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REFEREE PANEL

Listed Property Trusts in Malaysia : A Comparative Performance Analysis*

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Abstract

This paper analyses the investment performance of listed property trusts from 1991 to 1998. The investment performance is compared with the performance of shares and direct residential property.

Based on annual returns, Amanah Hartanah PNB and First Malaysia Property Trust had achieved higher risk adjusted returns than shares and direct residential property but lower than the Second Board Index. Arab Malaysian First Property Trust had the lowest risk-adjusted ranking among the investment options. Listed property trusts could not offer diversification possibilities due to high correlation with shares and do not act as substitutes to direct residential investment due to negative correlation.

Keywords: listed property trusts, Malaysian House Price Index, risk-return analysis, Sharpe Index

Introduction

Property trust is a new property investment vehicle in Malaysia. Property trusts are introduced to provide a wider range of alternative investment instruments available to the Malaysian public and at the same time to broaden the local capital market.

A property trust is an investment scheme organised in the form of a unit trust that pools the capital of a large number of investors in order to invest exclusively in real estate. A property trust fund is constituted by a trust deed which sets out the objectives of the trust, the rights and obligations of the trustee, the trust's manager and the unit holders. The assets in the trust are held by the trustee on behalf of the unit holders. The units are of equal value and of equal rights to unit holders. Each unit holder in the trust in effect beneficially owns a proportionate share in the properties and assets which comprise the trust fund.

The manager acts as the promoter of the property trust, issues the prospectus,

*This article is based on a paper presented at the International Real Estate Society Conference 1999, held in Kuala Lumpur on 26-31 January 1999.

undertakes the obligations under the trust deed and assumes responsibility for selecting and managing the trust's assets in accordance with the provisions of the trust deed.

A Brief History of the Property Trusts Industry in Malaysia

Unlisted property trusts

Property trust investment was first introduced in Malaysia in the form of an unlisted property trust on 21 March 1989 when Permodalan Nasional Berhad (PNB) offered for sale 100 million property trust units in Amanah Hartanah PNB (AHP) at RM1.00 per unit. Eligible investors were Malaysian citizens aged 18 years and above. The minimum investment was 500 units at RM1.00 per unit and additional investments must be in multiples of 100 units up to a maximum of 50,000 units per investor. Under the deed of trust, at least 60 per cent of the AHP units would be owned by Bumiputra investors and the remaining units up to a maximum of 40 per cent may be held by non-Bumiputra Malaysian investors (AHP Prospectus, 1989). PNB undertakes to repurchase the units at RM1.00 per unit until the day before it is quoted on the Kuala Lumpur Stock Exchange (KLSE). The initial investment portfolio of AHP comprised Plaza IBM and Jaya Jusco Shopping Complex and 30 per cent of its fund were invested in plantation and property counters of the KLSE.

The second unlisted property trust, Mayban Property Trust Fund One (MPT), was launched by Malayan Banking Berhad on 28 February 1991. The initial property portfolio comprised Wisma Manilal, a 14-storey commercial property in Penang and Wisma U-Meng, a 15-storey office building in Ipoh, Perak. The property trust is an open-ended fund which can increase in size as new properties are acquired over time and fresh units are offered for sale to investors. The trust initially issued 81,820,900 units. The initial minimum investment by investors was RM1,000 and subsequent investments were in multiples of RM100 with no limit to the amount of investment. For the first three years, the manager will repurchase units at a guaranteed price of RM1.00 per unit or the repurchase price per unit, whichever is higher (MPT Prospectus, 1991).

After one year and nine months as an unlisted property trust, AHP had subsequently become a listed property trust upon its listing on the KLSE on 28 December 1990. MPT on the other hand had expanded its property investment portfolio from an initial two to become five properties when it was listed on 25 March 1997.

Listed property trusts

The first property trust listed on the Kuala Lumpur Stock Exchange was Arab Malaysian First Property Trust when it made its debut on 28 September 1989. This was followed by First Malaysia Property Trust in the same year.

Since the debut of the property trust investment vehicle in 1989, there are now four listed property trusts in Malaysia :

(a) Arab Malaysian First Property Trust (AMFPT);
(b) First Malaysia Property Trust (FMPT);
(c) Amanah Hartanah PNB (AHP);
(d) Mayban Property Trust Fund One (MPT).

