CORPORATE REAL ESTATE STRATEGY: THE MALAYSIAN PERSPECTIVE

Zaiton Ali[1], Stanley McGreal[2], Alastair Adair[3] and James R. Webb[4]

[1]Faculty of Economics and Management, Universiti Putra Malaysia, Malaysia
[2&3] Centre for Research on Property and Planning, Faculty of Art, Design and the Built Environment, University of Ulster, Newtownabbey, Northern Ireland, UK
[4]Department of Finance, James J. Nance College of Business, Cleveland State University, US

Corresponding author: [1]azaiton@putra.upm.edu.my

Abstract

This study analyses the relationships between CRE strategy and financial performance of companies in Malaysia during 1998 and 2003. The identification of CRE strategies is based on the seminal work of Nourse and Roulac (1993) and maps these strategies to the financial performance of companies through multivariate models. The results indicate that 80% of the companies examined had a dominant CRE that matched the Nourse and Roulac framework in both study periods. For the 1998 analysis there was no apparent link between CRE strategy and share performance indeed those companies not having a strategy had better share performance. In contrast, there was evidence of CRE strategy making a contribution to share price in 2003. In particular the strategy to facilitate managerial process and knowledge framework is shown to enhance financial performance compared to other CRE strategies or the no strategy alternative. This study concludes that CRE strategy can make a positive contribution to financial performance, but needs more attention from management in order to maximize its potential.

Keywords: corporate real estate, financial performance, Malaysian companies, multivariate modelling, strategies.

Introduction

The globalisation of real estate markets has promoted growth in corporate real estate (CRE) research as businesses have become increasingly aware of the importance of CRE structure and strategy on business corporations (Rutherford and Nourse, 1988; Rutherford and Stone, 1989; Nourse and Roulac, 1993; Roulac, 2001; Scheffer, Singer and Van Meerwijk, 2006). Most of the research has highlighted the conceptual linkage of CRE to the value of firms with Nourse and Roulac (1993) identifying CRE strategies based on the strategic management context. However, there is an absence of research that has empirically tested the CRE strategy model linkages with a companies' financial performance (Ali, McGreal, Adair and Webb, 2006; Lindholm, Gibler and Levainen, 2006). This paper addresses this gap by focusing on an empirical investigation of CRE strategies and their relationships with the financial performance of companies. In order to test this relationship, the paper applies the study of Nourse and Roulac (1993) in exploring CRE strategy utilization among companies in the Malaysia across two time frames (1998 and 2003). The aim is to examine whether CRE strategy has any influence on the financial performance of Malaysian companies.

Corporate real estate strategies: literature perspectives

Roulac (2001) pointed out that "*It is a rare occurrence for a corporate business strategy to include a CRE strategy*". The reason for this limited connection arises from the actions of corporate strategic management researchers who tend to neglect the significance of real estate assets in the business organization. As a consequence, little priority is given to CRE. However, from a different perspective, researchers in CRE tend to emphasize real estate issues and have disconnected CRE from corporate business issues. For example, Roulac (2001) attempted to break this barrier by

highlighting the contributions of CRE strategies to the competitive advantage of the business organization.

According to Roulac (2001), superior CRE strategies can contribute to the competitive advantage of a business organization through creating and retaining customers, attracting and retaining outstanding people, contributing to the business processes, promoting enterprise values and cultures, stimulating innovation/learning, enhancing core competency and enhancing shareholder wealth. CRE's contribution in creating and retaining customers is achieved through the provision of an attractive physical environment by business organizations to its customers. For instance, Krumm and Vries (2003) identify that real estate can increase a firm's revenue through the improvement of the corporation's sales network. A firm that has good location and has easy accessibility to the markets will add more value to the business.

Roulac (2001) also identified the contribution of CRE strategies' in assisting the firm to promote its corporate values and cultures through the creation of the business identity. According to Ackerman (2000), the physical environment of most companies reveals much about the identities of the companies. O'Mara (1999) indicated that an office building represents the ethos of the organization and acts as the physical embodiment of the organization. CRE strategy is believed to have an important contribution in stimulating learning/innovation in the business organization (Roulac, 2001) through the provision of locations and facilities that can enhance innovation and learning.

The application of superior CRE strategies is believed to enhance the core competency of the organization. This is achievable through the implementation of the strategy that determined the firm's access to resources and markets (Roulac, 2001). For instance, good access and proximity to the suppliers and customers can give advantages to the firm against other competing firms that do not enjoy these privileges. Resources and customers are important elements to the business operation.

CRE strategy is also viewed to have a direct impact on shareholder wealth. For instance, Pollert and Glickman (2001) discussed how corporations are pressured by shareholders to optimize long-term returns by utilizing corporate assets in the most cost-efficient manner. This has led to CRE strategies being formulated in an *ad hoc* manner only providing a solution to a problem when it arises. Arguably, Roulac's (2001) suggestion may change the attitude of senior management and increase awareness of the importance of CRE strategies. The superior CRE strategies should strengthen and increase the competitive advantage of the business organization. The seminal work in this area stems for Nourse and Roulac (1993) who developed a CRE strategy framework in business organizations through the analysis of business strategy. The strategies forwarded by Nourse and Roulac are used to establish the linkage between CRE strategy and firm's financial performance.

Methodology

This study is concerned with the CRE strategies of Malaysian companies and linkages to the financial performance of these companies for two points in time 1998 and 2003. Hence, the analysis is cross-sectional but also seeks to compare any changes through time. The methodology, which is in three stages, employs both qualitative investigation through the interpretation of company strategy and quantitative analysis using regression analysis to establish the relationships between CRE strategy and financial performance.

The first stage of the methodology was company selection. The sample consists of major companies drawn from the Kuala Lumpur Composite Index (KLCI). The time frames are based on end of accounting period of each company in 1998 and 2003. Only public listed companies are considered in the analysis due to the availability of public information. The five-year interval between 1998 and

2003 allowed for a comparison in terms of the differences in corporate[1] and business strategy across the sample. The property or real estate sector was excluded from the study. The banking and financial sector was also excluded due to the limitations of certain financial variables. This sector has a high level of gearing (evidenced from the financial information), thus it is not comparable to other sectors. The final criterion is based on the availability of data. Only companies that have complete data for both periods are considered in the analysis.

