CORPORATE REAL ESTATE INVESTMENT & OWNERSHIP: EMPIRICAL EVIDENCE FROM BURSA MALAYSIA LISTED COMPANIES

By

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Abstract

This study examines the extent of corporate real estate holdings by corporate non-property companies listed on Bursa Malaysia for the 1993 to 2001 period. Several asset and capital structure ratios are used to determine the extent of real estate ownership.

The results of this study provided strong evidence that corporate real estate is a significant asset in the balance sheets of Malaysian listed companies. On average real estate comprises 24.6% of net tangible assets, 22.8% of shareholders' equity, 23.9% of market capitalization, 16.8% of total capital employed and 13.9% of total tangible assets of listed companies for the 1993-2001 period.

The level of property ownership of a non-property company is affected by its industry sector. Property holdings as a percentage of total tangible asset vary from 5.1% for the Finance Sector to 44.5% in the Plantation Sector. The Plantation Sector is the sector having a high level of property holdings.

The one way ANOVA shows that the real estate asset intensities are significantly different from one sector to another. The Scheffe tests confirms that the Plantation Sector is significantly different other sectors.

Keywords : *corporate real estate, real estate holdings, ANOVA, Scheffe test*

1.0   INTRODUCTION

Corporate real estate refers to the land and buildings owned by companies which are not involved in the real estate business of property development or investment (Zeckhauser and Silverman, 1981).

Non-property corporate firms require a significant amount of land and buildings for its occupations (i.e. administration and workplace) and operational requirements (i.e. production, storage and distribution/marketing). An essential factor of production, property is traditionally perceived as a cost centre and is manage passively.

As a business resource, real estate constitutes the second highest category of costs after salaries (Veale 1989). Many companies have little idea of their property costs and the extent of their interests and values of their property holdings. Corporate real estate needs to be managed as an integral part of business resource and strategic management in the face of intense business competition and technological advances.

1.1   Background of the study

The seminal work on corporate real estate by Zeckhauser and Silverman (1981 and 1983) had surveyed major corporations in US and found that the average firms' real estate assets is about 25% of total assets with manufacturing firms constituting 40% of their sample.

In "*Managing the Future*", a study conducted by the Institute of Real Estate Management and Arthur Anderson & Co., the total value of the US real estate stock was approximately US$8.777 trillion in 1990. Out of this total, the corporate sector owns US$1.699 trillion approximately 19.4% of US real estate.

Commercial real estate in the US is owned primarily by corporations. These corporations own US$1.63 trillion of the total US$2.655 trillion of the commercial real estate in US. Retail properties comprise 42% and office buildings 38% of the total commercial real estate. At individual company's level, real estate may comprise up to 75% of a firm's assets (Johnson and Keasler 1993).

Past research studies show that these properties are not properly managed (Redman and Tanner 1991, Nourse and Kingery 1987, Pitman and Parker 1989). Corporate real estate managers do not have sufficient communication and direct contact with the management to effectively influence corporate strategy (Avis, Gibson and Watts 1989, Pittman and Parker 1989, Carn, Black and Rabianski 1999 and Gibler, Black and Moon 2002).

As property acquisition, management, planning and disposal are not core competencies for most firms, these firms do not have a real estate strategy link to overall corporate strategy (Nourse and Roulac 1993).

For companies owning large property portfolios and do not manage real estate efficiently may face hostile corporate takeovers. Predators may undertake merger and acquisition to unlock the latent value of the property assets of the target company (Ambrose 1990).

1.2 Objectives of the study

The objectives of this study are :

(a)   to determine the average values of properties owned by listed companies, by sectors and by Boards of Bursa Malaysia;

(b)   to determine the level of property intensity by using ratios;

(c)   to examine whether there are any significant differences between the real estate holdings among the various sectors of Bursa Malaysia for the 1993 to 2001 period.

1.3 Significance of the study

This study seeks to document the level of corporate real estate ownership of an emerging market by using relatively large sample of Malaysian companies in Bursa Malaysia of a more recent time period (1993 – 2001).

The findings of this study allow comparison with the property holdings of firms in different sectors of Bursa Malaysia thereby increasing the level of awareness of management as to the real estate owned and more appropriate strategies are devised to make effective use of this important asset.

2.0   LITERATURE REVIEW

2.1   Definition and scope of corporate real estate

Corporate real estate refers to the land and buildings owned by companies not primarily involved in the real estate business (Zeckhauser and Silverman, 1983; Adendorff and Nkado, 1996 and Liow, 2001).

For Manning and Roulac (1999) corporate real estate includes real properties that house productive activities of a corporation and the primary business of the firm is not related to development, investment, management or financing of real estate assets. Corporate real estate includes all spaces involved in supporting a company's businesses and may include space for administrative and management functions, manufacturing, warehousing, selling/marketing and distribution activities (Roulac and Manning 1999).

Corporate real estate is an input factor in the production process and provides spaces to support the outputs of the firm. However for property companies, capital is invested on the property asset for development or investment in anticipation of a return from the capital (Manning and Roulac 1999). Thus corporate real estate does not include companies whose main business activities are property development, investment and management. Therefore property companies and property trusts/real estate investment trusts (REITs) are not included in the scope of corporate real estate research.

2.2   Corporate real estate holdings of non-property companies

The extent of real estate holdings varies between companies, industrial sectors and even between countries by regional groupings.

Zeckhauser and Silverman (1983) found between 25% to 41% of corporate assets in USA to be real estate. Flegel (1992) estimated that between 20% and 35% of all US corporations' assets were real estate.

In the UK, research by Currie and Scott (1991) shows that commercial properties, owned by the corporate sector, essential to the productive activities of manufacturing, services and agriculture was worth £250 billion in 1989.

Commercial properties accounted for one third of total investment in physical assets which is about the same as investment in plant and machinery.

