PERFORMANCE OF PROPERTY LISTED COMPANIES IN MALAYSIA: 1996 - 2007

Nur Adiana Hiau Abdullah*
Wan Marazah Binti Wan Zahari

Abstract

This study examines the performance of listed property companies in Malaysia within three sub-periods: pre-crisis, during crisis and post-crisis. The period of study is from 1996 to 2007. By using Sharpe Index, Adjusted Sharpe Index, Treynor Index, Jensen Index and Adjusted Jensen Index, the result shows that the performance of listed property companies over-performed the aggregate market (Kuala Lumpur Composite Index—KLCI) and the Kuala Lumpur Property Index (KLPI). Further examination on the performance of the property companies in the three sub-periods shows there was a significant difference in the performance of the property listed companies as compared to the KLCI and KLPI before, during and after the 1997 financial crisis. An obvious observation in the result is that most of the companies listed under property sector as well as the aggregate market as a whole and the property index were showing an average negative return. This would mean that investors and fund managers would need to take extra caution to include property stocks in their portfolio. As for the regulators, more efforts needed to be done to boost this sector.

JEL Classification: G11

* College of Business, Universiti Utara Malaysia, 06010 UUM Sintok, Kedah. Email: diana897@uum.edu.my; Fax: 04-9285645; Tel: 04-9285640

I. INTRODUCTION

Prior to early 1997, a rapid growth in bank loans resulting in increasing loan exposure to non-tradable sectors such as property development and construction, consumption credit and purchases of stocks (Ariff et al., 1998). Property prices increased by 12% to 26% in the period 1991 and 1992; and between 13% to 18% in the period 1995 and 1996. The urban centres like the Klang Valley and Johor Bahru experienced double-digit property price inflation of between 10% to 17% yearly in the period 1994 to 1996 (Bank Negara Malaysia, Monthly Statistical Bulletin). However, in April 1997, in order to control the sharp rise in asset prices, Bank Negara Malaysia imposed a limit of 20% of total outstanding loans extended to the property sector with an exclusion of houses below RM150,000 (Bank Negara Malaysia Annual Report, 1998, page 21). Then, starting from the final quarter of 2000, the Malaysian economy had gradually improved (Riggs, 2000). The property industry leaders reviewed their long-term and short-term positions in the property market. As reported in Emerging Trends in Real Estate 2007, today most of the investors believe that the property industry in Malaysia offers better risk-adjusted returns as compared to other industries.

Property is more heterogeneous in nature compared to other asset classes; there are substantial differences in the risk and return characteristics even among the same property types. As the property market moves from a comfortable equilibrium to a riskier future outlook for supply and demand balances, investors need to embark upon a careful review of the performance characteristics of each property held in its portfolio.

Based on previous research, there were many studies that had been conducted in Singapore, Hong Kong, US, and UK property industry (Han and Liang, 1995; Hiang, June 1997; Liow, 1997; Hiang and Kiat, 1999; Ooi and Liow, 2004). This study intends to complement the

existing literature on this issue in Malaysia. There were not many empirical researches done on the Malaysian property industry especially on the risk-return performance. The reason might be the lack of data availability which is related to the property industry. For example, Malaysia House Property Index (MPHI) compiled by the National Property Information Centre (NAPIC) only started in February 1997 which only published the residential real estate indexes. The lack of information hampered the research efforts to understand the property market better.

In Malaysia, published evidence on the property stocks investment performance is very limited. For example, Lau and Damon (1990) discussed on the characteristics and performance of the Malaysian property stocks. However, they did not evaluate on the risk and return relationships. Most of the studies were done in the neighbouring country, Singapore. Chang and Sng (1991) analysed the returns on property stocks and real estate; and Liow (1997) studied on the historical performance of Singapore property stocks. However, no further examinations on the risk-adjusted performance of property stocks and their stability over time were attempted. This study, therefore, attempts to expand the existing literature by looking at the performance of the property stock market over ten years period.

Specifically, the objective of this study is to look into the risk-return performances of the Malaysian property stocks in comparison to the market. Relationship of both the property stocks and market performances will be compared in order to see whether the property stocks under or over-perform the market. The performance of the property stocks would then be compared between different economic periods that are pre, during and post 1997 financial crisis.

This study will hopefully provide a better understanding of the Malaysian property stock market and form a basis for further research in this field. For investors, the finding of this study would hopefully assist them in investment decision making, which indirectly associated with maximizing their shareholders' wealth. In addition, it could be used by fund management companies to decide whether to include the listed property stocks as part of their portfolio. Before a decision could be made, a company needs to understand the risk-return relationship associated with an investment.

The remainder of this paper is divided into five sections. Section two introduced the property industry in Malaysia and reviewed on the relevant literature which is followed by an explanation on the sample and method used in this study in section three. An analysis of results is presented in Section four. Section five discussed on the implication arises from this study.

II. THE PROPERTY MARKET AND ITS RISK-RETURN PERFORMANCES

This section will be divided into two sub-sections where an introduction of the property market will be explained in detail. The second sub-sections would cover the underlying theory and empirical evidences of the risk-return performances of the property market.

Malaysia Property Market

The Malaysian property market is relatively undervalued as compared to other countries. This trend has been compared by the presence of too many unused property investment opportunities in Malaysia (Business Times, October 16, 2007). However, this trend sets to change with the government increase commitment towards marketing Malaysia as a profitable property investment destination. The government had expressed commitment to

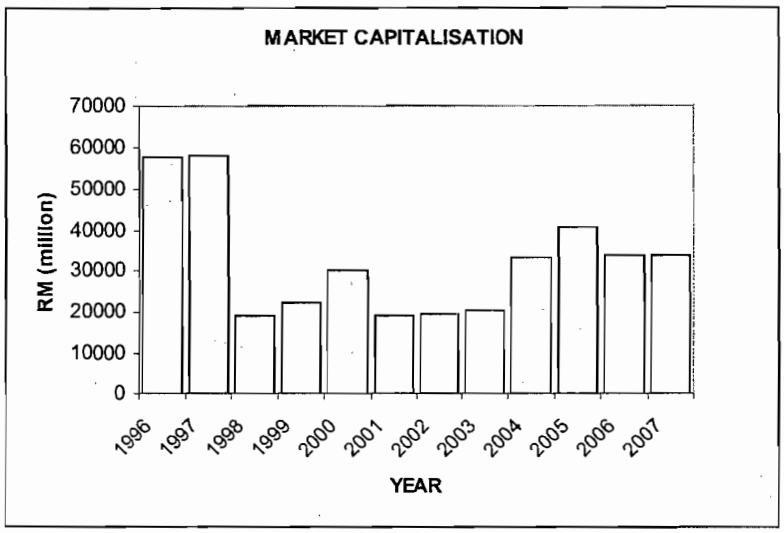
restore the real estate property market by eliminating the capital gain tax from all property deals from April 2007. Previously, non-resident individual were charged Real Property Gain Tax (RPGT) at a flat rate of 30% on the disposal of real property within the first five years and 5% thereafter (Lee, October 16, 2007). In addition, the easing up of foreign ownership in December 2006 was expected to further increase property investment activities in the high-end real estate market. Foreigners no longer need to ask permission from the government when buying properties worth MYR250,000 (approximately USD74,000). Further the limits on the number of properties that foreign investors could buy have been removed. Limitations on the use of property have also been scrapped. Previously, foreigner could only buy at most two units and they could not use them for investment purposes. An additional program by the government, "Malaysia: My Second Home", had also open an avenue for foreigners who fulfil certain criteria to stay in Malaysia as long as they like on a social visit pass with a multiple entry visa. All these incentives would probably boost up not only the real estate market but its impact would most likely spill to the indirect property stock market.

Since the property market recovery in 1988 to 1989, the number of listed property companies have increased to 100 companies on the property sector of the Bursa Malaysia for 1996 and 1997 with a market capitalization of RM57.8 million and RM58.16 million, respectively. By the year 2002, there were 77 property companies listed on the Bursa Malaysia with RM19.74 million market capitalisation. This was a sharp reduction as compared to the market capitalisation reported in 1996 and 1997. As of October 2007, there were 94 property companies listed on the Bursa Malaysia. Most of these companies are involved in housing development projects. Table 1 and Figure 1 show the changes of market capitalisation of the property sector of Bursa Malaysia over the period 1996 to 2007.

Table 1
Market Capitalisation of Property Sector
1996 to 2007

YEAR	MARKET CAPITALISATION (RM million)
1996	57800
1997	58164
1998	19095
1999	22594
2000	30196
2001	19209
2002	19745
2003	20491
2004	33604
2005	40836
2006	33656
2007	33656

Figure 1
Market Capitalisation of Property Sector
1996 to 2007



Source: DataStream (extracted as of 2nd January of each year)

Normally, property sector plays an important role in contributing to the growth and wealth creation of economic activities of a country. Even though the economy weakens, the property market usually continues to stay buoyant and provide a cushion against any hard lending (Business Times, various issues). According to Ng Seing Liong (January 2008), the president of the Real Estate and Housing Developers Association in Malaysia, economies driven by

robust property markets include the US, Britain, Japan, Hong Kong, China, Singapore, Australia, Malaysia, Vietnam and Thailand. Property is a productive economic sector with a significant contribution to a country's gross domestic product (GDP). He further added that more than 140 industries and 2.5 million peoples were related to the construction and property sector either directly or indirectly. It was estimated that 30% of job growth had been contributed by property development.

Underlying Theory of Risk and Return Relationship

Markowitz (1952, 1959) emphasised that performance measurements must take into account not only the return but also the risk of an investment. He showed that variance of the rate of return could measure portfolio risk under five assumptions (Brown and Reilly, 2006, page 202): "(1) Investors considered each investment alternative as being represented by a probability distribution of expected returns over some holding period; (2) Investors maximize one-period expected utility, and their utility curves demonstrate diminishing marginal utility of wealth; (3) Investors estimate the risk of the portfolio on the basis of the variability of expected returns; (4) investors base decisions solely on expected return and risk, so their utility curves are a function of expected return and the expected variance (or standard deviation) of returns only; and (5) For a given risk level, investors prefer higher returns to lower returns. Similarly, for a given level of expected return, investors prefer less risk to more risk."

The relation of risk and return is a central concern of strategic management and has been extensively studied by McNamara and Bromiley (1999). They found that risks and returns were negatively related.

Ever since the work of Markowitz, a few performance measurements of investment portfolios were introduced. They were pioneered by Treynor (1965), Sharpe (1966) and Jensen (1968).

The statistical techniques developed by them were the most commonly used portfolio performance measures until today. Treynor (1965) suggested a method of evaluating the performance of a portfolio by adjusting the mean excess return (i.e. mean return less the risk-free interest rate in the economy) for the degree of market (systematic) risk and thus calculating the performance of the portfolio. Systematic risk could be estimated by regressing the stock's returns on the returns to a market benchmark index. Sharpe (1966) computed mean excess return and adjusted for the degree of total risk (standard deviation) involved in the portfolio; whereas Jensen (1968, 1969) devised a method of determining the deviation of portfolio returns from market returns (denoted by Alpha), thereby determining whether excess returns could be attributed to superior management or purely to chance. Sharpe (1964) stated a specific assumptions underlying capital market theory, where, investors made decisions based solely upon risk and return assessments. These judgements take the form of expected value and standard deviation measure. In other word, investors would be targeting points on the efficient frontier.

Empirical Evidence of Risk and Return Performances in the Property Sector

There were quite a number of studies that had examined the return performance of REITs and listed real estate companies relative to the stock market. These could be seen in the work of Titman and Warga, 1986; Geobel and Kim, 1989; Gyourko and Keim, 1990; Hang and Liang, 1995; Glascock and Davidson, 1995; Kapplin and Schwartz, 1995; Newell, Hwa, and Acheampong, 2002.

Kapplin and Schwartz (1995) examined the returns of 54 US real estate securities over a three years period. They found that the real estate securities failed to provide an effective inflation hedge and REIT did not provide an excess return beyond the market. This study was expanded by Glascock and Davidson (1995) that analysed the return of 31 listed real estate

companies during the period 1977 to 1986. They found a similar finding where listed property companies did not appear to provide a unique inflation hedging return. Based on a yearly return, their sample underperformed the market on a risk-adjusted basis.