A total of 49 companies meet the criteria. These major companies have a market capitalisation ranging from RM 148 million[2] to RM 28,006 million in 2003[3] (Figure 1). Approximately 84% of the sample has a market capitalization less than RM 5,000 million.

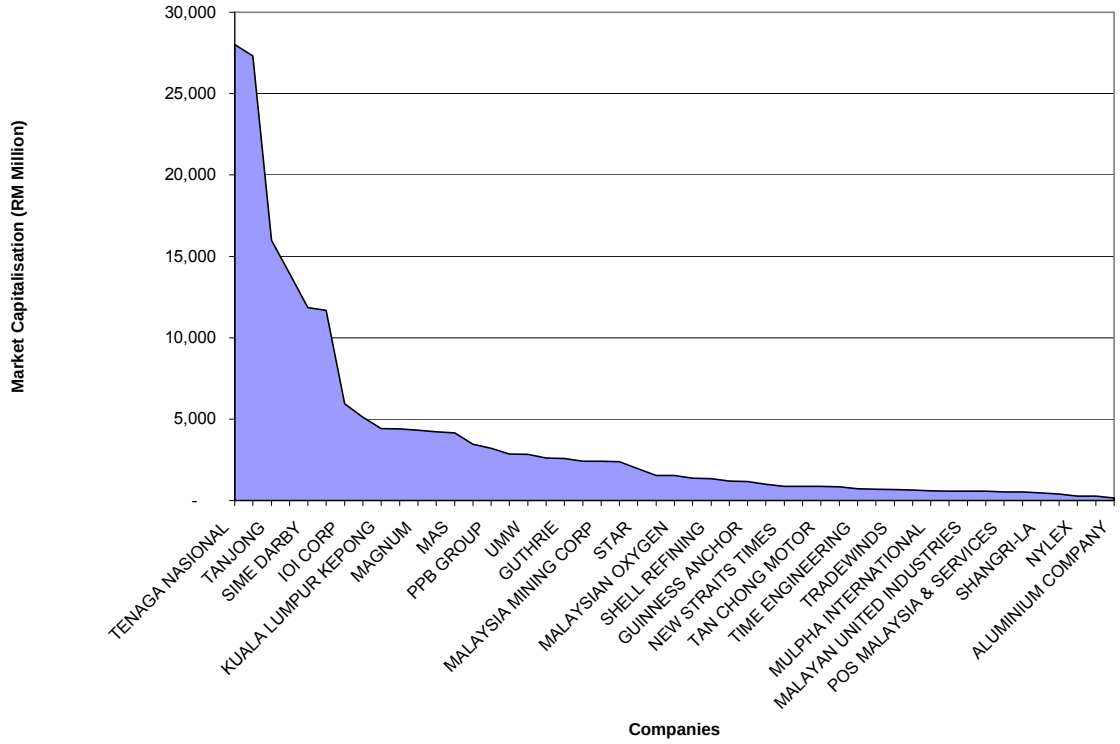

Figure 1: Market Capitalisation of the Selected Companies in 2003
(Source: Perfect Analysis Database)

The sample consists of companies categorized under six major industry groups, namely manufacturer of consumer products, manufacturer of industrial products, technology, trading services, hotel and plantations.

The second stage of the methodology is based upon the systematic interpretation of the companies' annual reports. The process sought to classify companies on the basis of whether or not the company had a CRE strategy, whether the CRE strategy could be classified under the Nourse and Roulac (1993) framework or whether the company had a CRE strategy different from the Nourse and Roulac framework. These questions were considered independently for both 1998 and 2003, thereby

[1] Involves long-term planning of 3 to 5 years.
[2] Currency exchange: RM 1 equals to £0.15 as at 31st December 2003 (Source: Bank Negara Malaysia)
[3] Market capitalisation is based on the date at the end of accounting period.

allowing for the possibility of a changed position for each company over the five-year period. In some cases the companies explicitly mentioned the utilization of a CRE strategy, while other companies revealed CRE operating decisions. To ensure consistency in the interpretation of company reports and to apply scientific rigor, the study utilized the Nourse and Roulac framework, which allowed linkage between real estate operating decisions and corporate strategies (Table 1). For the purposes of the analysis companies were classified according to the CRE dominant strategy.

The third stage of the methodology involves multivariate analysis, whereby the outcome from qualitative investigation is applied to identify and measure the extent of the relationships between the CRE strategy and the financial performance indicators. CRE strategy represents the independent variable that is expected to have an effect on the variation of the dependent variable, share price, which represents the financial performance of the companies. Only internal factors (in particular, the financial variables) that make a contribution to share price are considered in the empirical analysis.

The financial variables considered in this study include profitability, gearing, liquidity and investment ratios. The selection of these financial ratios is based on their inter-relationships with share price. Share price represents the financial performance measure of this study, while the other variables are used as supporting independent variables.

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10\text{-}1}X_{10\text{-}1} + e$$

where:

Y	=	Share price
a	=	Constant
b	=	Coefficient of the variables
X_1	=	Return on shareholder funds (ROSF)
X_2	=	Profit margin
X_3	=	Current ratio
X_4	=	Liquidity ratio
X_5	=	Earnings per share (EPS)
X_6	=	Solvency ratio
X_7	=	Gearing ratio
X_8	=	Interest cover ratio
X_9	=	Dividend pay out ratio
$X_{10\text{-}1}$	=	Dummy variable (CRE strategy)
e	=	Error term

CRE Strategies

This section explores potential CRE strategies among the Malaysian companies based on the framework developed by Nourse and Roulac (1993). For each company the dominant CRE strategy was identified using annual reports and other documents from each company. The analysis underpinning this study is based upon these strategies: strategy 1 (cost minimisation), strategy 2 (flexibility), strategy 3 (promotes human resource objectives), strategy 4 (promote marketing message), strategy 5 (promote sales and selling process), strategy 6 (facilitate production, operation and service delivery), strategy 7 (facilitate managerial process and knowledge framework), and strategy 8 (capture the real estate value creation).