Liow (1999a) found that for the 1987-1996 period the property holding profile of listed companies in Singapore varies from 11% to 66.4% of total asset. The hotel sector has the highest level of holding of 60% followed by the construction/building material sector in Singapore.

In Australia, 15% of the top 500 companies were in real estate (Seek 1991). For Germany, Schaefers (1999) reported 10% to 40% of total assets comprise property.

2.3   Real estate asset intensity by industry sectors

Johnson and Keasler (1993) used data from Standard & Poor's Compustat PC Plus to analyse the level of real estate asset intensity by industry groups/sectors in the US economy. Social services and Agricultural Production (livestock and animal) have significant increases in the real estate to total asset ratio from 1984 to 1991 (refer Table 1).

Table 1 : Real estate intensity by industry groups/sectors

Industry Group	1991 Real estate/total assets ratio (%)	1984 Real estate/total assets ratio (%)
Social Services	74.51	27.86
Agricultural production (livestock, animal)	55.40	7.84
Hotels and other lodging places	50.34	47.94
Eating & drinking places	48.07	48.74
Amusement and recreation services	41.46	36.91
Health services	33.70	39.58
Agricultural production (crops)	31.80	17.17
Building material, hardware	31.31	27.97
Food stores	28.05	26.56
Auto dealers, gas stations	24.66	17.06
Motor freight transportation, warehouse	18.93	15.08
Misc. retail	16.32	12.73
Stone, clay, glass, concrete	16.28	18.94
Lumber and wood	16.23	19.22
Primary metal industries	16.18	15.36
Apparel and accessory stores	15.34	20.04

3.0   RESEARCH METHODOLOGY AND DESIGN

3.1   Research design

For the purpose of this study, corporate real estate refers to land and building owned by a listed non-property company of Bursa Malaysia as classified under the *Property, Plant & Equipment* section of a corporate balance sheet of the company. The scope of land and buildings in this study covers the following:

- freehold land
- leasehold land
- long leasehold land
- buildings
- leasehold improvements and renovations
- buildings and improvements
- construction in progress/work in progress

Other items in the *Property, Plant and Equipment* Section of a balance sheet are furniture, fixtures and fittings, motor vehicles, restaurant and office equipment. These items are excluded in this study in the calculation of land and building of a company.

From the annual reports, data on *land and buildings* are collected from the balance sheets of the respective listed non-property companies for the Main and Second Board from 1993 to 2001. Only companies which have **remained in their respective sectors** are sampled from the listed companies of Bursa Malaysia for the 1993 to 2001 study period. Unlike Ting (2005) which do not take this into account, this overcome the problem of companies that had switch their business focus resulting in a change in sector classification.

The Property and the Property Trust Sectors are excluded from the study as the companies in these sectors are involved primarily in property development and property investment activities. Banks and insurance companies are also excluded from the study as the balance sheets are prepared according to financial/regulatory requirements which are different from the normal balance sheet format.

The dollar magnitude of corporate real estate is represented by the aggregated depreciated real estate holdings of buildings and land as the building component in the balance sheets are depreciated annually.

Various ratios are calculated using financial data from the financial statements to analyse the importance of land and building (i.e. corporate real estate) in the balance sheets of listed companies:

- a) Property / Net tangible assets (NTA) ratio
- b) Property / shareholders' equity ratio
- c) Property / market capitalization ratio
- d) Property / total capital employed ratio
- e) Property / total tangible assets

The motivation for using ratio analyses to examine property intensity is to control for the effect of size differences across firms or over time. Other measures in terms of total assets, shareholders' equity and market capitalization are also used to control for the effect of firm size.

To detect data entry errors, summary statistics especially minimum and maximum values are computed to help in detecting extreme data values i.e. very small or large values. Any data that is three standard deviations from the mean is suspected as outliers. For outliers which are observed, the data is firstly checked for recording errors or error in data entry. If the data is correct, the next step is to consider the background of the companies concerned.

Some of these outliers are caused by Practice Note 4 (PN4) companies where their financial conditions have deteriorated after the Asian financial crisis. The ratios that use financial data of these PN4 companies resulted in negative numbers which are not meaningful for interpretation. In these situations the companies concerned are dropped from further analyses.

Past studies have shown that financial ratios are positively skewed with a fat-tailed distribution (Foster, 1986). To reduce departures from normality, the top 1% and bottom 2% of observations are removed. In cases where data is missing for

an observation then the sample will be dropped from the analysis if the data concerned is not available or reported in the financial statements.

3.2 Sources of Data

Annual reports containing the balance sheets are found in Bursa Malaysia and Securities Commission libraries. Annual reports from 1999 onwards are also accessible from the respective web-sites of the listed companies. Data are also supplemented by *Annual Companies Handbook* and *Investors Digests* both published by Bursa Malaysia.

4.0 RESULTS

4.1 General findings

For the year 2001, the total real estate owned by a selected 500 non-property companies amounted to RM96.27billion representing 20.7% of the total market capitalization (RM465 billion) of Bursa Malaysia and it constitute about 24% of the total tangible assets of these firms. The sample size of 500 represents 61.6% of the total 812 companies of Bursa Malaysia or 68% of the total 735 non-property companies in 2001.

The average value of properties owned by a listed company for the 1995-2001 study period is RM137 million. The average value of properties owned by a listed company has been increasing steadily since 1995 (refer Table 2).

Table 2: Average Values (RM million) of properties owned by a listed company of Bursa Malaysia (1995 - 2001)

	1995	1996	1997	1998	1999	2000	2001	**Mean**
Number of companies	379	421	527	512	367	407	374	**427**
Main Board	180.6	190.9	223.9	231.2	256.7	233.1	255.5	**205.2**
Second Board	13.0	14.9	17.3	19.8	26.6	19.1	19.0	**18.5**
Mean value for Bursa Malaysia	110.3	114.8	129.2	137.0	153.3	157.8	158.6	**137.3**

Table 3 shows further analysis of the average value of properties owned by sectors. On average, Hotel, Plantations and Trading/Services Sectors have the highest mean value of properties owned. Since Hotel and Plantation sectors rely on land and building for their output and services, these sectors are property intensive and therefore ranked high in the hierarchy. On average the properties owned by the Hotel and Plantation Sectors is each worth more than RM400

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million per year.