Nevertheless, there were a few studies that looked into risk-adjusted performance of the property companies in Singapore. For example, Chan and Sng's (1991) examined the return on property stocks and direct properties from 1976 to 1988. They found that direct properties displayed a high return with a low risk. In 1997a, Liow investigated on the risk-adjusted performances of Singapore stock market, property stocks, all-properties, residential, commercial and industrial properties from 1975 to 1995. They have employed two risk-adjusted performance measures which were Sharpe's Index, and traditional Jensen's Index. Evidence showed that the risk-adjusted performance of direct properties were significantly different from those of individual property stocks. Furthermore, this study also provided a support to the proposition that the long-term performance of property stocks was closely linked to the direct property market. However, a different result was found by Wang and Liow (1999). They did a study from July 1997 to June 1999 on the time varying performance of Singapore property stocks by using Jensen Index as a more realistic risk-adjusted performance measure. They found that the property stocks underperformed the market over the study period. In addition, Wang and Liow (1999) showed the importance of market timing in an investment decision making on property stocks.

The question likely to agitate the minds of potential investors when faced with the decision on the choice of investment is whether listed property companies can achieve higher risk-adjusted returns than the market. This question has been the subject of considerable research in the developed and emerging markets.

An earlier study by Chan, Hendershott and Sanders (1990) and subsequently by Peterson and Hsieh (1997), found that abnormal returns could be earned by using a simple capital asset pricing model (CAPM) framework. Nevertheless, the returns did not exist when a multifactor pricing model was employed. As for Liu, Grissom and Hartzell (1995), they suggested that real estate superior performance was observed due to an omission of certain fundamental factors in the estimates of risk. Studies by Hamelink and Hoesli (2000), Ling and Naranjo (2002), and Bond, Karolyi and Sanders (2003), concentrated on the performance of real estate securities from an international perspective. A consistent observation found in these studies was that there were abnormal returns to be earned in the international real estate market. However, a substantial variation in the real estate returns existed across the different markets and over the different periods. There was also a wide variation in the performance of individual companies within a country. Griffin (2002), Ling and Naranjo (2002), and Sanders (2003) suggested that a worldwide systematic risk factor has been included to the traditional CAPM to explain the international real estate returns. Their result was supported in a study by Ooi and Liow (2004) on the performance of real estate stocks listed in seven developing markets in East Asia such as Hong Kong, Indonesia, Malaysia, Singapore, South Korea, Taiwan, and Thailand. By using Sharpe's Index with the purpose to identify the determinants of risk-adjusted returns of real estate securities traded in East Asia, they found that there were no significant abnormal returns associated with real estate securities traded in these countries between 1992 to 2002.

However, a contradictory result was found in a few studies that had examined the investment performance of listed property companies, which appeared to be the dominant form of real estate investment in Asian countries. For example, Liow (1997) did a study looking into the

Singapore property share returns in 1975 to 1995, he concluded that the property shares performed better than the equity market, but performed poorly on a risk-adjusted basis. Nevertheless, in Liow (2000) latest study he found that direct properties in Singapore outperformed property stock and the stock market on a risk-adjusted basis.

In Malaysia, Neoh (1990) examined the performance of five property stocks in the year 1981 to 1990. His result showed that the average return on shareholder equity of these companies was only 6.9% per annum. The author attributed that the poor performance was due to declining profit margin caused by maturing housing industry and a more competitive business environment coupled with low asset turnover ratios of the large land banks owned by the property companies. In contrast to Neoh (1990), Hwa (2002) found that the selected property development and investment companies' shares performed better than the market on a risk-adjusted basis, although the overall property shares did not perform better than the market by using a sample from 1991 to 2000.

There were not many studies done directly related to the property companies performance using the risk-adjusted performance measurement such as Sharpe Index, Treynor Index, and Jensen Index. These measurements were mostly used in analysing the performance of real estate investment trust (REIT). The studies on the performance of the REITs industry over the period late 1970s and early 1980s generally suggested that performance of the REITs industry was similar or superior to that of the market. For example, Kuhle and Walther (1986) found that REITs outperformed the S&P index in 1977 and 1984. Their finding was supported by Sagalyn (1990). She found that an equally weighted portfolio of five survivor equity REITs consistently outperformed the S&P index from the third quarter of 1973 through the fourth quarter of 1987. In contrast to this study, Titman and Warga (1986) found

that the performance of REITs stocks was not significantly different from that of the market portfolio over the period 1973 to 1982. They have used the capital asset pricing model (CAPM) and the arbitrage pricing theory model (APT) on sixteen equity REITs and twenty mortgage REITs. Their result showed that for the entire period of studies, both were producing abnormal returns not statistically different from zero. In other words, the market risk-adjusted return of REITs stocks were the same as the returns on the market index.

A similar study was implemented by Han and Liang (1995) on the performance of Singapore real estate investment trust (REIT) with two objectives; (1) to evaluate the long-term performance of REITs from 1970 to 1993; and (2) to examine the stability of REITs performance over time. They found that the performance of REITs portfolio was consistent with the security market line for the period 1970 to 1993. However, the performance varied over the period. In addition, their result also showed that the use of the unrepresentative S&P index as a performance benchmark tend to overstate REITs performance.

Most of the previous studies came to a conclusion that REITs offered superior or abnormal returns especially from late 1970s to mid 1980s. Furthermore, all of the findings showed that the real estate or property market was a good investment instrument for investors to include in their portfolio as a long-term investment.

III. RESEARCH METHOD

This study focused on secondary data where adjusted closing price of 94 property companies listed on the Main Board and Second Board of the Bursa Malaysia and the Kuala Lumpur Composite Index (KLCI) were taken from Datastream; whereas 3-month Treasury bills were taken from Bloomberg database at Bursa Malaysia library. The KLCI and 3-month Treasury

bills were used as a proxy for the market return and risk free rate. The study period was 12 years from 1996 to 2007. This period was divided into three sub-periods in order to check whether there were differences in the performance of property stocks before, during and after the 1997 financial crisis. The sub-periods were (1) pre-crisis period from December 13, 1996 to July 11, 1997; (2) during crisis from July 11, 1997 to January 08, 1999; and (3) post-crisis from January 08, 1999 to December 28, 2007[†]. The number of observations was 75 for pre-crisis period, 78 for during crisis and 94 for post-crisis.

Five risk-adjusted return performance measures were employed: Sharpe Index (Equation 1), Adjusted Sharpe Index (Equation 2), Treynor Index (Equation 3), Jensen Index (Equation 4) and Adjusted Jensen Index (Equation 5). The Sharpe Index (1966) indicates the risk premium return earned per unit of total risk. It evaluates portfolio based on rate of returns and diversification. Miller and Gehr (1978) found that the Sharpe Index produced biased outcome and they had identified the exact unbiased percentage was 0.75 with a sample size of twelve (12) years. According to them, various sample size (n) provided different biases. Due to the biasness in the estimation of standard deviation, the Sharpe Index had been modified by Jobson and Korkie (1981) as shown in equation 2 (Adjusted Sharpe Index—ASI):

The third measure is Treynor Index which looks at the risk premium related to the amount of systematic risk assumed in a portfolio. The Treynor Index and Sharpe Index models provide measures for ranking the relative performance of various portfolios, on a risk-adjusted basis. Jensen (1968) attempts to construct a measure of absolute performance on a risk-adjusted basis that is a definite standard against which performances of various assets can be measured. A positive Jensen's alpha implies that the performance is superior to the market

[†] The sub-periods were based on the research done by Liow and Wang (1999). If we were to analyse on the crisis period, the KLCI fell by 68.58% between July 1, 1997 to September 8, 1998.

proxy used in the regression. Jensen (1968) developed an ex-post alpha (α_i) measure to determine the size of abnormal returns achieved in a portfolio. A superior portfolio manager would have a significant positive α_i value .Inferior managers, on the other hand, would have a significant negative α_i. The residual terms would randomly be positive and negative, and this would give an intercept value which is insignificantly different from zero, indicating that the portfolio manager basically matched the market on a risk-adjusted basis.

$$SI = \frac{R_i - R_f}{\sigma_i} \tag{1}$$

$$ASI = [\frac{n}{(n+0.75)}][\frac{(R_i - R_f)}{\sigma_i}] \tag{2}$$

$$TI = \frac{R_i - R_f}{\beta_i} \tag{3}$$

$$\alpha_i = R_{it} - [R_{ft} + \beta_i (R_{mt} - R_{ft})] \tag{4}$$

where

R_{it} = Nominal return for stock i at time t = $R_{i,t} = \frac{P_{i,t} - P_{i,t-1}}{P_{i,t-1}}$

R_f = Risk-free rate

σ_i = Standard deviation of returns for stock i

n = Number of return intervals in the evaluation

β_i = Beta of stock i

α_i = Jensen's alpha

R_{mt} = Return on market portfolio at time t

ε = Standard error

Jensen performance criterion, like the Treynor measure, does not evaluate the ability of portfolio managers to diversify, since the risk premiums are calculated in terms of ß. Therefore, α_i represents how much of the rate or return on the portfolio is attributable to the manager's ability to derive above-average returns adjusted for risk. Specifically, the abnormal return per unit of systematic risk is as follows:

$$AJI = \frac{\alpha_i}{\beta_i} \tag{5}$$

where ai and ßi were obtained from the following regression

$$R_{it} - R_{ft} = \alpha_i + [\beta_i (R_{mt} - R_{ft})] + \varepsilon$$

In interpreting the result, a stock outperforms the market if: $ASI_i > ASI_m$, $TI_i > R_m - R_f$, and $\alpha_i / \beta_i > 0$.

Finally, non-parametric Wilcoxon Signed Ranks Test was employed to evaluate whether there were significant differences in property stocks risk-adjusted returns over three sub-periods which were before, during, and after the 1997 financial crisis. The hypotheses of this study could then be stated as follows:

H_1: There is a difference on the performance of property stocks during and before crisis.

H_2: There is a difference on the performance of property stocks during and after crisis.

H_3: There is a difference on the performance of property stocks before and after crisis.

IV. ANALYSIS OF RESULTS

Table 2 presents average returns of the property stocks, Kuala Lumpur Property Index (KLPI), Kuala Lumpur Composite Index (KLCI), and the number of stocks that out-performed the KLCI or market and KLPI for each year from 1996 to 2007 based on weekly data. The average return of property stocks during the financial crisis in 1997 was lower as compared to the time before and after the financial crisis. In comparison to the average returns of the KLCI and the property index, the number of property stocks that out-performed the market and property index in 1997 was 10 stocks and 30 stocks, respectively. Two years after the financial crisis, in 1998 and 1999, the average returns of property stocks started to recover and had positive returns of 1.6380% and 0.9153% as compared to the market

(0.6779% and 0.685%) and property index (0.2582% and 0.7016%). An improvement of the returns was observed as the economy slowly recovered from the crisis.

Table 2
Comparison of Property Company Weekly Return with Market Return

YEAR	AVG RETURN OF PROPERTY STOCKS	AVG RETURN OF PROPERTY INDEX	AVG RETURN OF KLCI	OUTPERFORM MARKET	OUTPERFORM PROPERTY INDEX
1996	0.01282221	0.00041845	0.00861537	18	38
1997	-0.02454929	-0.02209102	-0.01351703	10	30
1998	0.01638031	0.00677899	0.00258244	73	64
1999	0.00915308	0.00684968	0.00701631	50	51
2000	-0.00681418	-0.00284458	-0.00850196	19	40
2001	0.00336815	-0.00045212	0.00064974	41	55
2002	-0.003233803	-0.00177021	-0.00103117	39	43
2003	0.00794657	0.00631403	0.00367196	65	45
2004	-0.00040958	-0.00024110	0.00301107	20	47
2005	-0.00646473	-0.00589686	-0.00009468	13	49
2006	0.00634558	0.00553355	0.00386333	55	41
2007	0.01176720	0.00846958	0.00570188	70	49

The average return of property stocks continues to stabilize against the market and property index up until 2007 except for certain years. The number of property stocks that out-performed the market reduced, especially in 2000, 2002, 2004, and 2005 with 19 stocks, 39 stocks, 20 stocks, and 13 stocks, respectively. The two years where many property stocks outperformed the market were 1998 and 2007 with a respective 73 stocks and 70 stocks. After the 1997 financial crisis period, more than 50% of property stocks out-performed the property index for each year from 1998 to 2007. Overall, the average return performance of property stocks performed well against the property index as compared to the Kuala Lumpur Composite Index (KLCI) or the market as a whole.

Table 3 presents the z-score of the Wilcoxon Signed Ranks Test. The results show that the performance of property stocks against the KLCI was significant at $\alpha = 0.05$ *level*. This indicates that there is a significant difference in the performance of the property stocks and

the aggregate market during the period of study. However, a similar observation could not be seen between the property stocks and the Kuala Lumpur Property Index in 1996 to 2007.