The initial analysis seeks to classify companies in the following basis:

i) Does the company have a CRE strategy?

ii) Does the company have a CRE strategy that falls into the Nourse and Roulac (1993) framework?

Table 1: The Nourse and Roulac Framework: Linking Real Estate Operating Decisions with CRE Strategy
Adapted from: Nourse and Roulac (1993)

Operating Dec. / CRE strategies	Location	Quantity	Tenancy/ Duration	Identity/ Signage	Building Size/ character	Bldg amenities	Exterior Quality	Company Space	Mechanical Systems	Information /comm. Systems	Ownership Rights	Financing	Control	Risk Mgmt
1.Occupancy to Cost Minimisation	remote less popular regions & sites	minimum space per worker			general purpose building	less important	less important	lesser priority			minimise financial responsibility	cost-of capital trade offs drive decision	inconsistent with cost minimisation	minimise financial exposure
2. Flexibility	less prime location		short term leases – options					construction to favour easy modification					important	
3. Promote Human Resources Objectives	accessible to where workers live / want to live	more space per employee	long-term			high priority		premium ambience and furnishing	comfortable working ambience				high priority	
4. Promote Marketing Message	prestige and high visibility; very important		own or long term lease	critical	landmark structure		very important	consistent with marketing messages			important relative to continuity of marketing message		priority	
5. Promote Sales and Selling Process	prestige and/ or high traffic location		lease for flexibility	critical			consider selling	critical impact on selling environment		important			significant RE impacts of adjacent uses	
6. Facilitate Production, Operation and Service Delivery	access to customers and suppliers		own or long-term lease		appropriate for primary purpose			specialised facility	appropriate temperature	priority			significant RE impacts of adjacent uses	
7. Facilitate Managerial Process and Knowledge Framework		sufficient to promote effective work			important	contribute to effective work		critical priority	positive working environment	priority				
8. Capture RE Value Creation of the Business	consider impacts on demand of location decision	secure more space / land than needed for own use	longer terms		dominant tenant						critical	critical strategic priority	critical	Aggressive value creation involves more risk

iii) Does the company have a CRE strategy different from the Nourse and Roulac (1993) framework, specifically a strategy related to corporate social responsibility (CSR)?

The results for 2003 indicate that the vast majority of companies (80%) have a CRE strategy. Almost 76% matched to the strategies proposed by Nourse and Roulac and another 4% have a strategy related to corporate social responsibility (CSR) (Figure 2). The remaining companies (20%) have no discernable strategy with no evidence of reporting on any aspect of CRE activities in the companies' annual reports or elsewhere.

Only one of the Nourse and Roulac strategies is an unused category, namely strategy 3 (promote human resources objective). The other strategies can be allocated to companies ranging from 2% for strategy 2 (flexibility) and strategy 4 (promote marketing message) to 41% for strategy 6 (facilitate production, operation and service delivery).

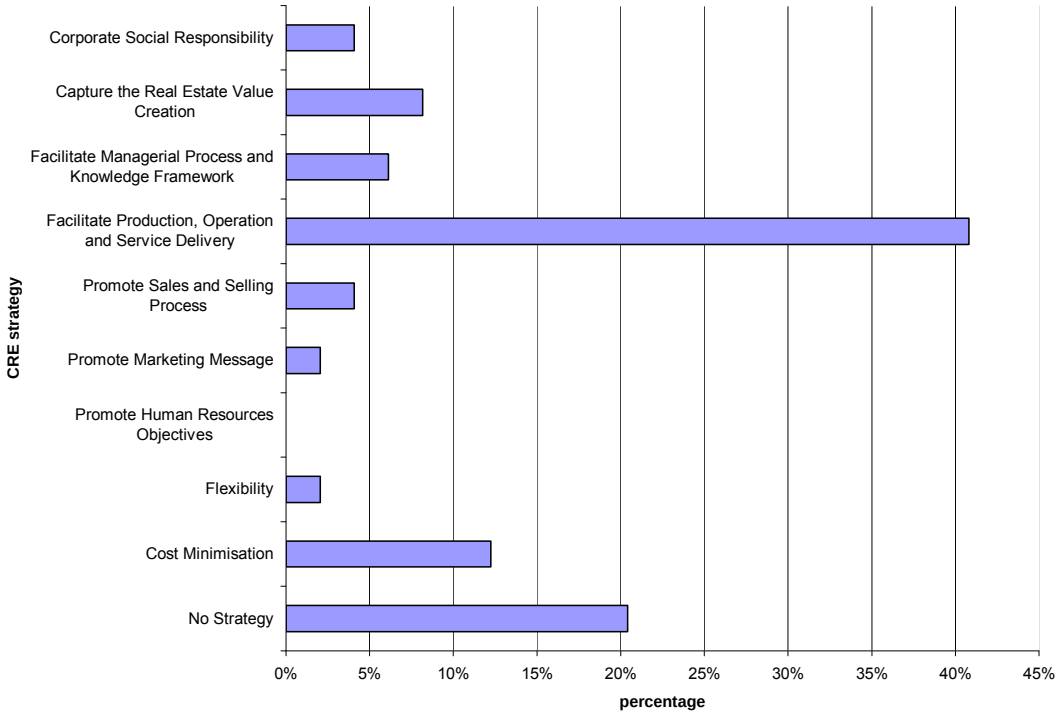

Figure 2: The Distribution of CRE Strategies: 2003

Companies utilizing strategy 6 (facilitate production, operation and services delivery) tend to place emphasis on the aspect of operating decisions related to company space, building character and location. The second highest strategy (12%) is cost minimization. It is observed that companies using this strategy are those experiencing financial contraction, either in previous years or in anticipation of financial difficulties in the future.