For the Main Board, the Finance, Technology Sectors have low amount of properties owned this is because these sectors are non-property intensive and being service-based (e.g. the securities firms in the Finance Sector). Also high-tech companies do not need a lot of land and buildings for their services and operations.

The properties owned by the Mining Sector are also of low book values. Being a sunset industry, the number of companies in the Mining sector has been reducing steadily over the years and the mining land currently owned with low mineral resources are of low book values.

Overall the companies in the Second Board do not owned a large amount of corporate real estate in dollar terms. The reason is because comparatively Second Board companies have a smaller market capitalization and capital-base thus these companies do not owned a lot of corporate real estate. Activities of Second Board firms are also not as extensive and intensive as Main Board companies.

The mean value of properties owned by a Second Board company is RM18.5 million which is much lesser than those in the Main Board of RM205.2 million.

Table 3 : Average values (RM million) of properties owned by Sectors (1995 – 2001)

	1995	1996	1997	1998	1999	2000	2001	**Mean**
MAIN BOARD								
Consumer	116.1	149.9	157.3	190.3	236.6	191.8	175.5	**173.9**
Industrial	89.8	97.2	115.1	118.2	126.9	87.9	94.3	**104.2**
Construction	96.0	106.4	217.7	104.2	153.0	122.4	86.4	**126.6**
Trading/Services	274.3	322.1	363.2	410.8	570.9	523.6	509.8	**425.0**
Finance	54.2	56.4	79.0	49.3	61.8	86.6	98.8	**69.4**
Hotel	505.3	460.7	472.0	477.2	322.1	318.5	576.8	**447.5**
Plantations	297.8	303.3	347.8	456.5	549.4	517.1	475.1	**421.0**
Mining	11.2	31.1	39.0	43.4	33.3	16.9	27.2	**28.9**
Technology	NA	NA	NA	NA	NA	50.6	50.0	**50.3**
Mean for Main Board	**180.6**	**190.9**	**223.9**	**231.2**	**256.7**	**233.1**	**255.5**	**205.2**
SECOND BOARD								
Consumer	12.7	20.6	20.6	25.0	28.6	24.1	27.1	**22.7**
Industrial	13.4	16.0	19.0	19.9	25.9	22.1	21.6	**19.7**
Construction	14.3	10.5	11.4	14.5	12.2	12.9	8.5	**12.0**
Trading	11.5	12.6	18.0	19.7	39.6	17.2	18.7	**19.6**
Mean for Second Board	**13.0**	**14.9**	**17.3**	**19.8**	**26.6**	**19.1**	**19.0**	**18.5**

Note :   (1) The Technology Sector is introduced in year 2000.   (2) NA - not available

4.2   Corporate real estate holdings by sector classifications

To provide insights into the relative importance of corporate real estate on the overall asset and financial structure of the firm, ratio analyses are used where property is expressed as a ratio of net tangible assets, shareholders equity, market capitalization, total capital employed and total tangible asset.

4.2.1   Property / Net Tangible Asset ratio

Table 4 reports the nine-year average property to net tangible asset ratios. For the 1993 to 2001 period, the highest mean ratio value is the Plantation Sector with an average of 61.4 per cent. This implies that 61.4 per cent of the net tangible asset of the plantation sector comprised land and buildings. The real estate owned by the plantation companies are mainly agricultural land, estates and plantations

necessary for the operations of the oil palm and rubber plantation business. For the Consumer, Industrial and Trading Sectors more than one-third of the net tangible assets are corporate real estate. The Second Board which comprised companies from the small and medium industries also has a high property to net tangible asset ratio of 35.3 per cent.

Table 4: Average Property to Net Tangible Asset Ratios by Industry Sectors; n=156.

Year/Sector	Consumer	Industrial	Construction	Trading	Finance	Plantations	2nd Board
1993	0.455	0.333	0.212	0.256	0.086	0.724	0.325
1994	0.417	0.304	0.130	0.250	0.149	0.672	0.345
1995	0.439	0.334	0.149	0.267	0.113	0.614	0.350
1996	0.456	0.370	0.148	0.360	0.120	0.564	0.359
1997	0.465	0.334	0.171	0.390	0.240	0.529	0.423
1998	0.378	0.348	0.260	0.498	0.060	0.656	0.339
1999	0.372	0.359	0.174	0.456	0.037	0.527	0.405
2000	0.274	0.344	0.199	0.182	-0.120	0.608	0.284
2001	0.317	0.333	0.170	0.492	-0.860	0.633	0.350
n	29	35	5	29	7	19	32
1993-2001							
Mean	0.397	0.340	0.179	0.350	-0.019	0.614	0.353
Std. Deviation	0.067	0.019	0.039	0.117	0.330	0.066	0.041
1993-1996							
Mean	0.442	0.335	0.160	0.283	0.117	0.644	0.345
Std. Deviation	0.081	0.027	0.036	0.052	0.026	0.069	0.014
1997-2001							
Mean	0.361	0.344	0.195	0.404	-0.129	0.591	0.360
Std. Deviation	0.072	0.011	0.038	0.131	0.428	0.060	0.055

The results imply that a high proportion of net tangible asset of companies in the Second Board, Plantation, Consumer, Industrial and Trading Sectors is land and building. These land and buildings are likely to be important components of the businesses in these companies and are necessary for its occupational and operational requirements.

The Construction and Finance Sectors report a lower percentage of property to net tangible asset compared to the other sectors of Bursa Malaysia. The lower ratios indicate that corporate real estate is less significant in the operations of firms in these two sectors.