Table 3
Z-Score Results for the Wilcoxon Signed Ranks Test

	Z-Score	**Asymptotic Value**
Property Stocks Vs KLCI	-2.024	0.043**
Property Stocks Vs Property Index	-0.731	0.465

** *Significant at* $\alpha = 0.05$.

Table 4 shows the risk and return performance of property stocks before the crisis period, from December 13, 1996 to July 11, 1997. Based on the average return of each stocks there were 43 stocks that out-performed the Kuala Lumpur Composite Index (KLCI) and 44 stocks that out-performed the Kuala Lumpur Property Index. This shows that more than 50% of property stocks during the pre-crisis period out-performed the aggregate market and property index. Based on the risk criterion or standard deviation, only 2 stocks have a higher standard deviation than the market and the property index respectively. The rest of the listed property companies' total risk is lower than the market and property index risk. However, the coefficient of variation (CV) for each property stock shows that 20 stocks and 25 stocks have less relative variability or lower risk per unit of expected return than the respective market and property index. There were more than 50% listed property companies that have higher risk per unit of return. Furthermore, there were 2 companies that had a very high CV of 444.24 (South Malaysia Industries) and -240.08 (Sateras Resources (M)). For South Malaysia Industries, a coefficient of variation of 448.56 would mean that to get one (1) unit of return, there would be 444.24 units of risk. A similar explanation would be given to Sateras. The last column, Beta, indicates how the prices of property stocks responded to market forces. There were 40 and 34 stocks that have a lower systematic risk than the market and the property

index respectively. Overall, the risk and return performance of the property listed companies during the pre-crisis periods was good where more than 50% of the sample outperformed the KLCI and property index which showed a respective -0.485% and -0.518% average return. The Beta for the sample companies during the pre-crisis period was lower than the KLCI and the property index. However, in terms of total risk there were only 2 companies that were having lower variability than the market and the property index.

Table 4
Average Weekly Returns of Property Stocks Before Crisis

	13/12/1996 TO 11/7/1997 (pre-crisis)			
COMPANY	AVERAGE RETURN	STD.DEVIATION	COEFF OF VARIATION	BETA
A & M REALTY	-0.00134	0.05199	-38.81413	1.00246
AMDB	-0.00307	0.04352	-14.1845	0.56686
ASIA PACIFIC LAND	0.00238	0.06498	27.25685	0.78374
ASAS DUNIA	-0.00312	0.04859	-15.57401	0.91364
ASIAN PACIFIC HOLDINGS	0.00276	0.06394	23.17976	1.32263
BCB	0.01408	0.06028	4.28233	1.19962
BINA DARULAMAN	-0.00613	0.04392	-7.1644	1.03836
BOLTON	-0.01027	0.04197	-4.08748	0.73911
BANDAR RAYA DEVS.	-0.01339	0.06897	-5.14965	1.89828
BOUSTEAD PROPERTIES BHD.	-0.00545	0.03424	-6.28495	0.73133
COUNTRY HEIGHTS HDG.	0.01711	0.09629	5.62851	1.32535
CRESCENDO	-0.02653	0.03184	-1.20028	0.57192
DAIMAN DEVELOPMENT	-0.00716	0.03338	-4.66253	0.70923
DAMANSARA REALTY	-0.0033	0.04242	-12.84918	0.60256
DIJAYA	-0.00365	0.03188	-8.73197	0.73942
E & O PROPERTY DEV.	0.00104	0.04648	44.8759	0.79514
EKRAN	-0.01785	0.04845	-2.71356	1.12421
ENCORP BERHAD	0.01223	0.11621	9.50436	1.96072
FURQAN BUSINESS ORG.	-0.00617	0.045	-7.29961	0.91156
FARLIM GROUP (M)	0.00693	0.05702	8.23068	0.68107
FIMA	-0.01447	0.04539	-3.13639	1.02922
FOCAL AIMS HOLDINGS	-0.00348	0.08968	-25.76226	2.07793
GOLD BRIDGE ENGR.& CON.	-0.0014	0.04656	-33.16016	1.08727
GOLDEN PLUS HOLDINGS	-0.00141	0.05179	-36.64562	0.91209
GUOCOLAND (MALAYSIA)	-0.00525	0.05979	-11.38543	1.19638
IGB	-0.0028	0.03893	-13.88391	0.59326
IOI PROPERTIES	-0.02082	0.05109	-2.45381	1.3974
JOHOR LAND	-0.00214	0.05667	-26.43453	0.50847
KRISASSETS HOLDINGS	-0.01347	0.06693	-4.9681	1.63758
KARAMBUNAI	0.00353	0.04876	13.82465	0.54253
KELADI MAJU	-0.01239	0.03499	-2.82321	-0.13752
KUMP H'TANAH S'GOR	-0.01226	0.04498	-3.66947	1.02296
LAND & GENERAL	-0.02002	0.0488	-2.43784	1.1015

COMPANY	AVERAGE RETURN	STD.DEVIATION	COEFF OF VARIATION	BETA
LBS BINA GROUP	0.01124	0.07436	6.61465	0.77157
LIEN HOE	0.0068	0.06152	9.04826	1.22692
MAH SING GROUP	-0.00818	0.04469	-5.46607	0.96668
MALTON	-0.00779	0.03674	-4.71378	0.58743
MATRIX INTL.	-0.00671	0.03533	-5.26206	1.04217
MENANG (M)	0.00235	0.05161	21.95142	0.94236
METRO KAJANG	0.00599	0.06745	11.25887	0.13601
MAJUPERAK HOLDINGS	-0.00101	0.09087	-89.92014	1.23228
MK LAND HOLDINGS	0.01789	0.12086	6.7555	1.65172
MALAYSIA PACIFIC	-0.01615	0.03373	-2.08833	0.20641
MUI PROPERTIES	0.00243	0.04685	19.24319	1.01471
NEGARA PROPERTIES (M)	0.00103	0.00821	7.9803	0.05831
ORIENTAL INTEREST	-0.00216	0.04068	-18.796	0.58752
OSK PROPERTY HOLDINGS	-0.00078	0.05834	-74.46494	1.18987
PARAMOUNT	-0.00497	0.037	-7.44633	0.48852
PJ DEVELOPMENT HDG.	0.00206	0.05643	27.33274	1.12688
PK RESOURCES	-0.00243	0.04969	-20.41283	0.83527
PERDUREN (M)	-0.01147	0.0889	-7.74818	1.77913
PRIME UTILITIES	-0.01	0.03444	-3.44265	0.39693
PETALING TIN	-0.01134	0.04879	-4.30155	0.83468
RB LAND HOLDINGS	0.0097	0.10812	11.14872	1.31967
SAPURA RESOURCES	-0.00321	0.0416	-12.96359	0.54417
SATERAS RESOURCES (MAL.)	-0.00028	0.0663	-240.0798	1.13234
SELANGOR DREDGING	0.0029	0.06222	21.4915	0.46872
SHL CONSOLIDATED	-0.00597	0.0575	-9.63298	1.33611
SIME UEP PROPERTIES	-0.0056	0.04414	-7.87609	1.22712
SOUTH MALAYSIA INDS.	0.00009	0.04037	444.2416	0.63636
SELANGOR PROPERTIES	-0.0027	0.04074	-15.09791	0.70881
SP SETIA	0.00589	0.05654	9.60491	1.42041
SUNWAY CITY	-0.02149	0.05559	-2.58622	1.24573
SUNRISE	-0.00381	0.06197	-16.24443	0.79383
TAHPS GROUP	0.00094	0.05165	54.94353	0.87023
TALAM	-0.00717	0.04046	-5.64385	0.84553
TANCO HOLDINGS	-0.00751	0.09704	-12.92363	1.28171
TEBRAU TEGUH	-0.00296	0.05239	-17.72772	0.69484
TRIPLC	-0.00641	0.07215	-11.25399	1.54008
UNITED MALAYAN LAND	-0.00121	0.02414	-19.88824	0.26387
WCT LAND	-0.01354	0.09968	-7.36364	2.08002
WORLDWIDE HOLDINGS	-0.0082	0.03483	-4.25017	0.67698
YTL LAND & DEVELOPMENT	0.02037	0.09805	4.81295	0.46437
BERTAM ALLIANCE	0.0203	0.08766	4.31949	0.19505
MULPHA LAND	-0.01788	0.05806	-3.24685	2.12893
KLCI	-0.00485	0.02493	-5.13713	0.96667
KL PROPERTIES INDEX	-0.00518	0.03168	-6.11243	0.95201
OUTPERFORM KLCI	**43**			
OUTPERFORM PROPERTY INDEX	**44**			
Less variability than KLCI		**2**	**20**	

COMPANY	AVERAGE RETURN	STD.DEVIATION	COEFF OF VARIATION	BETA
Less variability than PROPERTY INDEX		2	25	
Lower beta than KLCI				40
Lower beta than PROPERTY INDEX				34

Table 5 shows the risk and return performance of property stocks during the 1997 financial crisis period from July 11, 1997 to January 08, 1999. Based on the return criterion there were 50 stocks outperformed the Kuala Lumpur Composite Index (KLCI) and 67 stocks outperformed the Kuala Lumpur Property Index. More than 50% of property stocks had good returns during the crisis period as compared to the aggregate market or KLCI and property index. It was an improvement in terms of the number of property stocks that outperformed the market and property index as compared to the pre-crisis period. In referring to the risk criterion or standard deviations, there were 2 stocks that have a higher standard deviation than the market and 10 stocks that have a higher standard deviation the property index. The rest of the listed property companies' total risk is lower than the market and property index risk. Nevertheless, the coefficient of variation (CV) shows that there were 9 property companies that have less variability or lower risk per unit of expected return than the respective market and property index. As for Beta, there were 21 stocks and 24 stocks that have a lower systematic risk than the market and the property index. Overall, the risk and return performance of the property listed companies during the crisis period was better where more than 50% of the sample outperformed the KLCI or market and the property index which showed a respective -0.508% and -0.775% average return. Nevertheless, the numbers of property stocks that have lower Beta than the KLCI and property index reduce. Similarly, there were only 2 companies that were having lower variability than the market and 10 companies that were having lower variability than the property index.

Table 5
Average Weekly Returns of Property Stocks During Crisis

	11/7/1997 TO 8/1/1999 (during crisis)			
COMPANY	AVERAGE RETURN	STD.DEVIATION	COEFF OF VARIATION	BETA
A & M REALTY	-0.01202	0.10062	-8.37117	0.67033
AMDB	0.00035	0.15675	450.9552	1.97975
ASIA PACIFIC LAND	0.00093	0.15567	166.64498	1.70111
ASAS DUNIA	-0.0031	0.15624	-50.47273	1.66254
ASIAN PACIFIC HOLDINGS	-0.00321	0.17522	-54.63576	1.85337
BCB	-0.00777	0.05948	-7.65203	0.26292
BINA DARULAMAN	-0.00228	0.12822	-56.18004	0.99197
BOLTON	-0.00038	0.15418	-400.54569	1.44988
BANDAR RAYA DEVS.	0.00027	0.15185	559.94169	1.69541
BOUSTEAD PROPERTIES BHD.	-0.00331	0.07222	-21.82447	0.74035
COUNTRY HEIGHTS HDG.	-0.00583	0.08769	-15.04906	0.82529
CRESCENDO	-0.0064	0.09172	-14.32579	0.89893
DAIMAN DEVELOPMENT	-0.00455	0.08277	-18.17121	0.83602
DAMANSARA REALTY	0.00505	0.19929	39.4967	1.96998
DIJAYA	-0.0075	0.13032	-17.37317	1.0484
E & O PROPERTY DEV.	0.0025	0.16434	65.79648	1.87897
EKRAN	0.00146	0.18968	129.50175	1.57534
ENCORP BERHAD	-0.0064	0.13821	-21.59427	1.44148
EUPE	-0.009	0.0818	-9.08529	0.72158
FURQAN BUSINESS ORG.	-0.00613	0.21428	-34.9322	2.25996
FARLIM GROUP (M)	0.00216	0.1704	78.9119	1.14933
FIMA	-0.00477	0.13897	-29.11169	1.41829
FOCAL AIMS HOLDINGS	-0.00494	0.19605	-39.71116	1.79851
GOLD BRIDGE ENGR.& CON.	-0.00548	0.13114	-23.91931	0.87159
GOLDEN PLUS HOLDINGS	-0.00426	0.15276	-35.87028	1.49657
GUOCOLAND (MALAYSIA)	-0.00444	0.14664	-33.02721	1.50262
IGB	0.00243	0.14093	57.99361	1.39127
IOI PROPERTIES	0.00682	0.09938	14.56546	0.87187
JOHOR LAND	0.00263	0.15563	59.09579	0.74222
KRISASSETS HOLDINGS	-0.00214	0.13022	-60.83806	1.25951
KARAMBUNAI	0.00268	0.16969	63.35926	1.74159
KELADI MAJU	-0.00403	0.12073	-29.99319	0.99986
KUMP H'TANAH S'GOR	-0.0061	0.13328	-21.85375	1.14209
LAND & GENERAL	0.00013	0.1731	1305.83328	1.95173
LBS BINA GROUP	-0.02058	0.14253	-6.9274	1.28607
LIEN HOE	-0.00409	0.15688	-38.39864	1.63312
MAH SING GROUP	-0.00145	0.17197	-118.66982	1.70859
MALTON	-0.00709	0.16922	-23.88198	1.64808
MATRIX INTL.	-0.00221	0.09193	-41.60622	0.86465
MENANG (M)	-0.0014	0.17646	-126.09023	1.70375
METRO KAJANG	-0.00745	0.16117	-21.62137	1.5954
MAJUPERAK HOLDINGS	-0.00689	0.16189	-23.48104	1.48249
MK LAND HOLDINGS	-0.00517	0.14038	-27.17211	1.18871
MALAYSIA PACIFIC	-0.00308	0.14173	-46.0811	1.18847