The fourth highest (8%) is strategy 7, facilitate managerial process and knowledge framework. The companies that utilized this strategy tend to emphasize knowledge over the traditional industrial paradigm through the changing character of buildings and the provision of building amenities that can contribute to effective work. Strategy 5 (promote sales and selling process) is less frequently cited. Only 4% of the sample utilized this strategy as a dominant strategy in 2003. The companies utilizing this strategy place emphasis on the aspect of company space in order to promote sales.

The least cited strategy is flexibility, with only 2% utilizing this strategy. Strategy 3, promote human resources objective, is not used by any companies in the sample for 2003. This strategy focuses on promoting the human resources objective through the provision of a comfortable working environment which will enhance the workers' productivity.

An interesting departure from the Nourse and Roulac (1993) framework relates to corporate social responsibility (CSR), with 4% of the sample discussing their CRE strategy under CSR issues. CSR is described by the International Organisation for Standardisation (ISO) (2002) as "a balanced approach for organisations to address economic, social and environmental issues in a way that aims to benefit people, communities and society". The issues which are normally highlighted under CSR include human rights, workplace and employee issues, such as occupational health and safety, unfair business practices, corporate governance, environmental aspects, marketplace and consumer issues, community involvement and social development (Leonard and McAdam, 2003). According to Michael (2003), CSR became prominent within companies, government and civil society in the late 1990s and early 2000s. Indeed there is a growing trend to incorporate CSR aspects in the company's annual report that would not have arisen at the time of Nourse and Roulac's study. The aspects of CSR which are relevant to CRE strategy include discussions on the workplace and environmental issues.

Although the discussion on the workplace appears to be closely related to strategy 3, promote human resources objective, it is inappropriate to classify this issue under that strategy. This is due to the nature of discussion on CSR, which is not solely concerned with the workplace. For instance, those companies that exhibit CSR as a dominant strategy discuss CRE in relation to both the workplace and environmental issues. A typical discussion on the workplace is to provide a safe-working environment for employees, while the environmental aspects include reducing pollution through investments in manufacturing facilities.

The results in 1998 show a similar pattern to those in 2003 with the majority of companies in the sample utilised the Nourse and Roulac CRE strategies. The facilitate production, operation and service delivery is the most frequently used strategy. Cost minimisation strategy (12%) appears to be the second highest strategy, while the third highest used strategy is capture real estate value creation (8%). Other strategies show a similar trend to the 2003 results, with less than 5% of utilization. In 1998, 24% have no describable CRE strategy (Table 2).

Table 2: Summary of Results for 1998 and 2003 Analyses

Analysis	1998 (%)	2003 (%)	Change(%)
CRE Strategy:			
No Strategy	24	20	-4
Cost Minimisation	12	12	-
Flexibility	2	2	-
Promote Human Resources Objectives	2	0	-2
Promote Marketing Message	4	2	-2
Promote Sales and Selling Process	2	4	+2
Facilitate Production, Operation and Service Delivery	37	41	+4
Facilitate Managerial Process and Knowledge Framework	4	6	+2
Capture the Real Estate Value Creation	12	8	-4
Corporate Social Responsibility	0	4	+4

Empirical Analysis for 2003

The empirical analysis seeks to identify and evaluate the relationships between CRE strategies and financial performance, in particular the share price. To achieve this aim, linear multiple regression analysis (MRA) is used with CRE strategies and financial indicators representing the predictor variables, while the share price represents the dependent variable. CRE strategies are in non-parametric form, thus dummy variables are used to represent the strategies. The financial indicators are in a parametric form and are used as control variables to support the analysis. The financial indicators that are considered in the analysis include profitability, long-term financial structure, short-term financial structure and investment ratios.

The sample for the Malaysian market consists of major companies drawn from the Kuala Lumpur Composite Index (KLCI). A total of 49 companies meet the criteria established. Since the sample is small, the maximum number of predictor variables that can be applied in the model based on the minimum ratio of five observations to one predictor variable, is nine (Hair, Anderson, Tatham and Black, 1998). This is to ensure that the model exhibits a valid statistical power and generalizations can be made from the model. The nine predictor variables include the financial indicators and the CRE strategies.

The CRE strategies identified in 2003 included nine categories, namely companies with no strategy (S0), cost minimization (S1), flexibility (S2), promote marketing message (S4), promote sales and selling process (S5), facilitate production, operation and services delivery (S6), facilitate managerial process and knowledge framework (S7), capture real estate value creation (S8) and CSR (S9). Using the rule for dummy categories, *k*-1, (Hair et al, 1995) only eight dummies are applicable in the analysis. Hence only one financial indicator will be considered in the model. Results from correlation analysis show that two predictor variables have a significant correlation with share price, namely return on equity (ROE) (0.509, $\rho < 0.01$) and earnings per share (EPS) (0.544, $\rho < 0.01$) (Table 3). The analysis indicates that these two variables have the potential to be good predictor variables in determining share price. Two separate equations are considered incorporating each of these financial variables. Model 1 incorporates EPS, which represents the investors' ratio; while model 2 incorporates ROE, which represents the profitability measures.

Table 3: Correlation Matrix Analysis (2003)

					Predictors			
	Variables		X_1	X_2	X_3	X_4	X_5	X_6
	Predictors		Current	Debt Equity	Interest Cover	ROE	EPS	Dummy CRE[4]
X_1	Current	Correlation	1					
		Sig						
X_2	Debt Equity	Correlation	-0.411*	1				
		Sig	0.003					
X_3	Interest Cover	Correlation	0.434*	-0.319**	1			
		Sig	0.002	0.025				
X_4	ROE	Correlation	0.154	-0.283**	0.198	1		
		Sig	0.290	0.049	0.173			
X_5	EPS	Correlation	0.081	-0.162	0.038	0.640*	1	
		Sig	0.578	0.267	0.793	0.000		
X_6	Dummy CRE	Correlation	-0.179	-0.040	-0.207	0.231	0.257	1
		Sig	0.218	0.788	0.153	0.110	0.075***	
	Dependent							
Y	Share Price	Correlation	0.001	0.025	-0.058	0.509*	0.544*	0.116
		Sig	0.996	0.862	0.692	0.000	0.000	0.425

N = 49

* significant at the 0.01 level (2-tailed). ** significant at the 0.05 level (2-tailed). *** significant at the 0.10 level (2-tailed).