The mean ratios between the two economic periods do not vary very much except for the Finance Sector which has changed from a positive 11.7 per cent to -12.9

per cent. The change is due to negative shareholders fund arising from bad debts of stock-broking companies and poor investments by insurance companies during the Asia financial crisis.

However the t-test shows that the mean difference between the two economic periods is not significantly different indicating that the percentage of property to net tangible asset by industry sectors is not affected by economic conditions.

4.2.2 Property / Shareholders' Equity ratio

Table 5 shows the ratios of property to shareholders' equity by sectors. For the 1993-2001 period, a large amount of shareholders' equity is invested in real estate by the Plantation Sector i.e. 58.8 per cent are invested in land and buildings. For the Consumer, Industrial and Trading Sectors about one-third of the shareholders equity are corporate real estate. The Second Board also has a high property to net tangible asset ratio of 30.5 per cent.

This indicates that more than one-third of shareholders equity in these sectors is invested in land and buildings which are essential for the operations and to support the businesses of companies in these sectors.

Table 5: Average Property to Total Shareholders' Equity Ratios by Industry Sectors; n=156

Year/Sector	Consumer	Industrial	Construction	Trading	Finance	Plantations	2nd Board
1993	0.400	0.311	0.202	0.243	0.067	0.720	0.313
1994	0.378	0.289	0.126	0.229	0.137	0.644	0.323
1995	0.383	0.313	0.146	0.243	0.107	0.574	0.322
1996	0.395	0.320	0.147	0.347	0.112	0.535	0.322
1997	0.377	0.317	0.165	0.374	0.223	0.527	0.345
1998	0.308	0.331	0.246	0.467	0.051	0.654	0.226
1999	0.375	0.331	0.169	0.442	0.036	0.524	0.352
2000	0.273	0.316	0.175	0.345	-0.128	0.537	0.238
2001	0.288	0.343	0.144	0.414	-0.878	0.579	0.301
n	29	35	5	29	7	19	32
1993-2001							
Mean	0.353	0.319	0.169	0.345	-0.030	0.588	0.305
Std. Deviation	0.049	0.015	0.036	0.090	0.332	0.069	0.044
1993-1996							
Mean	0.389	0.308	0.155	0.266	0.106	0.618	0.320
Std. Deviation	0.010	0.013	0.033	0.055	0.029	0.081	0.005
1997-2001							
Mean	0.324	0.328	0.180	0.408	-0.139	0.564	0.292
Std. Deviation	0.049	0.011	0.039	0.049	0.431	0.055	0.059

The Finance and Construction Sectors do not invest a lot of their equity in real estate. Most of the companies in the Finance Sector are service-based and in the case of stockbroking firms its equities are used to meet regulatory requirements. This contributes towards the low real estate intensities of these companies. Construction companies provide construction services on the development land owned by its clients. This is the reason why the Construction Sector does not have a high property to total shareholders' equity ratio.

The t-test shows that the mean difference between the two economic periods is not significantly different indicating that the percentage of property to total shareholders equity by industry sectors is not affected by economic conditions.

4.2.3 Property / Market Capitalisation ratio

Table 6 shows that for the 1993-2001 period, the average book value of real estate compared to market capitalization for the Consumer, Industrial, Construction, Trading, Finance, Plantation Sectors and Second Board are 29.5%, 30.8%, 18.9%, 34.8%, 22.1%, 48.3% and 31% respectively.

Prior to the Asian financial crisis (1993-1996), the mean values of the property to market capitalization ratios is low, less than 15 per cent, for all the industry sectors except for the Plantation Sector. This implies that under normal economic conditions the book value of corporate real estate is small compared to the market capitalization of firms. The ratios began to increase significantly for the 1997-2001 period due to lower share prices of the listed companies during the crisis.

Market capitalization reflects the view of investors on the company, its management, growth, liquidity and future prospects. During the crisis, the poor economic conditions have affected investors' evaluation of future prospects of listed companies. With difficult business and economic environment, share prices had dropped to a low level reflecting the poorer expected profitability of the firms.

Table 6: Average Property to Market Capitalisation Ratios by Industry Sectors; n=156

Year/Sector	Consumer	Industrial	Construction	Trading	Finance	Plantations	2nd Board
1993	0.095	0.067	0.042	0.045	0.019	0.180	0.063
1994	0.153	0.088	0.028	0.072	0.057	0.255	0.099
1995	0.165	0.105	0.069	0.095	0.060	0.302	0.105
1996	0.149	0.127	0.114	0.154	0.075	0.303	0.066
1997	0.461	0.564	0.379	0.395	0.531	0.630	0.448
1998	0.450	0.418	0.345	0.507	0.541	0.621	0.375
1999	0.404	0.345	0.209	0.585	0.252	0.585	0.410
2000	0.402	0.517	0.277	0.600	0.236	0.752	0.562
2001	0.378	0.540	0.242	0.676	0.219	0.723	0.660
n	29	35	5	29	7	19	32
1993-2001							
Mean	0.295	0.308	0.189	0.348	0.221	0.483	0.310
Std. Deviation	0.150	0.211	0.131	0.256	0.198	0.221	0.231
1993-1996							
Mean	0.141	0.097	0.063	0.092	0.053	0.260	0.083
Std. Deviation	0.031	0.025	0.038	0.046	0.024	0.058	0.022
1997-2001							
Mean	0.419	0.477	0.290	0.553	0.356	0.662	0.491
Std. Deviation	0.035	0.092	0.071	0.107	0.165	0.072	0.118

On the other hand, property capital values have remained relatively stable during the initial period of the crisis whilst share prices have fallen sharply. This has caused a greatly reduced market capitalization for a large number of firms causing the property to market capitalization ratios to increase to more than 40 per cent for the Consumer, Industrial and Trading Sectors.

The results imply that property could comprise a high percentage of market capitalization of firms during the recession period but not in the buoyant economic period.