COMPANY	AVERAGE RETURN	STD.DEVIATION	COEFF OF VARIATION	BETA
MUI PROPERTIES	0.00254	0.13167	51.80922	1.12936
NEGARA PROPERTIES (M)	-0.00963	0.08449	-8.76912	0.21992
ORIENTAL INTEREST	-0.00893	0.07765	-8.69694	0.77569
OSK PROPERTY HOLDINGS	-0.00242	0.12516	-51.67419	1.32399
PARAMOUNT	-0.00508	0.10806	-21.25227	1.06713
PASDEC HOLDINGS	0.00334	0.1296	38.84132	0.68736
PJ DEVELOPMENT HDG.	-0.00016	0.14527	-907.64564	1.50387
PK RESOURCES	-0.0093	0.10735	-11.54766	0.72786
PERDUREN (M)	0.00026	0.21183	816.26723	1.99359
PRIME UTILITIES	0.00016	0.21211	1285.95185	1.77108
PETALING TIN	-0.00169	0.13867	-82.10452	1.54644
RB LAND HOLDINGS	0.00354	0.19363	54.66331	2.10939
SAPURA RESOURCES	-0.00391	0.13125	-33.56149	1.28567
SATERAS RESOURCES (MAL.)	0.0021	0.19731	93.7902	2.01648
SELANGOR DREDGING	-0.00462	0.13227	-28.64999	1.31992
SHL CONSOLIDATED	-0.00622	0.12079	-19.43385	1.16151
SIME UEP PROPERTIES	0.0002	0.09398	478.11018	0.85215
SOUTH MALAYSIA INDS.	-0.00107	0.17458	-163.61214	1.92972
SELANGOR PROPERTIES	-0.00056	0.07215	-129.46402	0.7436
SP SETIA	-0.00502	0.14858	-29.58865	1.4187
SUNWAY CITY	-0.00612	0.13281	-21.71479	1.44898
SUNRISE	-0.00252	0.16237	-64.36768	1.574
TAHPS GROUP	-0.00804	0.12331	-15.33225	1.00419
TALAM	-0.00962	0.06537	-6.79672	0.54148
TANCO HOLDINGS	0.00052	0.19078	363.4975	2.11431
TEBRAU TEGUH	0.00541	0.22448	41.46919	1.93108
TRIPLC	-0.00213	0.18336	-86.15564	1.92382
UNITED MALAYAN LAND	-0.00473	0.08735	-18.45418	0.27593
WCT LAND	-0.00891	0.19921	-22.35776	1.23695
WORLDWIDE HOLDINGS	0.00014	0.14743	1054.1193	1.65603
YTL LAND & DEVELOPMENT	-0.00718	0.18105	-25.20149	1.88046
BERTAM ALLIANCE	-0.00557	0.17692	-31.75081	1.52207
MERCES HOLDINGS	0.01236	0.18166	14.70233	0.34897
MULPHA LAND	-0.00828	0.13298	-16.06361	1.08072
KLCI	-0.00508	0.07085	-13.94492	0.98718
KL PROPERTIES INDEX	-0.00776	0.08854	-11.40425	1.05946
OUTPERFORM MARKET	**50**			
OUTPERFORM PROPERTY INDEX	**67**			
Less variability than KLCI		**2**	**9**	
Less variability than PROPERTY INDEX		**10**	**9**	
Lower beta than KLCI				**20**
Lower beta than PROPERTY INDEX				**24**

Table 6 shows the risk and return performance after the 1997 financial crisis from January 08, 1999 to December 28, 2007. The period of study was over 9 years; this was to see the long-

term risk and return performance over a longer period. Based on the average return, there were 46 and 64 property stocks that outperformed the respective Kuala Lumpur Composite Index and Kuala Lumpur Property Index. This indicated that more than 50% of property stocks that had outperformed the property index. If we were to look at the standard deviation, or total risk, all the property listed companies were having a higher standard deviation or variability than the aggregate market. There were only 2 stocks that have lower variability than the property index. The rest of the listed property companies' total risk was higher than the property index risks. However, the coefficient of variation (CV) for each property stocks shows that 7 stocks and 43 stocks have less relative variability or lower risk per unit of expected return than the respective market and property index. There were more than 50% listed property companies that have higher risk per unit of expected return. The last column, Beta, indicates that there were 41 and 42 stocks that have a lower systematic risk than the market and property index respectively. Overall, there were more than 50% of the property listed companies that had outperformed the KLCI and the property index which showed a respective 0.222% and 0.109% average return.

Table 6
Average Weekly Returns of Property Stocks After Crisis

	8/1/1999 TO 28/12/2007 (after crisis)			
COMPANY	AVERAGE RETURN	STD.DEVIATION	COEFF OF VARIATION	BETA
A & M REALTY	0.00393	0.07018	17.87516	1.27774
AMDB	0.00193	0.0786	40.74578	1.4962
ASIA PACIFIC LAND	0.00229	0.07518	32.80444	1.36806
ASAS DUNIA	0.00179	0.06406	35.77047	1.17381
ASIAN PACIFIC HOLDINGS	0.00318	0.09935	31.27402	1.86125
BCB	-0.00099	0.05535	-55.75005	1.07962
BINA DARULAMAN	0.00069	0.05672	82.30444	0.86946
BINAIK EQUITY	0.00003	0.05388	1968.08019	0.35445
BOLTON	0.00291	0.07108	24.4016	1.5067
BANDAR RAYA DEVS.	0.00464	0.07061	15.2167	1.48244
BOUSTEAD PROPERTIES BHD.	0.00325	0.04453	13.71736	0.62105
COUNTRY HEIGHTS HDG.	-0.00049	0.05886	-120.86412	1.29857
CRESCENDO	0.00076	0.0517	67.65045	0.73333
COUNTRY VIEW	-0.00127	0.05845	-46.0539	0.24604
DAIMAN DEVELOPMENT	0.00165	0.04544	27.51736	0.90052

COMPANY	AVERAGE RETURN	STD.DEVIATION	COEFF OF VARIATION	BETA
DAMANSARA REALTY	0.00414	0.10378	25.09535	1.62001
DIJAYA	0.00404	0.07719	19.12253	1.29879
E & O PROPERTY DEV.	0.0041	0.07777	18.96068	1.67951
EKRAN	0.00238	0.09948	41.83917	1.73742
ENCORP BERHAD	0.00247	0.0917	37.10836	1.5022
EQUINE CAPITAL	0.00566	0.10736	18.97251	1.26061
EUPE	0.00203	0.07272	35.80504	1.29703
FURQAN BUSINESS ORG.	0.00075	0.06948	93.24434	0.82448
FARLIM GROUP (M)	-0.00091	0.06661	-73.4722	1.16826
FIMA	0.00277	0.04568	16.46913	0.68442
FOCAL AIMS HOLDINGS	-0.00066	0.07559	-114.78543	1.35336
FOUNTAIN VIEW DEV.	-0.0052	0.09563	-18.37561	0.18301
GOLD BRIDGE ENGR.& CON.	0.00312	0.10842	34.79679	1.67352
GLOMAC	0.00224	0.05323	23.79745	0.80693
GOLDEN PLUS HOLDINGS	0.00764	0.12108	15.85269	1.7319
GUOCOLAND (MALAYSIA)	0.00481	0.06646	13.81951	1.39076
HUA YANG	0.00022	0.05747	259.21412	0.47302
HUNZA PROPERTIES	0.00174	0.05265	30.24432	0.43942
IBRACO	-0.00316	0.04405	-13.95148	0.27169
IGB	0.0038	0.06062	15.9378	1.35421
IOI PROPERTIES	0.00426	0.03628	8.52566	0.60376
JOHOR LAND	0.0015	0.06416	42.88329	1.12919
KRISASSETS HOLDINGS	0.0026	0.03973	15.2981	0.67281
KARAMBUNAI	0.00396	0.13172	33.25631	1.58964
KELADI MAJU	0.00248	0.05991	24.12317	0.64831
KUMP H'TANAH S'GOR	0.00716	0.13558	18.94477	1.249
KLCC PROPERTY HOLDINGS	0.00465	0.03097	6.66187	0.52365
KSL HOLDINGS	0.00328	0.04504	13.73604	0.43246
LAND & GENERAL	0.00282	0.09332	33.08849	1.80645
LBS BINA GROUP	0.00025	0.05159	205.04343	0.64848
LIEN HOE	0.00118	0.08257	70.18142	1.20493
MAH SING GROUP	0.00806	0.08789	10.90666	1.40267
MALTON	0.00262	0.07974	30.45584	1.17203
MATRIX INTL.	0.002	0.07811	38.97686	1.18584
MEDA	-0.00198	0.0744	-37.56292	0.84608
MENANG (M)	0.00839	0.19787	23.57797	1.73103
METRO KAJANG	0.00208	0.04954	23.84033	0.96825
MERGE HOUSING	0.00019	0.06408	334.06228	0.25931
MAJUPERAK HOLDINGS	-0.00333	0.07092	-21.27235	0.72449
MK LAND HOLDINGS	0.00003	0.0758	2322.36699	1.20503
MALAYSIA PACIFIC	0.00359	0.09567	26.63176	1.06244
MUI PROPERTIES	-0.00063	0.06348	-101.18342	1.17041
MUTIARA GOODYEAR DEV.	0.00142	0.06497	45.60088	0.74753
NAIM CENDERA HLDG.	0.0053	0.0486	9.16997	0.47787
NEGARA PROPERTIES (M)	0.00117	0.04804	41.10697	0.19938
ORIENTAL INTEREST	0.0016	0.05882	36.83259	0.94489
OSK PROPERTY HOLDINGS	0.00192	0.05841	30.49153	0.73089
PARAMOUNT	0.00214	0.04416	20.63965	0.77925