[4] Dummy CRE at this stage incorporates company with CRE strategy.

Model 1 (EPS), 2003 Analysis

The analysis involving Model 1 consists of 48 observations. One observation is removed from the sample due to the high value of EPS (207.60 cents), which lies beyond the normal distribution curve and considered as an outlier. The explanatory power of the model exhibits a R^2 of 47%, indicating the variables explain 47% of the variation in share price (Table 4). This result suggests that 53% the variation in share price is explained by other variables that are not considered in the equation. The F-ratio is 4.346 and is significant at $\rho < 0.01$. The results show that EPS has a positive relationship with share price, as indicated by the positive b-value (9.067E-02), with a t-value of 4.826 (significant at $\rho < 0.01$). Theoretically the positive relationship is expected, as the increase in earnings or profitability will increase the share price.

Table 4: Summary of Model 1 (EPS, 2003)

Summary of Model 1 (EPS)					
	$Y = a + b_1X_1 + \ldots\ldots\ldots + b_{n-1}X_{n-1} + e$, where Y = Share price a = Constant b = Coefficient of the variables X_{n-1} = Dummy CRE (S0, S1, S4, S5, S6, S7, S8 and S9) e = error				
	R=0.687	R^2=0.471	Adjusted R^2 0.363	Std. Error of estimate 3.38543	F ratio=4.346 Sig:0.001
	a	EPS			
b	2.444	9.067 E-02			
t	2.209	4.826			
sig	0.033**	0.000*			

* Significant at the 0.01 level (2-tailed). *** Significant at the 0.10 level (2-tailed).
** Significant at the 0.05 level (2-tailed).

The analysis involved all the strategies identified in 2003, except S2, due to its removal from the sample. The results show that only S7 appears to make a significant contribution when S1 and S8 are used as reference strategies. S7 has a positive regression coefficient (4.069) indicating a positive relationship with share price and it is significant at $\rho < 0.10$ (Table 5). This result suggests that companies with S7 increase share price compared to those companies using S1. S7 also exhibits a significant relationship when S8 is used as the reference strategy. S7 shows a positive sign (b-value = 5.493) when it is compared against S8 suggesting that companies with S7 have a better effect on share price compared to those utilizing S8, and is significant at $\rho < 0.05$ (Table 5).

Table 5: Result on Dominant CRE Strategies Analysis Using Model 1 (EPS, 2003)

	CRE strategies included in the analysis							
	S0	**S1**	**S4**	**S5**	**S6**	**S7**	**S8**	**S9**
b		-1.391	-0.893	1.018	-0.567	2.678	-2.816	-2.146
b	1.391		0.499	2.409	0.824	4.069***	-1.424	-0.754
b	0.893	-0.499		1.910	0.326	3.570	-1.923	-1.253
b	-1.018	-2.409	-1.910		-1.584	1.660	-3.833	-3.163
b	0.567	-0.824	-0.326	1.584		3.245	-2.249	-1.579
b	-2.678	-4.069***	-3.570	-1.660	-3.245		-5.493**	-4.823
b	2.816	1.424	1.923	3.833	2.249	5.493**		0.670
b	2.146	0.754	1.253	3.163	1.579	4.823	-0.670	

Note:
1. Table is read in a horizontal direction.
2. Cell with a cross mark denotes the reference strategy.
3. Shaded area in grey denotes the significance CRE strategy.
** Significant at the 0.05 level (2-tailed).
*** Significant at the 0.10 level (2-tailed).

Model 2 (ROE), 2003 Analysis

Model 2, using ROE as the main financial indicator, shows a lower R^2 (0.354) compared to Model 1. The R^2 indicates that the predictor variables explained only 35% of the variation in share price (Table 6). The main financial variable in the model, ROE shows a positive relationship with share price, as indicated by the positive b-value of 0.186 (Table 6). ROE exhibits a significant contribution, with a t-value of 3.369 and is significant at $\rho < 0.01$.

Table 6: Summary of Model 2 (ROE, 2003)

Summary of Model 2 (ROE, 2003)

$Y = a + b_1X_1 + \ldots\ldots\ldots + b_{n-1}X_{n-1} + e$, where
Y = Share price
a = Constant
b = Coefficient of the variables
X_1 = ROE
X_{n-1} = Dummy CRE (S0, S1, S2, S4, S5, S6, S7, S8 and S9)
e = error

	R	R^2	Adjusted R^2	Std. Error of	F ratio = 2.376
	0.595	0.354	0.205	estimate = 3.76568	Sig:0.030
	a	ROE			
b	2.988	0.186			
t	2.461	3.369			
sig	0.018**	0.002*			

* Significant at the 0.01 level (2-tailed).
** Significant at the 0.05 level (2-tailed).
*** Significant at the 0.10 level (2-tailed).

The analysis of dominant CRE strategies using Model 2 involved all of the 49 observations. The analysis reveals that there is no outstanding strategy identified in 2003 using Model 2. Only S5, promotes sales and selling process, is significant at $\rho < 0.10$), compared to those companies with S1 (Table 7). The positive sign implies a positive relationship with share price. This statistical measure indicates that the share price increases as a company changes its strategy from S1 to S5. This interpretation suggests that to utilize S5 is better in enhancing the share price of a company, compared to S1. The contrary scenario is reflected when S5 is excluded from the model and is used as a reference strategy. S1 has a negative b-value of -5.459 and is significant at $\rho < 0.10$ level (Table 7). The negative sign indicates an inverse relationship with the share price, suggesting that utilising S1 will reduce share price in comparison to S5. Other strategies appear to make no significant contribution to the model.