The mean difference between the two economic periods is found to be significantly different using the t-test indicating that the percentage of property to market capitalisation by industry sectors is affected by economic conditions.

4.2.4 Property / Total Capital Employed ratio

Table 7 shows that for the 1993-2001 period, the average percentage of real estate to total capital employed for the Consumer, Industrial, Construction, Trading, Finance, Plantation Sectors and Second Board are 27.6%, 25.5%, 10.5%, 22.7%, -11.7%, 51.3% and 25.1% respectively. Among the sectors, the Plantation Sector has the highest property to total capital employed ratio with more than half of its total capital employed invested in agricultural land, plantations and estates. Plantation companies acquire a lot of plantations and land to achieve economic efficiency in its operations. This means a large amount of long term funds of these firms is invested in real estate.

For the Construction Sector about 10 per cent of the total capital is invested in real estate. Firms in this sector do not rely on owning properties to carry out their activities. Construction services and activities are carried out by construction companies on the development land owned by its clients. This explains the low property to total capital employed ratio of this sector.

Table 7: Average Property to Total Capital Employed Ratios by Industry Sectors; n=156.

Year/Sector	Consumer	Industrial	Construction	Trading	Finance	Plantations	2nd Board
1993	0.345	0.246	0.145	0.193	0.040	0.626	0.262
1994	0.388	0.224	0.092	0.168	0.080	0.585	0.262
1995	0.308	0.230	0.104	0.185	0.070	0.527	0.254
1996	0.294	0.255	0.112	0.245	0.077	0.496	0.237
1997	0.285	0.218	0.084	0.251	0.133	0.482	0.221
1998	0.201	0.234	0.111	0.264	-0.718	0.567	0.245
1999	0.249	0.290	0.097	0.198	-0.055	0.449	0.181
2000	0.180	0.270	0.120	0.208	-0.032	0.439	0.287
2001	0.237	0.331	0.077	0.328	-0.645	0.444	0.311
n	29	35	5	29	7	19	32
1993-2001							
Mean	0.276	0.255	0.105	0.227	-0.117	0.513	0.251
Std. Deviation	0.067	0.037	0.021	0.050	0.326	0.068	0.037
1993-1996							
Mean	0.334	0.239	0.113	0.198	0.067	0.559	0.254
Std. Deviation	0.042	0.014	0.023	0.033	0.018	0.058	0.012

	1997-2001						
Mean	0.230	0.269	0.098	0.250	-0.263	0.476	0.249
Std. Deviation	0.041	0.045	0.018	0.052	0.389	0.053	0.052

A large number of the companies in the Finance Sector sample are represented by stock-broking firms. Although brokerage activities require building spaces, however, the values of these real estate in relation to the capital employed is relatively small. The capital employed by these firms is large and are affected by financial regulations and statutory requirements.

The mean difference between the two economic periods is found to be not significantly different using the t-test indicating that the percentage of property to total capital employed by industry sectors is not affected by economic conditions.

4.2.5 Property / Total Tangible Assets ratio

Table 8 shows that for the 1993-2001 period, real estate to total capital employed for the Consumer, Industrial, Construction, Trading, Finance, Plantation Sectors and Second Board are 19.6%, 17.8%, 6.9%, 14.7%, 5.1%, 44.5% and 16.1% respectively. The tangible assets represent the investments made by a company in operating assets and may include other tangible assets such as equipment, motor vehicles etc.

Over the 9 year study period, the highest mean ratio is the Plantation Sector which has a high property to total tangible assets ratio of 44.5 per cent. The rest of the sectors have ratios of less than twenty per cent.

Table 8: Average Property to Total Tangible Asset Ratios by Industry Sectors; n=156.

Year/Sector	Consumer	Industrial	Construction	Trading	Finance	Plantations	2nd Board
1993	0.193	0.180	0.087	0.114	0.020	0.554	0.156
1994	0.196	0.167	0.061	0.099	0.049	0.529	0.148
1995	0.184	0.164	0.073	0.108	0.046	0.469	0.143
1996	0.187	0.171	0.070	0.151	0.048	0.472	0.136
1997	0.164	0.166	0.060	0.146	0.054	0.414	0.135
1998	0.189	0.176	0.077	0.156	0.061	0.412	0.157
1999	0.257	0.193	0.068	0.214	0.059	0.396	0.190
2000	0.203	0.168	0.073	0.156	0.040	0.384	0.174
2001	0.194	0.214	0.052	0.176	0.081	0.374	0.206
n	29	35	5	29	7	19	32
1993-2001							
Mean	0.196	0.178	0.069	0.147	0.051	0.445	0.161
Std. Deviation	0.025	0.016	0.010	0.036	0.017	0.065	0.025
1993-1996							
Mean	0.190	0.171	0.073	0.118	0.041	0.506	0.146
Std. Deviation	0.005	0.007	0.011	0.023	0.014	0.042	0.008
1997-2001							
Mean	0.201	0.183	0.066	0.170	0.059	0.396	0.172
Std. Deviation	0.034	0.020	0.010	0.027	0.015	0.017	0.028

The Consumer Sector has about 20 per cent of total tangible asset in land and buildings which is higher than the Second Board, Industrial and Trading Sectors. The higher percentage is due to the presence of companies which are real estate intensive. These companies include those in the breweries, electrical appliances, beverages and food, paper-based products, textiles/garments and car manufacturing.

The Industrial Sector has 17.8 per cent of total tangible asset in corporate real estate. Among the types of companies in this sector include companies involved in auto-parts, basic metal, building materials, chemicals, electrical machinery, fabricated metals, gas, oil refining, paper products, plastic and wood products.

The Trading Sector has about 14.7 per cent of total tangible asset in corporate real estate. Among the types of trading firms are companies involved in education, gaming, media, healthcare, restaurant, trading/retail, transport, utilities, ports and power generations.