COMPANY	AVERAGE RETURN	STD.DEVIATION	COEFF OF VARIATION	BETA
PASDEC HOLDINGS	-0.00012	0.06713	-542.97319	1.28208
PJ DEVELOPMENT HDG.	0.0026	0.07427	28.58091	1.56588
PK RESOURCES	0.00034	0.06056	178.89503	0.88632
PLENITUDE	0.00221	0.04777	21.6086	0.60399
PERDUREN (M)	0.00076	0.08124	107.18037	0.9529
PRIME UTILITIES	-0.00125	0.08932	-71.34787	1.23208
PETALING TIN	0.00064	0.09511	149.0025	1.24402
RB LAND HOLDINGS	0.0055	0.08788	15.98393	1.64822
SAPURA RESOURCES	0.00282	0.10124	35.9345	1.94867
SATERAS RESOURCES (MAL.)	0.00096	0.10742	112.08057	1.12397
SELANGOR DREDGING	0.00269	0.06037	22.43167	1.30715
SHL CONSOLIDATED	0.00295	0.05556	18.8145	0.78248
SIME UEP PROPERTIES	0.00154	0.02876	18.71627	0.28604
SOUTH MALAYSIA INDS.	0.00218	0.08632	39.65169	1.71408
SELANGOR PROPERTIES	0.0024	0.03985	16.63731	0.71938
SP SETIA	0.00572	0.04424	7.73605	0.96157
SUNWAY CITY	0.00538	0.06426	11.95071	1.20264
SUNRISE	0.00554	0.06041	10.90361	1.21358
TAHPS GROUP	0.00041	0.04257	102.67255	0.70752
TALAM	-0.00021	0.07249	-348.81373	0.96369
TANCO HOLDINGS	0.00679	0.12144	17.88329	1.91406
TEBRAU TEGUH	0.00566	0.1089	19.25474	2.12485
TRIPLC	0.00177	0.11274	63.66432	1.34996
UNITED MALAYAN LAND	0.001	0.05353	53.75689	0.48145
WCT LAND	0.00051	0.05915	116.48754	0.40017
WORLDWIDE HOLDINGS	0.00332	0.04949	14.91642	1.07753
YNH PROPERTY	0.00501	0.04723	9.41956	0.5709
YTL LAND & DEVELOPMENT	0.00976	0.16928	17.35077	1.09006
BERTAM ALLIANCE	0.00035	0.09578	274.06157	1.14358
MERCES HOLDINGS	-0.00107	0.07835	-73.06089	0.9415
MULPHA LAND	0.00386	0.09403	24.34784	1.38043
KLCI	0.00222	0.02534	11.42854	0.99786
KL PROPERTIES INDEX	0.00109	0.03412	31.42319	1.03244
OUTPERFORM MARKET	**46**			
OUTPERFORM PROPERTY INDEX	**64**			
Less variability than KLCI		**0**	**7**	
Less variability than PROPERTY INDEX		**2**	**43**	
Lower beta the KLCI				**41**
Lower beta then PROPERTY INDEX				**42**

Performance of Property Listed Stocks

Table 7, Table 8 and Table 9, show the risk-adjusted returns of property stocks for the pre-crisis periods, during crisis, and post-crisis periods. Each table presents the performance of listed property stocks using the Sharpe Index, Adjusted Sharpe Index, Treynor Index, Jensen

Index, and Adjusted Jensen Index. The KLCI representing the aggregate market and Kuala Lumpur Property Index are also reported.

As observed in Table 7, based on Sharpe Index there were 73 stocks that outperformed the market and 71 stocks that outperformed the property index. When the Sharpe Index was adjusted, there were 74 stocks that outperformed the aggregate market and 71 stocks that outperformed the property index. An obvious observation on the Sharpe Index and Adjusted Sharpe Index was that every stock showed a negative return. Both the aggregate market and property index also provided a negative return during the pre-crisis period which means that investing in the aggregate market or the property industry during this time was a bad decision. If a comparison was made between the two indexes, the aggregate market performed poorly than the property index.

Table 7
Risk-Adjusted Returns of Property Stocks Before Crisis
(13 December 1996 to 11 July 1997)

No.	COMPANY	SI	ASI	TI	JI	AJI
1	A & M REALTY	-1.263253	-1.232442	-0.065513	0.003684	0.003675
2	AMDB	-1.548718	-1.510944	-0.118906	-0.028183	-0.049718
3	ASIA PACIFIC LAND	-0.95332	-0.930068	-0.079045	-0.007725	-0.009857
4	ASAS DUNIA	-1.388158	-1.354301	0.053187	-0.004242	-0.004643
5	ASIAN PACIFIC HOLDINGS	-0.963066	-0.939576	-0.0003	0.029934	0.022632
6	BCB	-0.833675	-0.813342	-0.041895	0.032742	0.027293
7	BINA DARULAMAN	-1.604267	-1.565138	-0.067862	0.001376	0.001326
8	BOLTON	-1.777504	-1.734151	-0.100937	-0.023466	-0.031749
9	BANDAR RAYA DEVS.	-1.127049	-1.09956	-0.040946	0.053611	0.028242
10	BOUSTEAD PROPERTIES BHD.	-2.03821	-1.988498	-0.095418	-0.019183	-0.02623
11	COUNTRY HEIGHTS HDG.	-0.490476	-0.478513	-0.035634	0.044471	0.033554
12	CRESCENDO	-2.85385	-2.698186	-0.158868	-0.05129	-0.08968
13	DAIMAN DEVELOPMENT	-2.141788	-2.089549	-0.100805	-0.022424	-0.031617
14	DAMANSARA REALTY	-1.594412	-1.555524	-0.112248	-0.025946	-0.04306
15	DIJAYA	-2.13251	-2.080497	-0.091944	-0.016827	-0.022757
16	E & O PROPERTY DEV.	-1.361782	-1.328568	-0.079607	-0.008285	-0.010419
17	EKRAN	-1.696448	-1.655071	-0.073108	-0.004407	-0.00392
18	ENCORP BERHAD	-0.448387	-0.437451	-0.026576	0.083551	0.042612
19	FURQAN BUSINESS ORG.	-1.566512	-1.528305	-0.07734	-0.007431	-0.008152
20	FARLIM GROUP (M)	-1.00676	-0.982205	-0.084289	-0.010285	-0.015101
21	FIMA	-1.736173	-1.693827	-0.07657	-0.007598	-0.007382

No.	COMPANY	SI	ASI	TI	JI	AJI
22	FOCAL AIMS HOLDINGS	-0.756216	-0.737772	-0.032636	0.075952	0.036552
23	GOLD BRIDGE ENGR.& CON.	-1.411825	-1.377391	-0.060463	0.009487	0.008725
24	GOLDEN PLUS HOLDINGS	-1.269503	-1.23854	-0.072085	-0.002642	-0.002897
25	GUOCOLAND (MALAYSIA)	-1.163794	-1.135409	-0.058164	0.013188	0.011024
26	IGB	-1.724645	-1.682581	-0.113168	-0.026092	-0.04398
27	IOI PROPERTIES	-1.666664	-1.626014	-0.06094	0.011526	0.008248
28	JOHOR LAND	-1.173097	-1.141391	-0.130742	-0.031299	-0.061554
29	KRISASSETS HOLDINGS	-1.162554	-1.120534	-0.047513	0.035495	0.021675
30	KARAMBUNAI	-1.247174	-1.216755	-0.112083	-0.023272	-0.042895
31	KELADI MAJU	-2.19295	-1.949289	0.55796	-0.086242	0.627148
32	KUMP H'TANAH S'GOR	-1.702693	-1.661164	-0.074874	-0.005817	-0.005686
33	LAND & GENERAL	-1.728425	-1.686269	-0.076581	-0.008144	-0.007394
34	LBS BINA GROUP	-0.714017	-0.696602	-0.068812	0.00029	0.000376
35	LIEN HOE	-0.935319	-0.912507	-0.046895	0.027352	0.022293
36	MAH SING GROUP	-1.622366	-1.582796	-0.075011	-0.005629	-0.005823
37	MALTON	-1.963382	-1.915494	-0.122785	-0.031485	-0.053597
38	MATRIX INTL.	-2.010814	-1.961769	-0.068175	0.001056	0.001013
39	MENANG (M)	-1.200973	-1.171681	-0.065775	0.003217	0.003413
40	METRO KAJANG	-0.865031	-0.843932	-0.42896	0.00941	0.069188
41	MAJUPERAK HOLDINGS	-0.719109	-0.701569	-0.053028	0.019913	0.01616
42	MK LAND HOLDINGS	-0.38429	-0.374918	-0.028119	0.067834	0.041069
43	MALAYSIA PACIFIC	-2.386086	-2.307424	-0.389943	-0.066206	-0.320755
44	MUI PROPERTIES	-1.321213	-1.288988	-0.061003	0.008306	0.008185
45	NEGARA PROPERTIES (M)	-7.714696	-7.526533	-1.085769	-0.059272	-1.016581
46	ORIENTAL INTEREST	-1.634869	-1.594994	-0.113186	-0.02585	-0.043998
47	OSK PROPERTY HOLDINGS	-1.116188	-1.08094	-0.054727	0.017207	0.014461
48	PARAMOUNT	-1.873302	-1.827612	-0.141863	-0.035503	-0.072676
49	PJ DEVELOPMENT HDG.	-1.103508	-1.076593	-0.055259	0.015696	0.013929
50	PK RESOURCES	-1.343593	-1.310822	-0.079938	-0.008979	-0.01075
51	PERDUREN (M)	-0.852749	-0.83195	-0.04261	0.047286	0.026578
52	PRIME UTILITIES	-2.158556	-2.105908	-0.187284	-0.046876	-0.118096
53	PETALING TIN	-1.551011	-1.513181	-0.090667	-0.017928	-0.021479
54	RB LAND HOLDINGS	-0.505362	-0.493036	-0.041402	0.036668	0.027786
55	SAPURA RESOURCES	-1.623529	-1.583931	-0.124123	-0.029894	-0.054935
56	SATERAS RESOURCES (MAL.)	-0.974477	-0.950709	-0.05706	0.013733	0.012128
57	SELANGOR DREDGING	-0.987419	-0.963336	-0.131081	-0.02901	-0.061893
58	SHL CONSOLIDATED	-1.222687	-1.192866	-0.052618	0.022139	0.01657
59	SIME UEP PROPERTIES	-1.584461	-1.545815	-0.056994	0.014963	0.012193
60	SOUTH MALAYSIA INDS.	-1.591568	-1.552749	-0.100955	-0.020215	-0.031767
61	SELANGOR PROPERTIES	-1.64534	-1.60521	-0.094571	-0.017992	-0.025383
62	SP SETIA	-1.033809	-1.008595	-0.041149	0.039827	0.028039
63	SUNWAY CITY	-1.543977	-1.506319	-0.068899	0.00036	0.000289
64	SUNRISE	-1.099767	-1.072943	-0.085849	-0.013226	-0.016661
65	TAHPS GROUP	-1.227495	-1.197556	-0.072849	-0.003186	-0.003661
66	TALAM	-1.7674	-1.724293	-0.084566	-0.013003	-0.015378
67	TANCO HOLDINGS	-0.740352	-0.722295	-0.056053	0.016835	0.013135
68	TEBRAU TEGUH	-1.284495	-1.253166	-0.096843	-0.019216	-0.027655
69	TRIPLC	-0.980593	-0.956676	-0.045936	0.03581	0.023252

No.	COMPANY	SI	ASI	TI	JI	AJI
70	UNITED MALAYAN LAND	-2.715032	-2.648811	-0.248417	-0.047292	-0.179229
71	WCT LAND	-0.781189	-0.762135	-0.037438	0.06604	0.03175
72	WORLDWIDE HOLDINGS	-2.082135	-2.031351	-0.107139	-0.025692	-0.037951
73	YTL LAND & DEVELOPMENT	-0.448342	-0.437407	-0.094669	-0.011833	-0.025481
74	BERTAM ALLIANCE	-0.502365	-0.490112	-0.225789	-0.030545	-0.156601
75	MULPHA LAND	-1.41606	-1.192471	-0.038619	0.065079	0.030569
	KLCI	-2.775159	-2.707472	-0.071574	-0.002306	-0.002386
	KL PROPERTY INDEX	-2.194608	-2.141081	-0.073022	-0.00365	-0.003834
	OUTPERFORMED MARKET	**73**	**74**	**35**	**33**	**33**
	OUTPERFORMED PROPERTY INDEX	**71**	**71**	**34**	**34**	**35**

According to the Treynor Index there were 35 stocks that outperformed the aggregate market and 34 stocks that out-performed the property index; but only two stocks had a positive return (ASAS DUNIA with 0.053187 and KELADI MAJU with 0.557960 return). The rest of the listed property companies including the aggregate market and the property index had negative returns. In referring to the Jensen Index, there were 33 stocks that outperformed the aggregate market and 34 stocks that outperformed the property index; whereas the Adjusted Jensen Index showed that there were 33 and 35 stocks that outperformed the respective aggregate market and property index. The results for the Jensen Index and the Adjusted Jensen Index for the market and property index have negative values, which indicate poor performance. A thorough examination on the results showed that most of the property companies that outperformed the indexes were providing positive returns which mean that these companies were performing much better than the two indexes.

Overall, the results in the pre-crisis period showed that the aggregate market and the property index were not doing well although lending to the property sectors at the end of 1996 presented an increase of 29.9% and lending to buy stocks and mutual funds rose to 30.5% over the same period (Economic Report, October 1995/96, page 88).

Table 8 shows that the risk-adjusted returns of property stocks during crisis period from July 11, 1997 to January 08, 1999. Based on the Sharpe Index and the Adjusted Sharpe Index, there were 72 stocks that outperformed the aggregate market and 71 stocks that outperformed the property index. Most of the property stocks including the market and property index had negative returns, which indicated poor performance. The only stock that really outperformed or performing well in comparison to the market and property index was MERCES HOLDINGS with a return of 0.010129 and 0.010029 for the Sharpe Index (SI) and the Adjusted Sharpe Index (ASI), respectively.