Table 7: Result on Dominant CRE Strategies Analysis Using Model 2 (ROE, 2003)

	CRE strategies included in the analysis								
	S0	**S1**	**S2**	**S4**	**S5**	**S6**	**S7**	**S8**	**S9**
b		-1.049	0.853	-2.252	4.410	-0.102	2.940	-0.483	-1.516
b	1.049		1.902	-1.204	5.459***	0.947	3.989	0.566	-0.467
b	-0.853	-1.902		-3.105	3.557	-0.955	2.087	-1.336	-2.369
b	2.252	1.204	3.105		6.663	2.151	5.193	1.769	0.737
b	-4.410	-5.459***	-3.557	-6.663		-4.512	-1.470	-4.894	-5.926
b	0.102	-0.947	0.955	-2.151	4.512		3.042	-0.381	-1.414
b	-2.940	-3.989	-2.087	-5.193	1.470	-3.042		-3.423	-4.456
b	0.483	-0.566	1.336	-1.769	4.894	0.381	3.423		-1.033
b	1.516	0.467	2.369	-0.737	5.926	1.414	4.456	1.033	

Note:
1. Table is read in a horizontal direction.
2. Cell with a cross mark denotes the reference strategy.
3. Shaded area in grey denotes the significance CRE strategy.
*** Significant at the 0.10 level (2-tailed).

Empirical Analysis for 1998

The empirical analysis for 1998 follows a similar pattern to the 2003 analysis with the aim to identify the relationship between CRE strategies and share price. The same set of companies used for 2003 is used for the 1998 analysis. The analysis of 1998 replicates a similar pattern of analysis as in the 2003.

The CRE strategies identified in the 1998 can be classified into nine categories namely companies with no strategy (S0), cost minimization (S1), flexibility (S2), promote human resources (S3), promote marketing message (S4), promote sales and selling process (S5), facilitate production, operation and services delivery (S6), facilitate managerial process and knowledge framework (S7) and capture real estate value creation (S8). Analysis shows that two predictor variables have significant correlations with share price namely EPS (0.468, ρ<0.01) and ROE (9.617E-02, ρ<0.01) (Table 8). The results indicate that these two variables have potential to be good predictor variables in determining share price. Two separate equations are considered incorporating each of these financial variables as X_1. It is interesting to note at this stage, dummy CRE exhibits a negative correlation of –0.368 at ρ<0.01 with share price.

Table 8: Correlation Matrix Analysis (1998)

			Predictors					
	Variables		**X_1**	**X_2**	**X_3**	**X_4**	**X_5**	**X_6**
	Predictors		Current	Debt Equity	Interest Cover	ROE	EPS	Dummy CRE
X_1	Current	Correlation	1					
		Sig						
X_2	Debt Equity	Correlation	-0.209	1				
		Sig	0.149					
X_3	Interest Cover	Correlation	0.390*	-0.075	1			
		Sig	0.006	0.608				
X_4	ROE	Correlation	0.231	-0.589*	0.039	1		
		Sig	0.110	0.000	0.789			
X_5	EPS	Correlation	0.292**	-0.489*	0.076	0.856*	1	
		Sig	0.042	0.000	0.605	0.000		
X_6	Dummy CRE	Correlation	0.091	0.136	0.064	-0.137	-0.206	1
		Sig	0.533	0.353	0.661	0.348	0.156	
	Dependent							
Y	Share Price	Correlation	0.045	-0.110	0.095	0.251***	0.468*	-0.368*
		Sig	0.757	0.451	0.514	0.082	0.001	0.009

N = 49

* Correlation is significant at the 0.01 level (2-tailed).

** Correlation is significant at the 0.05 level (2-tailed).

*** Correlation is significant at the 0.10 level (2-tailed).

Model 1 (EPS), 1998 Analysis

The analysis involved 48 observations due to the removal of one observation. The observation has an EPS value lies beyond the normal distribution curve and considered as an outlier. In terms of explanatory power, Model 1 exhibits a R^2 of 43%, indicating 43% of the variation in share price is explained by the predictor variables (Table 9). The F-ratio is 3.140 and is significant at $\rho < 0.01$. The results show that EPS has a positive relationship with share price, as indicated by the positive b-value (3.464E-02) and is significant at $\rho < 0.01$ (Table 9).

Table 9: Summary of Model 1 (EPS, 1998)

Summary of Model 1 (EPS)					
	$Y = a + b_1X_1 + \ldots\ldots\ldots + b_{n-1}X_{n-1} + e$, where Y = Share price a = Constant b = Coefficient of the variables X_{n-1} = Dummy CRE (S0, S1, S2, S4, S5, S6, S7, S8 and S9) e = error				
	R=0.653	R^2=0.426	Adjusted R^2 0.291	Std. Error of estimate 2.35776	F ratio=3.140 Sig:0.006
	a	EPS			
b	4.345	3.464E-02			
t	5.819	3.513			
sig	0.000*	0.001*			

* Significant at the 0.01 level (2-tailed). *** Significant at the 0.10 level (2-tailed).
** Significant at the 0.05 level (2-tailed).

The analysis of dominant CRE strategy reveals that S1, S6 and S8 make a significant contribution when S0 is used as the reference strategy. These strategies produce negative b-values (S1=-2.656, S6=-1.532 and S8=-2.219), indicating negative relationships with share price when they are referred against companies with no CRE strategy (Table 10). All of these strategies make a significant contribution at $\rho<0.10$. The results infer that companies with S1, S6 or S8 reduce share price compared to those companies without a CRE strategy. The contrary results are shown when these strategies are used as reference strategies against companies without strategy. For instance when S1 is used a reference strategy, S0 shows a positive b-value (2.656) indicating a positive relationship with share price. The inference is that a company with no CRE strategy performs better than a company with S1 in enhancing share price. A similar pattern of results is obtained when S6 and S8 are used as reference strategies, suggesting that to have no strategy is better than those companies with S6 and S8 (Table 10). Other strategies appear to have no significant contribution to the model in determining share price.