The Second Board has about 16 per cent of total tangible assets in properties. The companies in the Second Board comprised small and medium industries (SMI) which have a smaller paid-up capital compared to the Main Board Companies. These SMI companies are a mixture of companies involved in consumer products, industrial products, construction, trading/services, plantations and technology companies. Thus we would expect to find the mean ratio for the Second Board to fall between the mean ratios of the Consumer, Industrial and Trading Sectors of the Main Board.

The mean property to total tangible asset ratios are higher during the crisis period compared to the buoyant period for the Consumer, Industrial, Trading, Finance and the Second Board. The higher ratios could be due to lesser tangible assets being employed and invested into under a recessionary economic condition. The total long term assets and total current assets could be reducing during poor economic period. Some of the surplus tangible assets could be disposed, divested or stopped leasing due to low utilization.

These are also the reasons why the variability of the means of the ratios for the Consumer, Industrial and Second Board are higher during the crisis period compared to the pre-crisis period.

However, the mean difference between the two economic periods is found to be not significantly different using the t-test indicating that the percentage of property to total tangible asset by industry sectors is not affected by economic conditions.

4.3 Analysis of variance on real estate holdings between industry sectors

Using the preceding mean ratios, an analysis of variance (ANOVA) is carried out to determine whether significant mean differences exist among the different sectors for each set of the real estate intensity ratios.

Table 9: One-way ANOVA for Real Estate Intensity Ratios between Sectors

(1993-2001).

Real Estate Intensity Ratios	F-values
Property/Net tangible asset	17.894***
Property/Shareholders' equity	17.476***
Property/Market capitalisation	1.950**
Property/Total capital employed	18.900***
Property/Total tangible asset	143.611***

Note: Significant at 0.05(**) and 0.001(***) level.
       Values are obtained from SPSS ANOVA.

Table 9 shows the results of the one-way ANOVA. For each set of the real estate intensity ratios, the observed value of F is significantly different from zero at the 0.05 level. Thus the null hypothesis of equal means is rejected. In rejecting the null hypothesis of equal means, the results imply that at least one significant mean difference of the ratios is not the same as the others and there may be more than one difference for each set of the ratios.

4.4 Post-hoc test – Scheffe Test

Due to the observed value of F is significantly different from zero for the one-way ANOVA, Scheffe tests are carried out for each set of the ratios. The results are reported in the following sections.

4.4.1 Mean Difference of Property to Net Tangible Asset Ratios Between Sectors

Table 10 shows that economic conditions have an impact on the mean differences of the property to net tangible asset ratios. A comparison on the results of the buoyant and crisis periods indicates that there is no significant difference among most of the industry sectors for the recession period. But more mean differences are significantly different for the buoyant period. This implies that poor economic condition has affected the net tangible assets of most sectors causing the mean differences between sectors to be not significantly different.

For the mean differences at the Sector level, the Plantation Sector is significantly different from all the other industry sectors on the Main Board and the Second Board except for the Consumer Sector for the 1993-2001 period. The Plantation Sector is significantly different from all the other Sectors for the 1993-1996 period. It implies that the level of property owned by plantation companies is significantly different from companies in other Sectors. The underlying reason is because plantation companies need land in the form of agriculture land, estates and

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plantations for its operations. For the Plantation Sector, land is a primary factor of production compared to other industry sectors.

The mean of the Finance Sector is significantly different from the means of the Consumer, Industrial, Trading, Plantation Sectors and the Second Board at the 0.05 level for the three periods.

The mean ratio value for the Finance Sector is low compared to other Sectors. This implies that the property holdings of companies in the Finance Sector are low compared to companies in other industry sectors.

Table 10: Mean Difference of Property/Net Tangible Asset Ratios between Sectors.

SECTOR	1993 – 2001 (OVERALL)		1993 – 1996 (BUOYANT)		1997 – 2001 (RECESSION)	
	Mean	Significantly different[1]	Mean	Significantly different[1]	Mean	Significantly different[1]
a Consumer	0.397	e	0.442	c,d,e,f	0.361	e
b Industrial	0.340	e,f	0.335	c,e,f	0.344	e
c Construction	0.179	f	0.160	a,b,d,f,g	0.195	-
d Trading	0.350	e,f	0.283	a,c,e,f	0.404	e
e Finance	-0.019	a,b,d,f,g	0.117	a,b,d,f,g	-0.129	a,b,d,f,g
f Plantation	0.614	b,c,d,e,g	0.644	a,b,c,d,e,g	0.591	e
g 2nd Board	0.353	e,f	0.345	c,e,f,	0.360	e

Note: [1]The sectors denoted are significantly different at the 0.05 level.
Values are obtained from SPSS ANOVA-Scheffe Test.

This low level of property holding causes the Finance Sector to be significantly different from the other sectors during the three study periods. Both the Finance and Construction Sectors have relatively low ratio values. Thus both sectors are not significantly different from each other.

4.4.2 Mean Difference of Property to Shareholders' Equity Ratios Between Sectors

Table 11 shows that economic conditions have an impact on the mean differences of the property to shareholders' equity ratios. A comparison on the results of the buoyant and recession periods indicates that there is no significant difference among most of the industry sectors for the recession period. But more mean differences are significantly different among sectors for the buoyant period. This implies that poor economic condition has equally affected the ratios of most

sectors causing the mean differences among sectors to be not significantly different.

Table 11 shows that the Plantation Sector is significantly different from all the other Main Board Sectors and the Second Board for the 1993-1996 period. The Plantation Sector is significantly different from all the sectors and Second Board except the Consumer Sector for the 1993-2001 period. However the Plantation Sector is not significantly different from other sectors during the recession period except for the Finance Sector.

Table 11: Mean Difference of Property/Shareholders' Equity Ratios between Sectors.