Table 8
Risk-Adjusted Returns of Property Stocks During Crisis
(11 July 1997 to 08 January 1999)

No.	COMPANY	SI	ASI	TI	JI	AJI
1	A & M REALTY	-0.223963	-0.22183	-0.03362	-0.012082	-0.018023
2	AMDB	-0.064871	-0.064253	-0.005136	0.020708	0.01046
3	ASIA PACIFIC LAND	-0.061553	-0.060967	-0.005633	0.016949	0.009964
4	ASAS DUNIA	-0.087116	-0.086287	-0.008187	0.012318	0.007409
5	ASIAN PACIFIC HOLDINGS	-0.078319	-0.077574	-0.007404	0.015183	0.008192
6	BCB	-0.307473	-0.304545	-0.069561	-0.014189	-0.053965
7	BINA DARULAMAN	-0.099812	-0.098862	-0.012902	0.002673	0.002694
8	BOLTON	-0.070703	-0.07003	-0.007518	0.011712	0.008078
9	BANDAR RAYA DEVS.	-0.067464	-0.066821	-0.006043	0.016197	0.009554
10	BOUSTEAD PROPERTIES BHD.	-0.191421	-0.189598	-0.018674	-0.002279	-0.003078
11	COUNTRY HEIGHTS HDG.	-0.186371	-0.184596	-0.019802	-0.003471	-0.004206
12	CRESCENDO	-0.184455	-0.182698	-0.01882	-0.002898	-0.003224
13	DAIMAN DEVELOPMENT	-0.182087	-0.180352	-0.018027	-0.002032	-0.00243
14	DAMANSARA REALTY	-0.027448	-0.027186	-0.002777	0.025254	0.012819
15	DIJAYA	-0.13825	-0.136933	-0.017186	-0.001666	-0.001589
16	E & O PROPERTY DEV.	-0.048791	-0.048326	-0.004267	0.021287	0.011329
17	EKRAN	-0.047718	-0.047264	-0.005746	0.015518	0.009851
18	ENCORP BERHAD	-0.122393	-0.121227	-0.011735	0.005565	0.003861
19	EUPE	-0.238619	-0.236287	-0.027051	-0.008266	-0.011455
20	FURQAN BUSINESS ORG.	-0.077702	-0.076962	-0.007367	0.018597	0.008229
21	FARLIM GROUP (M)	-0.049039	-0.048572	-0.007271	0.009569	0.008326
22	FIMA	-0.110021	-0.108973	-0.01078	0.00683	0.004816
23	FOCAL AIMS HOLDINGS	-0.078822	-0.078071	-0.008592	0.012597	0.007004
24	GOLD BRIDGE ENGR.& CON.	-0.121997	-0.120836	-0.018355	-0.002405	-0.002759
25	GOLDEN PLUS HOLDINGS	-0.096718	-0.095797	-0.009872	0.008566	0.005724
26	GUOCOLAND (MALAYSIA)	-0.101991	-0.10102	-0.009953	0.008479	0.005643
27	IGB	-0.057372	-0.056825	-0.005812	0.013613	0.009785
28	IOI PROPERTIES	-0.037159	-0.036805	-0.004236	0.009905	0.011361
29	JOHOR LAND	-0.05065	-0.050167	-0.01062	0.003693	0.004976

No.	COMPANY	SI	ASI	TI	JI	AJI
30	KRISASSETS HOLDINGS	-0.097189	-0.096263	-0.010049	0.006987	0.005548
31	KARAMBUNAI	-0.046187	-0.045747	-0.0045	0.019325	0.011096
32	KELADI MAJU	-0.120444	-0.119296	-0.014543	0.001053	0.001053
33	KUMP H'TANAH S'GOR	-0.124658	-0.123471	-0.014548	0.001198	0.001049
34	LAND & GENERAL	-0.059983	-0.059412	-0.00532	0.020056	0.010276
35	LBS BINA GROUP	-0.218132	-0.216055	-0.024175	-0.011033	-0.008579
36	LIEN HOE	-0.093072	-0.092185	-0.008941	0.010869	0.006655
37	MAH SING GROUP	-0.069575	-0.068912	-0.007003	0.014682	0.008593
38	MALTON	-0.104017	-0.103026	-0.01068	0.008102	0.004916
39	MATRIX INTL.	-0.138421	-0.137103	-0.014717	0.00076	0.000879
40	MENANG (M)	-0.067523	-0.06688	-0.006994	0.014657	0.008603
41	METRO KAJANG	-0.111497	-0.110435	-0.011264	0.006912	0.004333
42	MAJUPERAK HOLDINGS	-0.107543	-0.106519	-0.011744	0.005711	0.003852
43	MK LAND HOLDINGS	-0.111711	-0.110647	-0.013193	0.002857	0.002404
44	MALAYSIA PACIFIC	-0.0959	-0.094986	-0.011436	0.004944	0.00416
45	MUI PROPERTIES	-0.060563	-0.059986	-0.007061	0.009639	0.008535
46	NEGARA PROPERTIES (M)	-0.238503	-0.236231	-0.091628	-0.016721	-0.076032
47	ORIENTAL INTEREST	-0.250416	-0.248031	-0.025066	-0.007346	-0.00947
48	OSK PROPERTY HOLDINGS	-0.10337	-0.102385	-0.009772	0.007711	0.005824
49	PARAMOUNT	-0.14437	-0.142995	-0.014619	0.001043	0.000977
50	PASDEC HOLDINGS	-0.055393	-0.054731	-0.010444	0.003541	0.005152
51	PJ DEVELOPMENT HDG.	-0.073488	-0.072788	-0.007099	0.012779	0.008497
52	PK RESOURCES	-0.18456	-0.182803	-0.027219	-0.00846	-0.011623
53	PERDUREN (M)	-0.048419	-0.047958	-0.005145	0.020836	0.010452
54	PRIME UTILITIES	-0.048799	-0.048334	-0.005844	0.017271	0.009752
55	PETALING TIN	-0.088012	-0.087174	-0.007892	0.011914	0.007704
56	RB LAND HOLDINGS	-0.036015	-0.035672	-0.003306	0.025925	0.01229
57	SAPURA RESOURCES	-0.109916	-0.108869	-0.011221	0.005625	0.004375
58	SATERAS RESOURCES (MAL.)	-0.042634	-0.042228	-0.004172	0.023037	0.011425
59	SELANGOR DREDGING	-0.114409	-0.11332	-0.011465	0.005453	0.004132
60	SHL CONSOLIDATED	-0.138515	-0.137196	-0.014405	0.001384	0.001191
61	SIME UEP PROPERTIES	-0.109799	-0.108753	-0.01211	0.002971	0.003487
62	SOUTH MALAYSIA INDS.	-0.066346	-0.065714	-0.006002	0.018513	0.009594
63	SELANGOR PROPERTIES	-0.153469	-0.152008	-0.014891	0.000524	0.000705
64	SP SETIA	-0.104573	-0.103577	-0.010952	0.006589	0.004644
65	SUNWAY CITY	-0.125229	-0.124036	-0.011478	0.005967	0.004118
66	SUNRISE	-0.080299	-0.079534	-0.008284	0.01151	0.007313
67	TAHPS GROUP	-0.150498	-0.149065	-0.018481	-0.002897	-0.002885
68	TALAM	-0.308003	-0.30507	-0.037182	-0.011688	-0.021585
69	TANCO HOLDINGS	-0.052368	-0.051869	-0.004725	0.022984	0.010871
70	TEBRAU TEGUH	-0.02273	-0.022514	-0.002642	0.025015	0.012954
71	TRIPLC	-0.068958	-0.068301	-0.006572	0.01736	0.009024
72	UNITED MALAYAN LAND	-0.17458	-0.172917	-0.055265	-0.010946	-0.039668
73	WCT LAND	-0.097516	-0.096587	-0.015704	-0.000134	-0.000108
74	WORLDWIDE HOLDINGS	-0.070378	-0.069708	-0.006266	0.015452	0.009331
75	YTL LAND & DEVELOPMENT	-0.097763	-0.096832	-0.009413	0.011628	0.006184
76	BERTAM ALLIANCE	-0.090935	-0.090069	-0.01057	0.007651	0.005026
77	MERCES HOLDINGS	0.010129	0.010029	0.005273	0.007283	0.020869
78	MULPHA LAND	-0.141333	-0.139987	-0.01739	-0.001939	-0.001794

No.	COMPANY	SI	ASI	TI	JI	AJI
	KLCI	-0.220143	-0.218047	-0.015799	-0.0002	-0.000203
	KL PROPERTY INDEX	-0.206451	-0.204485	-0.017254	-0.001756	-0.001658
	OUTPERFORM MARKET	**72**	**72**	**62**	**61**	**61**
	OUTPERFORM PROPERTY INDEX	**71**	**71**	**63**	**61**	**62**

Based on the Treynor Index there were 62 stocks that outperformed the aggregate market and 63 stocks that outperformed the property index. Again, MERCES HOLDINGS the only stock that really outperformed the aggregate market and property index with a positive return of 0.005273. The remainder had negative returns similar to what was observed in the Sharpe Index (SI) and Adjusted Sharpe Index (ASI) measures. As for the Jensen Index (JI) and Adjusted Jensen Index (AJI) there were 61 stocks that outperformed the aggregate market in each measure. In comparison to the property index, 61 stocks outperformed the property index for Jensen Index (JI) and 62 stocks outperformed the Adjusted Jensen Index (AJI).

Overall, it was observed that based on the five performance measures, MERCES HOLDINGS was the only stock that outperformed the aggregate market and property index, with a positive return of 0.010129, 0.010029, 0,005273, 0.007283 and 0.020869, for the respective Sharpe Index (SI), Adjusted Sharpe Index (ASI), Treynor Index (TI), Jensen Index (JI) and Adjusted Jensen Index (AJI) performance measures. The performance of property stocks except for MERCES HOLDINGS during the crisis period was all negatives under the Sharpe Index, Adjusted Sharpe Index and Treynor Index; but under the Jensen Index and Adjusted Jensen Index, some counters were producing positive returns. A justification that might explain the negative returns was that in 1997, debt-to-equity ratio of Malaysian companies rose to 200%. In the run up of the crisis, Malaysian banks were more aggressive in their lending policies. The total loans held by the public and private sectors rose to 170% of

gross domestic product (GDP) in 1997, where one-third of these loans were to the broad property sectors (Malaysian Economic Report, 1999, page 94).

Table 9 shows the risk-adjusted returns of property stocks for the post-crisis period. The performance measure for the Sharpe Index and Adjusted Sharpe Index indicated that there were 94 stocks that outperformed the aggregate market and 93 stocks that out-performed the property index. As for the Treynor Index, 52 stocks outperformed both the aggregate market and the property index. In all the three performance measures, listed property companies were giving negative returns to the investors although some counters outperformed the market and the property index. However, based on the Jensen Index and Adjusted Jensen Index, there were 52 stocks that outperformed both the aggregate market and property index. In contrast to the Sharpe Index, Adjusted Sharpe Index and Treynor Index performance measures, all the property stocks that outperformed the aggregate market and property stocks were able to generate positive returns under the Jensen Index and Adjusted Jensen Index.