Table 10: Result on Dominant CRE Strategies Analysis Using Model 1 (EPS, 1998)

	CRE strategies included in the analysis								
	S0	**S1**	**S2**	**S3**	**S4**	**S5**	**S6**	**S7**	**S8**
b		-2.656***	-0.285	0.570	-0.660	-1.694	-1.532***	-0.769	-2.219***
b	2.656***		2.371	3.225	1.995	0.961	1.124	1.886	0.437
b	0.285	-2.371		0.855	-0.375	-1.409	-1.247	-0.484	-1.934
b	-0.570	-3.225	-0.855		-1.230	-2.264	-2.102	-1.339	-2.788
b	0.660	-1.995	0.375	1.230		-1.034	-0.871	-0.109	-1.558
b	1.694	-0.961	1.409	2.264	1.034		0.163	0.925	-0.524
b	1.532***	-1.124	1.247	2.102	0.871	-0.163		0.762	-0.687
b	0.769	-1.886	0.484	1.339	0.109	-0.925	-0.762		-1.449
b	2.219***	-0.437	1.934	2.788	1.558	0.524	0.687	1.449	

Note: 1. Table is read in a horizontal direction.
2. Cell with a cross mark denotes the reference strategy.
3. Shaded area in grey denotes the significance CRE strategy.
*** Significant at the 0.10 level (2-tailed).

Model 2 (ROE), 1998 Analysis

An outlier is removed from the analysis, leaving the sample with 48 observations. The removed observation has a ROE that lies beyond the normal distribution curve. In term of explanatory power, Model 2 exhibits R^2 of 48% indicating the variables considered in the model explain 48% variation in share price (Table 11). The model has a F-ratio of 3.922 and is significant at ρ<0.01. The financial parameter shows a positive relationship with share prices as indicated by the positive b-value (9.617 E-02). ROE shows a t-value of 4.206 and is significant at ρ<0.01.

Table 11: Summary of Model 2 (ROE, 1998)

Summary of Model 2 (ROE, 1998)

$Y = a + b_1X_1 + \ldots\ldots\ldots + b_{n-1}X_{n-1} + e$, where
Y = Share price
a = Constant
b = Coefficient of the variables
X_{n-1} = Dummy CRE (S0, S1, S2, S3, S4, S5, S6, S7 and S8)
e = error

	R=0.694	R^2=0.482	Adjusted R^2 0.359	Std. Error of estimate 2.24165	F ratio=3.922 Sig:0.001
	a	ROE			
b	4.015	9.617 E-02			
t	5.511	4.206			
sig	0.000	0.000			

* Significant at the 0.01 level (2-tailed).
** Significant at the 0.05 level (2-tailed).
*** Significant at the 0.10 level (2-tailed).

The analysis reveals that none of the strategies has a significant contribution in determining the share price. All of the strategies consistently produced low t-values and are found to be insignificant (Table 12).

Table 12: Result on Dominant CRE Strategies Analysis Using Model 2 (ROE, 1998)

	CRE strategies included in the analysis								
	S0	**S1**	**S2**	**S3**	**S4**	**S5**	**S6**	**S7**	**S8**
b		-2.079	7.48E-03	1.151	0.256	1.615	-1.251	-0.152	-1.745
b	2.079		2.086	3.229	2.335	3.693	0.827	1.926	0.334
b	-7.48E-03	-2.086		1.143	0.248	1.607	-1.259	-0.160	-1.753
b	-1.151	-3.229	-1.143		-0.895	0.464	-2.402	-1.303	-2.896
b	-0.256	-2.335	-0.248	0.895		1.359	-1.507	-0.408	-2.001
b	-1.615	-3.693	-1.607	-0.464	-1.359		-2.866	-1.767	-3.360
b	1.251	-0.827	1.259	2.402	1.507	2.866		1.099	-0.494
b	0.152	-1.926	0.160	1.303	0.408	1.767	-1.099		-1.593
b	1.745	-0.334	1.753	2.896	2.001	3.360	0.494	1.593	

Note: 1. Table is read in a horizontal direction. 2. Cell with a cross mark denotes the reference strategy.

Comparative Analysis – 2003 and 1998

The contribution of CRE strategy to share price is apparent in 2003 as shown by the results of both models (Table 13). Although CRE strategy has a marginal contribution, the positive relationship with share price suggests that the utilisation of specific strategies will benefit the companies. In particular, strategy 7 (facilitate managerial process and knowledge framework) is outstanding in comparison to strategy 1 (cost minimisation) and strategy 8 (capture real estate value creation) (Table 13). While strategy 5 (promote sales and selling processes) outperforms strategy 1 (cost minimisation) in enhancing share price.

For 1998 analysis, Model 2 has a better explanatory power compared to Model 1 (as shown by the R^2 and F-ratio). However, none of the strategies make a significant contribution in Model 2. Model 1 produces CRE results that make a significant contribution to share price. Strategy 1 (cost minimisation), strategy 6 (facilitate production, operation, and services delivery) and strategy 8 (capture real estate value creation) are significant when these strategies are referred against S0 and vice versa (Table 13). However, the relationships of these strategies with share price are negative, indicating that companies with such strategies reduced share price compared to those without a CRE strategy. In general, the results for 1998 indicate that to have no strategy is better in enhancing share price of a company.

