	2011	2012	CAGR
Green Developers	9.9%	6.0%	8.4%	4.3%	18.3%	22.6%	10.7%
Industry	10.5%	3.8%	9.7%	7.1%	12.3%	13.9%	8.4%
Difference	-0.6%	2.2%	-1.3%	-2.8%	6.0%	8.7%	2.3%

Market Capitalisation Growth	2007	2008	2009	2010	2011	2012	CAGR
Green Developers	-4.3%	-3.8%	23.5%	37.2%	40.4%	-1.5%	19.0%
Industry	3.3%	-25.6%	30.3%	26.6%	21.0%	2.7%	13.6%
Difference	-7.6%	21.8%	-6.7%	10.6%	19.4%	-4.2%	5.4%

Net profit margin of a company is one of the most important financial performances to the investors. It is found that green developers performs better than industry before the global financial crisis but the industry record a better net profit margin after that.

A sale to assets ratio is an efficiency ratio that measures the efficiency a company utilises their assets to generate income. The green developers shows superior performance compared to the industry at all times in the study period. This means green developers are more efficient in generating sales with their assets.

On the other hand, the green developers have a higher debt ratio than industry at all-time throughout the study period. This tally with the observation in total liabilities of green developers having a higher CAGR than the industry, which may put green developers in higher financial risk. The debt ratio for green developers range from 0.4164 to 0.5624, while the debt ratio for industry is 0.4013 to 0.4823.

Z-score is a measure for distress analysis. The higher the score means the lower chances of bankruptcy. There are two times the z-score of green developers are lower than the industry,

which was in 2006 and 2012. The z-score of green developers drops below 2 in year 2012 mainly due to the debt that they are having.

Table 2 shows information that green developers are more efficient although having more debt.

Table 2: Net profit margin, sales to assets ratio, debt ratio, z-score for green developers and industry

Net Profit Margin	2006	2007	2008	2009	2010	2011	2012
Green Developers	0.1680	0.1485	0.1304	0.1121	0.0158	0.0933	0.1823
Industry	0.1228	0.1258	0.1052	0.1315	0.0923	0.1128	0.1961
Difference	0.0452	0.0226	0.0252	-0.0194	-0.0765	-0.0195	-0.0139

Sales to Assets Ratio	2006	2007	2008	2009	2010	2011	2012
Green Developers	0.3972	0.4867	0.4062	0.3594	0.4058	0.4425	0.3527
Industry	0.3821	0.4279	0.3564	0.3342	0.3513	0.3683	0.3253
Difference	0.0151	0.0588	0.0498	0.0252	0.0545	0.0742	0.0274

Debt Ratio	2006	2007	2008	2009	2010	2011	2012
Green Developers	0.4233	0.4164	0.4267	0.4429	0.4808	0.4680	0.5624
Industry	0.4013	0.4158	0.4158	0.4088	0.4168	0.4393	0.4823
Difference	0.0220	0.0006	0.0109	0.0340	0.0640	0.0287	0.0802

Z-score	2006	2007	2008	2009	2010	2011	2012
Green Developers	2.1674	2.3173	2.0635	2.1124	2.1663	2.4388	1.5422
Industry	2.4220	2.0776	1.7094	1.8890	2.1103	2.0571	1.6615
Difference	-0.2545	0.2397	0.3541	0.2234	0.0560	0.3817	-0.1193

Wilcoxon Signed-Rank test is a non-parametric statistical test. It assigns ordinal rank to sample point to eliminate outlier effect. The test engaged to measures if the financial performance measures performance differently between green developers and industry as a whole.

H_0: Green developers do not demonstrate higher performance (in particular financial performance measures)

H_1: Green developers demonstrate higher performance (in particular financial performance measures)

The results are tabulated in Table 3.

Table 3: Wilcoxon signed-rank test results

	Green Developers Sum of rank	Industry Sum of rank	Wilcoxon test w-statistic	Results
Total Revenue Growth	18	3	3	Do not reject H_0
Total Assets Growth	21	0	0	Reject H_0
Total Liabilities Growth	21	0	0	Reject H_0
Net Assets Growth	14	7	7	Do not reject H_0
Market Capitalisation Growth	15	6	6	Do not reject H_0
Net Profit Margin	15	13	13	Do not reject H_0
Sales to Assets Ratio	28	0	0	Reject H_0
Debt Ratio	28	0	0	Reject H_0
Z-score	21	7	7	Do not reject H_0

The results show that green developers demonstrate a higher performance in 4 out of 9 financial performance measures, namely: total assets growth, total liabilities growth, sales to assets ratio, and debt ratio.

The results also indicate statistically that the green developers do not show superior performance in total revenue growth, nets assets growth, market capitalisation growth, net profit margin and z-score.

CONCLUSION

Table 1 which focussed on the direct financial performance shows that the CAGR of green developers for all items including total revenue growth, total assets growth, total liabilities growth, net assets growth and market capitalisation growth always higher than the industry. It means green developers grow at a faster rate than the industry.

Anyway, the Wilcoxon signed-rank test assigned statistical definition to the financial performance measures. The results verified that green developers outperform in total assets growth and total liabilities growth.

The financial ratios and distress analysis in Table 2 reveals that regardless of higher debt ratio, the green developers are still having a higher efficiency in the business. The Wilcoxon signed-rank test confirmed that the green developers have a higher efficiency and a higher debt ratio.

This study's findings have some important implications for policy makers, accounting researchers and corporate strategists. Our findings suggest that green developers is growing at a fast pace, and may have a higher demand in the business model.

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