Table 9
Risk-Adjusted Returns of Property Stocks After Crisis
(08 January 1999 to 28 December 2007)

No.	COMPANY	SI	ASI	TI	JI	AJI
1	A & M REALTY	-0.357427	-0.356855	-0.019631	0.009150	0.007161
2	AMDB	-0.344549	-0.343998	-0.018100	0.013006	0.008693
3	ASIA PACIFIC LAND	-0.355364	-0.354795	-0.019529	0.009936	0.007263
4	ASAS DUNIA	-0.424881	-0.424201	-0.023188	0.004231	0.003604
5	ASIAN PACIFIC HOLDINGS	-0.260012	-0.259596	-0.013879	0.024035	0.012913
6	BCB	-0.542056	-0.541188	-0.027790	-0.001077	-0.000997
7	BINA DARULAMAN	-0.499270	-0.498471	-0.032572	-0.005025	-0.005780
8	BINAIK EQUITY	-0.537936	-0.536498	-0.081766	-0.019485	-0.054973
9	BOLTON	-0.367130	-0.366543	-0.017320	0.014272	0.009472
10	BANDAR RAYA DEVS.	-0.345105	-0.344553	-0.016438	0.015349	0.010354
11	BOUSTEAD PROPERTIES BHD.	-0.578563	-0.577638	-0.041483	-0.009124	-0.014691
12	COUNTRY HEIGHTS HDG.	-0.501092	-0.500291	-0.022715	0.005295	0.004078
13	CRESCENDO	-0.546353	-0.545479	-0.038516	-0.008598	-0.011724
14	COUNTRY VIEW	-0.518026	-0.516695	-0.123065	-0.023687	-0.096273
15	DAIMAN DEVELOPMENT	-0.602056	-0.601093	-0.030380	-0.003231	-0.003588
16	DAMANSARA REALTY	-0.239684	-0.239300	-0.015354	0.018530	0.011438
17	DIJAYA	-0.323524	-0.323007	-0.019228	0.009825	0.007565

No.	COMPANY	SI	ASI	TI	JI	AJI
18	E & O PROPERTY DEV.	-0.320294	-0.319782	-0.014831	0.020090	0.011962
19	EKRAN	-0.267713	-0.267285	-0.015328	0.019918	0.011464
20	ENCORP BERHAD	-0.289412	-0.288949	-0.017666	0.013709	0.009126
21	EQUINE CAPITAL	-0.217505	-0.216755	-0.018523	0.010424	0.008269
22	EUPE	-0.370988	-0.370394	-0.020800	0.007772	0.005992
23	FURQAN BUSINESS ORG.	-0.406788	-0.406137	-0.034281	-0.006175	-0.007489
24	FARLIM GROUP (M)	-0.449095	-0.448377	-0.025607	0.001384	0.001185
25	FIMA	-0.574328	-0.573409	-0.038333	-0.007898	-0.011540
26	FOCAL AIMS HOLDINGS	-0.392477	-0.391849	-0.021922	0.006592	0.004871
27	FOUNTAIN VIEW DEV.	-0.357780	-0.356530	-0.186947	-0.029310	-0.160155
28	GOLD BRIDGE ENGR.& CON.	-0.238818	-0.238436	-0.015473	0.018944	0.011320
29	GLOMAC	-0.502945	-0.501987	-0.033178	-0.005153	-0.006386
30	GOLDEN PLUS HOLDINGS	-0.176513	-0.176231	-0.012340	0.025030	0.014452
31	GUOCOLAND (MALAYSIA)	-0.364126	-0.363543	-0.017401	0.013062	0.009392
32	HUA YANG	-0.500920	-0.499507	-0.060860	-0.016114	-0.034067
33	HUNZA PROPERTIES	-0.517911	-0.517082	-0.062055	-0.015495	-0.035263
34	IBRACO	-0.730267	-0.727302	-0.118394	-0.024887	-0.091602
35	IGB	-0.415834	-0.415169	-0.018613	0.011076	0.008179
36	IOI PROPERTIES	-0.682320	-0.681229	-0.041000	-0.008578	-0.014208
37	JOHOR LAND	-0.428843	-0.428157	-0.024366	0.002740	0.002427
38	KRISASSETS HOLDINGS	-0.664820	-0.663756	-0.039257	-0.008386	-0.012465
39	KARAMBUNAI	-0.190167	-0.189862	-0.015758	0.017541	0.011035
40	KELADI MAJU	-0.442772	-0.442064	-0.040916	-0.009156	-0.014123
41	KUMP H'TANAH S'GOR	-0.161174	-0.160916	-0.017496	0.011611	0.009296
42	KLCC PROPERTY HOLDINGS	-0.786627	-0.783270	-0.046521	-0.010331	-0.019729
43	KSL HOLDINGS	-0.571292	-0.569900	-0.059498	-0.014144	-0.032705
44	LAND & GENERAL	-0.280634	-0.280185	-0.014497	0.022210	0.012295
45	LBS BINA GROUP	-0.557396	-0.556504	-0.044347	-0.011384	-0.017554
46	LIEN HOE	-0.337077	-0.336538	-0.023099	0.004450	0.003693
47	MAH SING GROUP	-0.238392	-0.238011	-0.014937	0.016629	0.011856
48	MALTON	-0.330982	-0.330453	-0.022518	0.005010	0.004275
49	MATRIX INTL.	-0.345738	-0.345185	-0.022773	0.004766	0.004019
50	MEDA	-0.416531	-0.415495	-0.036628	-0.008322	-0.009835
51	MENANG (M)	-0.104195	-0.104028	-0.011910	0.025761	0.014882
52	METRO KAJANG	-0.543667	-0.542797	-0.027815	-0.000990	-0.001022
53	MERGE HOUSING	-0.449741	-0.448765	-0.111132	-0.021870	-0.084340
54	MAJUPERAK HOLDINGS	-0.456060	-0.455331	-0.044643	-0.012932	-0.017850
55	MK LAND HOLDINGS	-0.382284	-0.381672	-0.024047	0.003309	0.002746
56	MALAYSIA PACIFIC	-0.265688	-0.265263	-0.023923	0.003048	0.002869
57	MUI PROPERTIES	-0.466891	-0.466144	-0.025322	0.001721	0.001471
58	MUTIARA GOODYEAR DEV.	-0.424593	-0.423505	-0.036901	-0.007557	-0.010109
59	NAIM CENDERA HLDG.	-0.487872	-0.486244	-0.049615	-0.010906	-0.022823
60	NEGARA PROPERTIES (M)	-0.579481	-0.578554	-0.139637	-0.022499	-0.112845
61	ORIENTAL INTEREST	-0.466077	-0.465332	-0.029011	-0.002097	-0.002219
62	OSK PROPERTY HOLDINGS	-0.463843	-0.463101	-0.037069	-0.007511	-0.010277
63	PARAMOUNT	-0.608465	-0.607491	-0.034481	-0.005992	-0.007689
64	PASDEC HOLDINGS	-0.433990	-0.433296	-0.022723	0.005217	0.004069
65	PJ DEVELOPMENT HDG.	-0.355584	-0.355015	-0.016866	0.015543	0.009926
66	PK RESOURCES	-0.473406	-0.472649	-0.032348	-0.004924	-0.005556

No.	COMPANY	SI	ASI	TI	JI	AJI
67	PLENITUDE	-0.560963	-0.559003	-0.044369	-0.010616	-0.017577
68	PERDUREN (M)	-0.347748	-0.347191	-0.029648	-0.002721	-0.002855
69	PRIME UTILITIES	-0.338783	-0.338240	-0.024561	0.002749	0.002231
70	PETALING TIN	-0.298283	-0.297806	-0.022806	0.004959	0.003986
71	RB LAND HOLDINGS	-0.267546	-0.267118	-0.014265	0.020648	0.012528
72	SAPURA RESOURCES	-0.258720	-0.258306	-0.013441	0.026017	0.013351
73	SATERAS RESOURCES (MAL.)	-0.261137	-0.260719	-0.024957	0.002063	0.001835
74	SELANGOR DREDGING	-0.435985	-0.435287	-0.020134	0.008703	0.006658
75	SHL CONSOLIDATED	-0.468946	-0.468196	-0.033299	-0.005092	-0.006507
76	SIME UEP PROPERTIES	-0.955327	-0.953798	-0.096045	-0.019809	-0.069253
77	SOUTH MALAYSIA INDS.	-0.310856	-0.310359	-0.015654	0.019092	0.011138
78	SELANGOR PROPERTIES	-0.667914	-0.666845	-0.036996	-0.007340	-0.010204
79	SP SETIA	-0.526396	-0.525554	-0.024221	0.002473	0.002571
80	SUNWAY CITY	-0.367761	-0.367172	-0.019650	0.008589	0.007142
81	SUNRISE	-0.388488	-0.387866	-0.019339	0.009046	0.007454
82	TAHPS GROUP	-0.671732	-0.670658	-0.040416	-0.009639	-0.013623
83	TALAM	-0.403056	-0.402411	-0.030318	-0.003398	-0.003526
84	TANCO HOLDINGS	-0.182952	-0.182659	-0.011608	0.029064	0.015184
85	TEBRAU TEGUH	-0.214439	-0.214096	-0.010991	0.033576	0.015802
86	TRIPLC	-0.241596	-0.241210	-0.020177	0.008930	0.006615
87	UNITED MALAYAN LAND	-0.523318	-0.522480	-0.058186	-0.015114	-0.031393
88	WCT LAND	-0.481843	-0.481072	-0.071225	-0.017780	-0.044432
89	WORLDWIDE HOLDINGS	-0.519109	-0.518279	-0.023843	0.003178	0.002949
90	YNH PROPERTY	-0.508092	-0.506293	-0.042032	-0.008700	-0.015239
91	YTL LAND & DEVELOPMENT	-0.113733	-0.113551	-0.017662	0.009952	0.009130
92	BERTAM ALLIANCE	-0.299225	-0.298747	-0.025062	0.001979	0.001731
93	MERCES HOLDINGS	-0.383935	-0.383320	-0.031951	-0.004857	-0.005159
94	MULPHA LAND	-0.267438	-0.267010	-0.018217	0.011837	0.008575
	KLCI	-1.057385	-1.055694	-0.026850	-0.000057	-0.000057
	KL PROPERTY INDEX	-0.818460	-0.817151	-0.027046	-0.000262	-0.000254
	OUTPERFORM MARKET	**94**	**94**	**52**	**52**	**52**
	OUTPERFORM PROPERTY INDEX	**93**	**93**	**52**	**52**	**52**

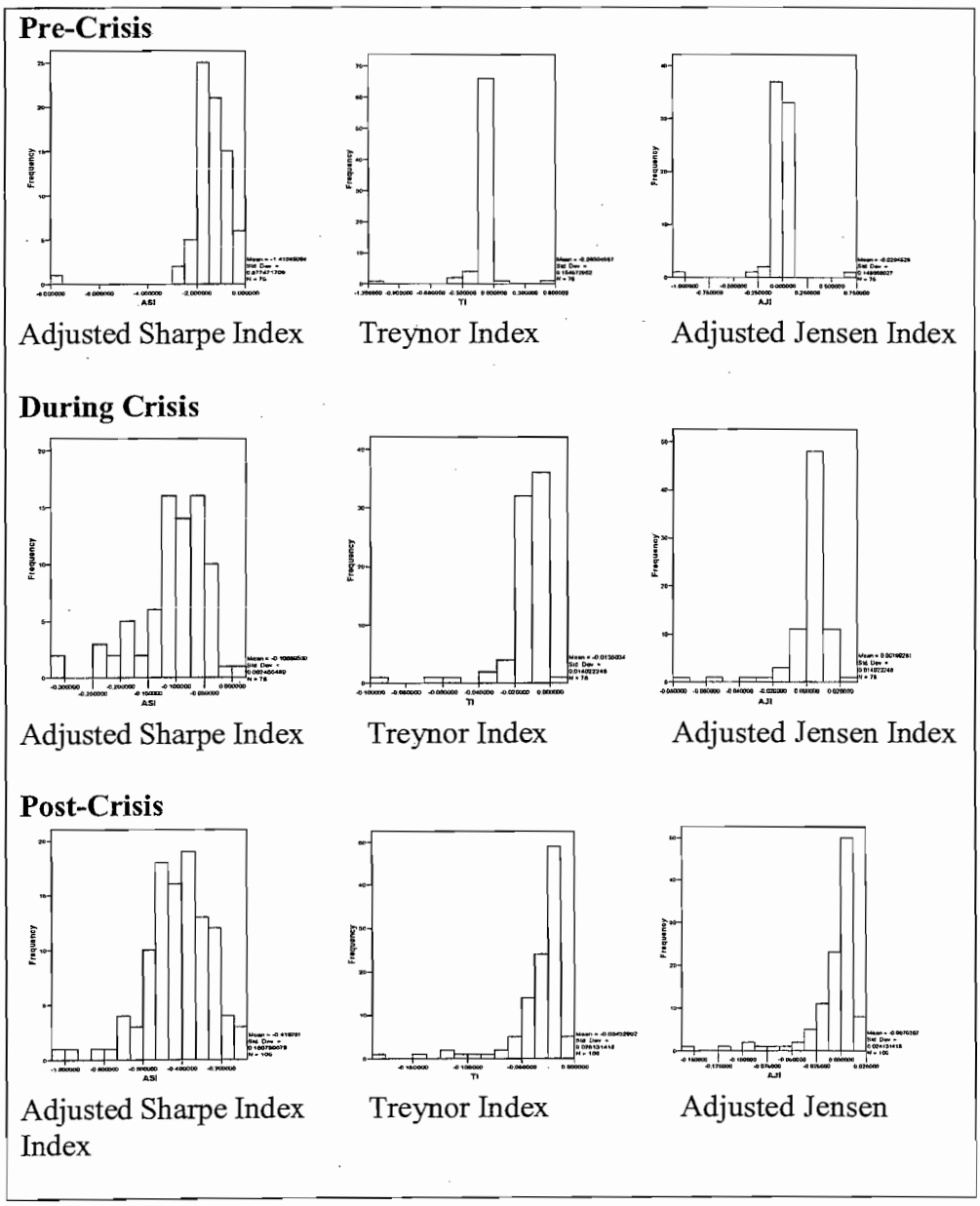
Overall, the risk-adjusted performance of property stocks for the period after the crisis showed a better performance as compared to the pre-crisis and during crisis periods. The number of property stocks that out-performed the aggregate market and property index also increased especially under the Sharpe Index, Adjusted Sharpe Index and Treynor Index.