Table 13: Comparative Analysis of 2003 and 1998

Analysis	**2003**	**2003**	**1998**	**1998**
1. Dominant Strategy *Strategy used as a reference*	**Model 1 (EPS)**	**Model 2 (ROE)**	**Model 1 (EPS)**	**Model 2 (ROE)**
No Strategy (S0)	n.s	n.s	S1*** S6*** S8***	n.s
Cost Minimisation (S1)	S7***	S5***	S0***	n.s
Flexibility (S2)	Removed	Removed	n.s	n.s
Promotes HR Management (S3)	n.r	n.r	n.s	n.s
Promotes Marketing Message (S4)	n.s	n.s	n.s	n.s
Promotes Sales & Selling Process (S5)	n.s	S1***	n.s	n.s
Facilitate Production, Operation and Services Delivery (S6)	n.s	n.s	S0***	n.s
Facilitate Managerial Process and Knowledge Framework (S7)	S1*** S8**	n.s	n.s	n.s
Capture RE Value Creation(S8)	S7**	n.s	S0***	n.s
CSR	n.s	n.s	n.r	n.r

Summary and Conclusion

The main contribution of this research is establishing the linkage between CRE strategy and financial performance of companies in an emerging Malaysian market. This research tests the conceptual framework of Nourse and Roulac (1993) on major companies in Malaysia in 1998 and 2003. The finding from this research is important as it provides the platform for companies to review the utilisation of their CRE strategies.

The first contribution of this study is through the analysis of CRE strategies by major public companies in Malaysia on a cross sectional basis involving two time frames (1998 and 2003). Most of the companies in the sample have a CRE strategy and have a similar pattern of CRE utilisation in 1998 and 2003. Facilitate production, operation and services delivery strategy is the most used strategy in both study periods. There is an emerging trend of incorporating a strategy related to CSR in 2003. This research reveals that circa 24% of major public companies in Malaysia still do not have a CRE strategy. This finding indicates that there are major companies that still neglect the importance of CRE in supporting their businesses' operations.

The second contribution is establishing the linkage between CRE strategy and financial performance of companies in Malaysia. This research suggests that CRE strategy has the potential to enhance financial performance of companies notably the application of strategy 7, facilitate managerial process and knowledge framework. The potential of facilitate managerial process and knowledge framework strategy in enhancing share price is also identified by Ali et al. (2006) on a study involving major companies in UK (a matured market) in 1998 and 2003. Facilitate managerial process and knowledge framework strategy consistently produces positive linkage with share price in comparison to the other CRE strategies (Ali et. al., 2006).

The outcome from the 1998 analysis suggests that the contribution of CRE strategy is not apparent when companies are competing under severe economic condition. The evidence from 1998 reflects that the application of CRE strategy has an adverse effect on share price, which could be linked to the Asian financial crisis that started in July 1997. The crisis started in Thailand and eventually spread to other countries in the region. Malaysia suffered from this crisis, which has affected the country's currency and equities markets and resulted in huge capital outflows (estimated at RM129 billion in 1997 and RM 20.6 billion in 1998) (Economist Intelligence Unit, 2005). To fully explore the influence of economic factors, the study may need to be widened across other markets incorporating major companies in the US, Europe (expansion to other countries) and Asia Pacific regions.

This research supports the contention that a strategically managed CRE could potentially contribute to enhancing shareholders' wealth. However, the research suggests that CRE strategy is subject to change across time depending on the changes in the economy and business environment in which the companies are competing. CRE strategy, which integrates the current business perspective, has more potential to enhance financial performance. Hence this research suggests that CRE strategy needs to be reviewed accordingly and adjustments should be made on how the role of CRE can respond to these changes.

References

Ackerman, L.D. (2000) *Identity is destiny – Leadership and the Roots of Value Creation*, Berrett-Koehler, San Francisco.

Ali, Z., McGreal W.S., Adair A.S., and Webb J.R. (2006) "Corporate Real Estate Strategy in the U.K. and Malaysia" *Journal of Corporate Real Estate*, **8**:4, pp168–77.

Economist Intelligence Unit (2005) *Country Profile, Malaysia*, EIU, New York.

Hair, J., R. Anderson, R. Tatham and W. Black (1998) *Multivariate Data Analysis with Readings*, 5th ed., Prentice Hall, New Jersey, US.

International Organisation for Standardisation strategic advisory group on corporate social responsibility, preliminary working definition of organisational social responsibility, ISO/TMB AGCSR N4, 2002.

Krumm, P.J. and J. DeVries (2003) "Value Creation Through the Management of Corporate Real Estate", *Journal of Property Finance and Investment*, **21**(1) pp 61-72.

Leonard, D. and R. McAdam (2003) "Quality and Ethics: Corporate Social Responsibility" *Quality Progress*, **36** (10), pp 27-32.

Lindholm, A.L., K.M. Gibler and Levainen, K.I. (2006) "Modeling the Value - Adding Attributes of Real Estate to the Wealth Maximization of the Firm", *Journal of Real Estate Research*, **28** (4), pp 445-475.

Michael, B. (2003) "Corporate Social Responsibility in International Development: An Overview and Critique" *Corporate Social Responsibility and Environmental Management*, **10** (3), pp 115-128.

Nourse, H.O. and S. Roulac (1993) "Linking Real Estate Decisions to Corporate Strategy" *Journal of Real Estate Research*, **8** (4), pp 475-494.

O'Mara, M.A. (1999) *Strategy and Place: Managing Corporate Real Estate and Facilities for Competitive Advantage*, The Free Press, New York, US

Pollert, W.R. and E.J. Glickman (2001) "Optimising Shareowner Value from Corporate Real Estate Assets", *Strategic Finance*, **82**(10) p33.

Roulac S.E. (2001) "Corporate Property Strategy is Integral to Corporate Business Strategy", *Journal of Real Estate Research*, **22** (1/2), pp129-151.

Rutherford, R.C. and H. Nourse (1988) "The Impact of Corporate Real Estate Unit Formation on the Parent Firm's Value" *Journal of Real Estate Research*, **3** (3), pp 73-84.

Rutherford, R.C. and R. Stone (1989) "Corporate Real Estate Unit Formation: Rationale, Industry and Type of Unit" *Journal of Real Estate Research*, **4** (3), pp 121-129.

Scheffer, J.L., B.P. Singer and M.C. Van Meerwijk (2006) "Enhancing Contribution of Corporate Real Estate to Corporate Strategy", *Journal of Corporate Real Estate*, **8**:4, pp188–97.