SECTOR	1993 – 2001 (OVERALL)		1993 – 1996 (BUOYANT)		1997 – 2001 (RECESSION)	
	Mean	Significantly Different[1]	Mean	Significantly different[1]	Mean	Significantly different[1]
a Consumer	0.353	e	0.389	c,d,e,f	0.324	b,e
b Industrial	0.319	e,f	0.308	c,e,f	0.328	e
c Construction	0.169	f	0.155	a,b,f,g	0.180	-
d Trading	0.345	e,f	0.266	a,e,f	0.408	e
e Finance	-0.030	a,b,d,f,g	0.106	a,b,d,f,g	-0.139	a,b,d,f,g
f Plantation	0.588	b,c,d,e,g	0.618	a,b,c,d,e,g	0.564	e
g 2nd Board	0.305	e.f	0.320	c,e,f	0.292	e

Note: [1]The sectors denoted are significantly different at the 0.05 level.
       Values are obtained from SPSS ANOVA-Scheffe Test.

The ratios show a relatively high ratio of property to shareholders' equity in plantation companies compared to companies in other industry sectors. This high ratio is expected in view of land is an essential factor of production for plantation companies. It is the relatively high ratios that cause the Plantation Sector to be significantly different from other sectors.

For the three study periods, the mean of the Finance Sector is significantly different from the means of the Second Board, Consumer, Industrial, Trading and Plantation Sectors. The differences arise from the low ratio values of the Finance Sector compared with the other sectors. The low property to shareholders' equity ratio is due to lesser investments of Finance Sector companies in land and buildings. Finance companies being service orientated do not need a lot of properties for its operations. Both the Finance and Construction Sectors have

relatively low ratio values. Thus both sectors are not significantly different from each other.

For the Second Board, its mean ratios for the three periods are significantly different from the Finance Sector of the Main Board. The relatively lower ratio values for the Finance Sector cause the means to be significantly different from each other.

4.4.3   Mean Difference of Property to Market Capitalisation Ratios Between Sectors

Table 12 shows that economic conditions do not have an impact on the mean differences of the property to market capitalization ratios among the industry sectors. A comparison on the results of the buoyant and recession periods indicates that the sectors which are not significantly different are almost the same for the two periods except for the Plantation Sector. For the overall 1993-2001 period, the mean differences of the property to market capitalization ratios among all the sectors of Bursa Malaysia are not significantly different at the 0.05 level.

Table 12: Mean Difference of Property/Market Capitalisation Ratios between Sectors.

SECTOR	1993 – 2001 (OVERALL)		1993 – 1996 (BUOYANT)		1997 – 2001 (RECESSION)	
	Mean	Significantly different[1]	Mean	Significantly different[1]	Mean	Significantly different[1]
a Consumer	0.295	-	0.141	f	0.419	-
b Industrial	0.308	-	0.097	f	0.477	-
c Construction	0.189	-	0.063	f	0.290	d,f
d Trading	0.348	-	0.092	f	0.553	c
e Finance	0.221	-	0.053	f	0.356	f
f Plantation	0.483	-	0.260	a,b,c,d,e,g	0.662	c,e
g 2nd Board	0.310	-	0.083	f	0.491	-

Note: [1]The sectors denoted are significantly different at the 0.05 level.
        Values are obtained from SPSS ANOVA-Scheffe Test.

This implies corporate real estate plays the same level of importance among all the sectors. The implication is that the management of listed companies

irrespective of sectors should pay attention to the effective utilization of the corporate real estate owned.

During the buoyant period, the mean ratios of the Plantation Sector are significantly different from all the other sectors. But during the recession period, the Plantation Sector is significantly different from the Construction and Finance Sectors. The significant differences arise from the relatively lower ratio values for the Construction and Finance Sector compared to the relatively higher ratio values of the Plantation Sector.

4.4.4 Mean Difference of Property to Total Capital Employed Ratios Between Sectors

Table 13 shows that economic conditions have an impact on the mean differences of the property to total capital employed ratios. A comparison on the results of the buoyant and recession periods indicates that there is no significant difference among the most of the sectors for the recession period. But there are significant differences among most of the industry sectors for the buoyant period. This implies that the recession has affected the total capital employed of most sectors causing the mean differences between sectors to be not significantly different.

Table 13 shows that for the 1993-2001 and 1993-1996 periods, the Plantation Sector is significantly different from all the other industry sectors of the stock exchange. This difference is expected as capital of plantation companies are largely invested in estates, agriculture land, plantations and processing plants etc. Land is one of the primary factors of production for plantation companies.

Table 13: Mean Difference of Property/Total Capital Employed Ratios between Sectors.

SECTOR	1993 – 2001 (OVERALL)		1993 – 1996 (BUOYANT)		1997 – 2001 (RECESSION)	
	Mean	Significantly different[1]	Mean	Significantly different[1]	Mean	Significantly different[1]
a Consumer	0.276	e,f,	0.334	b,c,d,e,f,	0.230	e
b Industrial	0.255	e,f	0.239	a,c,e,f,	0.269	e
c Construction	0.105	f	0.113	a,b,f,g	0.098	f
d Trading	0.227	e,f	0.198	a,e,f	0.250	e
e Finance	-0.117	a,b,d,f,g	0.067	a,b,d,f,g	-0.263	a,b,d,f,g
f Plantation	0.513	a,b,c,d,e,g	0.559	a,b,c,d,e,g	0.476	c,e
g 2nd Board	0.251	e,f	0.254	c,e,f	0.249	e

Note: [1]The sectors denoted are significantly different at the 0.05 level.
Values are obtained from SPSS ANOVA-Scheffe Test.

The mean difference for the Finance Sector is significantly different from the Consumer, Industrial, Trading, Plantation Sectors and the Second Board except for the Construction Sector. The significant differences arise from the low ratio values of the Finance Sector compared to the higher ratio values of other industry sectors. This implies that the property holdings of companies in the Finance Sector are low compared to companies in other industry sectors. This low level of property holding causes the Finance Sector to be significantly different from the

other sectors for the three study periods.