Comparison of Mean Returns Across Different Periods

Figure 2 shows the distribution of the risk adjusted returns for the Adjusted Sharpe Index (ASI), Treynor Index (TI) and Adjusted Jensen Index (AJI). The ASI and AJI were better

measures of performance. Hence, to examine hypotheses 1 to 3 that is to check whether there were significant differences in property stocks risk-adjusted returns performance over three sub-periods, the distributions are needed in order to decide whether a parametric or non-parametric test would be used. Most of the figures show that they were negatively skewed especially during and post crisis periods except for TI and AJI for the pre-crisis period. Thus, a non-parametric statistic of Wilcoxon Signed Ranks Test was used and the result is presented in Table 10.

Figure 2
Distribution of Risk Adjusted Returns Before, During and Post Crisis Periods



The mean performance of property stocks across periods in Table 10 indicates that there is a significant difference on the performance of property stocks in pre-crisis versus during crisis, and during crisis versus post-crisis period at $\alpha = 0.01$ level for the ASI, TI and AJI performance measures. There is also a significant difference on the mean performance of property stocks for the pre-crisis and post-crisis period at $\alpha = 0.05$ level for ASI and TI performance measure but not for AJI. Hence, the results show that the null hypothesis of insignificant differences on the performance of property stocks during, before and post-crisis periods could be rejected. There is a significant difference on the performance of property stocks during and before crisis rejecting hypothesis 1; during and after crisis rejecting hypothesis 2 and before and after crisis rejecting hypothesis 3.

Table 10:
Mean Performance of Property Stocks across Periods

Period	Adjusted Sharpe Index	Treynor Index	Adjusted Jensen Index
(a) Pre-Crisis	-1.12539	-0.07424	-0.01632
(b) During Crisis	-0.08870	-0.01129	0.00165
(c) Post-Crisis	-0.41516	-0.03473	-0.00795
Hypothesis Testing			
H_o: mean performance in (a) = (b)	-7.624 (0.000)***	-7.609 (0.000)***	-7.770 (0.000)***
H_o: mean performance in (b) = (c)	-6.994 (0.000)***	-6.674 (0.000)***	-7.007 (0.000)***
H_o: mean performance in (a) = (c)	-2.490 (0.013)**	-2.003 (0.045)**	-1.468 (0.142)

First line represents Z-Score value and figures in parentheses indicate the asymptotic value of the Wilcoxon Signed Ranks Test. ** Significant at $\alpha = 0.05$; *** Significant at $\alpha = 0.01$.

Overall, the performance of property industries in Malaysia over-performed the aggregate market and property index. Further analysis on the sub-samples which was classified under the pre-crisis, during and post-crisis periods reinforced the finding where more than 50% of the property stocks outperformed the aggregate market and property index. When a Wilcoxon Signed Ranks Test is executed, the results showed that the performance of property stocks in

pre-crisis versus during crisis and during crisis versus post-crisis were significantly different. This finding is consistent to the result reported by Hwa (2002) on the selected property development and investment companies over 1991 to 2000. He found that the selected property development and investment companies outperformed the market. Similarly, when Liow (2000) examined on direct properties in Singapore, he also found that they outperformed the market on a risk-adjusted basis. The finding is further supported by Neoh (1990) when he examined five (5) selected property companies in Malaysia from 1981 to 1990. However, the finding of this study contradicts to the evidence provided by Kim (1997) where property firm in Singapore performed poorly in comparison to the market. Furthermore, the latest study done by Ooi and Liow (2004) on the real estate stocks listed in seven developing markets in East Asia over 1992 to 2002 also showed that there were no significant abnormal returns. The result of this study found otherwise.

V. CONCLUSION

This study attempts to examine the risk and return performance of the Malaysia property stocks in comparison to the market performance by using the Sharpe Index, Adjusted Sharpe Index, Treynor Index, Jensen Index and Adjusted Jensen Index. The sample of this study was 94 property stocks listed on the Main Board and Second Board of Bursa Malaysia. This sample was categorized into three sub-samples based on before, during and after crisis to check on whether the performance of listed property stocks differ from one period to another. The total sub-sample for each period was 75 stocks for pre-crisis, 78 stocks for during crisis and 94 stocks for post-crisis. The period of study was twelve (12) years from December 13, 1996 to December 28, 2007 where the classifications of the sub-periods were as follows: pre-crisis from December 13, 1996 to July 11, 1997; during crisis from July 11, 1997 to January 08, 1999; and post-crisis from January 08, 1999 to December 28, 2007.

The finding of this study found that there is a significant difference on the return performance of property stocks for pre-crisis, during crisis and post-crisis. Overall, most of the listed property companies outperformed the aggregate market or Kuala Lumpur Composite Index (KLCI) and Kuala Lumpur Property Index (KLPI) in the past twelve years. Nevertheless, the average returns were mostly negative for all performance measures, the Sharpe Index, Adjusted Sharpe Index, Treynor Index, Jensen Index and Adjusted Jensen Index.

Based on this study, there is a need for improvement in their operations as most companies were providing an average negative return. With globalization, more strategic marketing and promotional activities, such as road shows within and especially outside the country are needed to attract investors into the country and to get them to invest in the property sector. Property companies in Malaysia would need to concentrate on establishing credible reputations and offering excellent quality, innovative products and personal customer service. In addition, they have to turn around and to look for opportunities within and outside the countries they are operating in, and also to develop its land to generate income. As Malaysia is opening her market to the foreign investors and companies, partnerships might create opportunities to assist in value creations.

As for investors, who concentrate on investing in the listed property companies, a thorough analysis and a hedging strategy would need to be devised in order to protect themselves from making substantial losses. For the regulators, more efforts needed to be done to improve and promote the property industry. With negative returns facing the listed property companies, sustaining this industry from a major downturn is very much needed as it affects the job market and the economy as a whole. To the academics, more research in looking into the property sector is required to enhance the understanding of such industry.

LIST OF REFERENCES

Andrej and Fang (2000). Economic Effects of Capital Controls – A Malaysia Evidence. *Journal of the Institute of Bankers Malaysia*, 116(4), 10-12.

Andrew, L., Jon, A. and Wayne, E. (1999). Performance Evaluation Using Conditional Alphas and Betas. *Journal of Portfolio Management*, 59-72.

Ariff, M. and Yap (1998). Financial Crisis in Malaysia. *Malaysia Institute of Economic Research.*

Ariff, M. and AbuBakar (1999). The Malaysia Financial Crisis: Economic Impact and Recovery Prospects. *The Developing Economics*, XXXVII(4), 417-438.

Bank Negara Malaysia. *Monthly Statistical Bulletin* (various issues).

Bank Negara Report. Strategy for Recovery. *Investor Digest*, April 1999.

Benson, McClave and Sincich (2005). *Statistics for Business and Economics, Ninth Edition.* Pearson: Prentice Hall.

Bowles, McAllister and Tarbert (2001). An Assessment of the Impact of Valuation Error on Property Investment Performance Measurement. *Journal of Property Investment and Finance*, 19(2), 139-155.

Brett, H. (2000). The Volatility of Relative Performance as a Measure of Risk. *Journal of Investing*, 39-44.

Carlson, Newbold and Thorne (2007). *Statistics for Business and Economics, Sixth Edition.* Pearson: Prentice Hall.

Chris and Sotiris (1999). The Impact of Economic and Financial Factors on UK Property Performance. *Journal of Property Research*, 16(2), 139-152.

Economic Planning Unit, Prime Minister's Department the Malaysian Economy in Figure 2006.

Eng and Yi (1999). Are Stock Returns Affected by the Real Estate Market?. *SES Journal*, August 1999, 32-35.

Ernest, M. (1992). Risk-Adjusted Performance Attribution. *Financial Analysts Journal*, 75-82.

Franco, M. and Leah, M. (1997). Risk-Adjusted Performance. *Journal of Portfolio Management*, 45-54.

Gulser, M. and Ilhan, M. (2001). Risk and Return in the World's Major Stock Markets. *Journal of Investing*, 10(1), 62-66.

Han and Liang (1995). The Historical Performance of Real Estate Investment Trusts. *Journal of Real Estate Research*, 10(3), 235-262.

Harris (1984). Growth Expectations, Excess Value, and the Risk-Adjusted Return to Market Power. *Southern Economic Journal*, 51(1), 166-179.

Hasan and Zubair (2002). The 1997-98 Financial Crisis in Malaysia: Causes, Response, and Results. *Islamic Economic Studies*, 9(2), 1-16.

Jarrod, W. (2000). Better Risk Management. *Journal of Portfolio Management*, 53-64.

Jobson and Korkie (1984). On the Jensen Measure and Marginal Improvements in Portfolio Performance: A Note. *Journal of Finance*, XXXIX(1), 245-251.

Jobson and Korkie (1981). Performance Hypothesis Testing with the Sharpe and Treynor Measures. *Journal of Finance*, XXXVI (4), 889-908.

Lind, Marchal and Mason (2002). *Statistical Tecniques in Business & Economics, Eleventh Edition.* McGrew-Hill.

Liow and Ooi (2004). Risk-Adjusted Performance of Real Estate Stocks: Evidence from Developing Markets. *Journal of Real Estate*, 26(4), 371-395.

Liow (2000). The Long-Term Investment Performance of Singapore Real Estate and Property Stocks. *Journal of Property Investment and Finance*, 19(2), 156-174.

Liow and Wang (1999). The Investment Performance of Singapore Property Companies: Pre- and Post- 14 May 1996. *SES Journal*, February 1999, 23-27.

Liow and Wang (1999). Time-Varying Performance of Singapore Property Stocks: An After the Crisis Evaluation. *SES Journal*, November 1999, 31-36.

Liow (1997). The Performance of Singapore Real Estate and Property Stocks. *SES Journal*, April 1997, 27-34.

Liow (1997). The Historical Performance of Singapore Property Stocks. *Journal of Property Finance*, 8(2), 111-125.

Malaysia. The Economist Intelligence Unit Limited 2006. *Country Report*, June 2006, 5-32.

Malaysia. Asian Property Strategy: 2Q 1997. *Jardine Fleming Reseaech*, 32-37.

Maybank Securities Research. Property. November 5, 2001.

Ministry of Finance Malaysia, *Economic Report* (various issues).

Morse (1993). *Statistics for Business and Economics*. HarperCollins College Publishers.

Nazatul (March 2003). Is There Opportunity in Property?. *Investors Digest, March 2003.*

Nor Zaidi Alias. The Confidence Crisis. *Malaysia Business*, September 16, 2007.

Newell, G. and Hsu (2007). The Significant of Leisure Property in Property Portfolios in Australia. *Journal of Retail and Leisure Property*, 6(2), 109-116.

Newell, Hwa, and Acheampong (2002). Listed Property Trust in Malaysia. *Journal of Real Estate Literature*, 10(1), 109-118.

O'Connell and Orris (2004). *Essentials of Business Statistics*, *Fourth Edition*. McGraw-Hill.

Political & Economic Risk Consultancy, LTD. September 5, 2006.

Rasheed and Tajudeen (2006). Performance Analysis of Listed Construction and Real Estate Companies in Nigeria. *Journal of Real Estate Portfolio Management*, 12(2), 177-185.

Sekaran, U. (2003). *Research Methods for Business: A Skill Building Approach Fourth Edition*. John Wiley & Sons, Inc.

Simon, S. (2001). Evaluating the Investment Attributes and Performance of Property Companies. *Journal of Property Investment and Finance*, 19(3), 251-266.

Stephen Lee (1997). The components of Fund Performance. *Journal of Real Estate Portfolio Management*, 31-37.

Zurbruegg and Wilson (2003). International Diversification of Real Estate Assets: Is It Worth It? Evidence from the Literature. *Journal of Real Estate Literature*, 11(3), 259-277.