Both the Finance and Construction Sectors have relatively low ratio values. Thus both sectors are not significantly different from each other.

4.4.5 Mean Difference of Property to Total Tangible Asset Ratios Between Sectors

Table 14 shows that economic conditions do not have a significant impact on the mean differences of the property to total tangible asset ratios of various industry sectors. A comparison on the results of the buoyant and recession periods indicates that the sectors which are not significantly different are similar between the two economic periods.

At the industry sector level, the Plantation Sector is significantly different from all the other sectors of the stock exchange for the three study periods. This statistically significant mean difference is expected since plantation companies own a much higher level of property holdings, particularly land, compared to other industry sectors.

Table 14: Mean Difference of Property/Total Tangible Asset Ratios between Sectors.

SECTOR	1993 – 2001 (OVERALL)		1993 – 1996 (BUOYANT)		1997 – 2001 (RECESSION)	
	Mean	Significantly different[1]	Mean	Significantly different[1]	Mean	Significantly different[1]
a Consumer	0.196	c,e,f	0.190	c,d,e,f	0.201	c,e,f
b Industrial	0.178	c,e,f	0.171	c,e,f	0.183	c,e,f
c Construction	0.069	a,b,d,f,g	0.073	a,b,f,g	0.066	a,b,d,f,g
d Trading	0.147	c,e,f	0.118	a,e,f	0.170	c,e,f
e Finance	0.051	a,b,d,f,g	0.041	a,b,d,f,g	0.059	a,b,d,f,g
f Plantation	0.445	a,b,c,d,e,g	0.506	a,b,c,d,e,g	0.396	a,b,c,d,e,g
g 2nd Board	0.161	c,e,f	0.146	c,e,f	0.172	c,e,f

Note: [1]The sectors denoted are significantly different at the 0.05 level.
Values are obtained from SPSS ANOVA-Scheffe Test.

The mean difference of the Finance Sector is significantly different from the Consumer, Industrial, Trading, Plantation Sectors and the Second Board in the level of real estate intensity except for the Construction Sector. The significant differences arise from the low mean ratio values of the Finance Sector compared to the higher ratio values of other industry sectors.

The Construction Sector is significantly different from the Consumer and Industrial Sectors. Construction companies do not need to own a lot of land and buildings to operate their business. Construction is conducted on the land provided by the client that employs the construction companies. Thus construction companies owned relatively lesser real estate compared to companies in other sectors resulting in the significant difference in the mean ratios. Both the Construction and Finance Sectors have low mean ratio values, thus there is no significant difference in the means.

For the Second Board, its mean real estate intensities are significantly different from the Finance, Plantation and the Construction Sectors of the Main Board. The significant differences arise from the much higher ratio values of the Plantation Sector and the lower ratio values of the Construction and Finance Sectors.

4.5 Summary of findings

This study has provided strong evidence that corporate real estate is an important component in many non-property companies' asset structure.

Corporate real estate comprises a significant portion of a company's balance sheet. The ratio analyses show companies in the Plantation, Industrial, Consumer and Trading Sectors are property intensive with more than 30 per cent of the net tangible assets, shareholders' equity and market capitalisation comprising real estate. Thus corporate real estate could play a significant role in enhancing corporate wealth and shareholders value.

The level of corporate real estate owned by a particular sector is dependent on the extent corporate real estate contributes to the operation and needs of the businesses.

Results of ANOVA show there is a significant difference between the mean real estate intensity ratios among the various industry sectors. The Schefe tests confirm that CRE ownership is a function of industry. Hence there is an industry effect on the ownership of corporate real estate in Malaysia, an emerging market. This is evident from the mean differences of the Plantation Sector which is significantly different from the other industry sectors of Bursa Malaysia. Plantation

firms are property intensive with capital largely invested in estates, agriculture land and plantations.

The Scheffe tests show that the property intensity ratios of most sectors during the buoyant period are significantly different from each other, whilst during the crisis/recession period the ratios of most of the sectors are not significantly different from one sector to another. This implies that the economic condition has a significant impact on the various real estate intensity ratios except for the property to market capitalization ratio.

4.6 Limitations of Study

The limitations of this study are related to the data and the subsequent interpretation of data analysis results. Firstly, the problem of data availability and quality of information extracted from the company accounts. Certain annual reports of some companies do not provide data on the land and buildings owned.

Secondly, the real estate holdings reported in the balance sheets are based on historical costs. Few listed companies in Malaysia carry out property revaluations on a regular basis. This causes the lack of comparability of real estate holdings between the various companies or sectors. The real estate intensity is potentially higher if current market values of the corporate real estate are available for analysis.

The grouping of firms by industrial sectors of Bursa Malaysia is a crude classification of industries. Within each of the industrial sectors are sub-industrial categories which have its own business activities and characteristics. Such heterogeneity do not allow for proper comparisons among the sectors. There are also conglomerates where its diverse business activities make direct comparison between ratios difficult. Ideally the ratios should be compared between companies which are very similar in their business activities.

5.0   CONCLUSIONS

This study is a basic research into corporate real estate ownership and investment of Malaysian listed companies. This study attempts to provide insights into the role of corporate real estate on corporate balance sheets. By using data from the financial statements, this study has established the fact that corporate real estate is a significant asset owned by Malaysian corporate companies. The absolute and relative size of the properties owned is significant to other assets of the companies. Real estate asset intensity is significantly different:

(a)   across sectors of Bursa Malaysia;

(b)   for different measures of asset and equity ratios; and

(c)   for small firms.

Future research should examine if corporate real estate intensity are associated with companies' financial performance. Studies may investigate the best strategies in the effective management and utilization of properties owned by listed companies. The Asian financial crisis in 1997 has exposed the danger of indiscriminate property acquisitions for property development and investment by listed companies to achieve diversification from its core business. Further research can provide better insights into the effect of corporate real estate on the financial well being of non-property companies and how it should be managed efficiently and effectively.

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