After being in operation for ten years, the market capitalisation of listed property trusts suffered a huge setback due to the currency crisis which started in July 1997. Table 2 shows the impact of the currency crisis on the market capitalisation of the listed property trusts based on its lowest monthly closing prices since listing on the KLSE.

The initial size of the listed property trust funds was as follows:-

Table 1 : Initial Issued Capital of Property Trust Funds in Malaysia

Property Trust	Initial Public Offer	Issue Price (RM)	Size of Fund (RM)	Net Tangible Asset/unit (RM)	Gross Yield on Property
AHP	21.3.1989	1.00	100,000,000	1.00	7.1%
AMFPT	17.8.1989	1.00	134,999,000	1.00	9.5%
FMPT	10.10.1989	1.05	105,000,000	1.00	8.7%
MPT	31.12.1996	1.28	104,894,760	1.22	5.9%

Source : Prospectus of AHP, AMFPT, FMPT and MPT, various years.

The regulatory framework for property trusts in Malaysia

The setting up of a property trust fund was first approved by Bank Negara Malaysia in October 1986. To facilitate the development of the property trust industry, a one-stop committee called the Informal Committee on Unit Trust Funds was set up to approve property trust applications and to set down regulatory guidelines for property trust investments.

The Informal Committee comprised Bank Negara Malaysia, the Capital Issues Committee (CIC), the Ministry of Trade and

Table 2 : Market Capitalisation of Listed Property Trusts in Malaysia*

Property Trusts	Units Issued	Market Price (RM)	Market Capitalisation (RM)	NTA/unit (RM)	Premium/ Discount (RM)	% of Premium/ Discount
AHP	100,000,000	0.46	46,000,000	1.69	(1.23)	(72.8)
AMFPT	138,375,641	0.47	65,036,551	1.77	(1.30)	(73.4)
FMPT	105,837,211	0.34	35,984,652	1.08	(0.74)	(68.5)
MPT	106,037,000	0.40	42,414,800	1.21	(0.81)	(66.9)

Source : KLSE

*(as at 28 August 1998)

Industry, the Public Trustee and the Registrar of Companies. The coordinator of the Committee is Bank Negara Malaysia.

In its initial years, the principal legislation governing the establishment and operations of a property trust in Malaysia was the Companies Act 1965. To set up a property trust, the Act requires the trust managers and trustee to exercise a trust deed to be approved by the Registrar of Companies.

The offer for sale of property trust units to the public is regulated by the Companies Act 1965 and the Securities Industry Act 1983. Any public issue must be made by way of a prospectus which must comply with the provisions of the Companies Act 1965 and Informal Committee's requirements. The Capital Issues Committee is empowered under the Securities Industry Act 1983 to oversee the orderly development of the capital market in Malaysia. It supervises the issue of shares and other securities by companies applying for listing or already listed on the Kuala Lumpur Stock Exchange.

In 1991 the Informal Committee issued a set of guidelines known as the "*Guidelines on Property Trust Funds (1991)*" which sets out the operational requirements of a property trust, the powers, duties and responsibilities of the managers and trustees.

In 1993, the functions of the Capital Issues Committee were absorbed into the Securities Commission which was set up under the Securities Commission Act 1993. Under the new act, the Securities Commission is now responsible for regulating all matters relating to unit trust schemes which include property trust funds (Ting, 1996).

A review of the 1991 Guidelines was carried out in 1995 by the Securities Commission together with the Federation of Malaysian Unit Trust Managers, the Registrar of Companies, the Kuala Lumpur Stock Exchange and the Valuation and Property Services Department, Ministry of Finance, Malaysia.

A revised *"Guidelines on Property Trust Funds (1995)"* was issued in June 1995. The objectives of the Guidelines were :

(a) to provide a regulatory framework which would protect investors' interests, and
(b) to facilitate an orderly development of the property trust industry by ensuring a fair and consistent application of policies.

The Guidelines applied in relation to :

(a) the procedures and requirements for the establishment of new property trust funds,
(b) duties and responsibilities of the managers and trustees,
(c) the structure and investments of property trust funds,
(d) the appointment and qualifications of the managers, trustees, auditors and valuers,
(e) the operational requirements of a property trust fund.

Background to The Study

There are limited studies on the performance of investment trusts in Malaysia with most of the studies focusing on unit trusts (Chua, 1985). Kok and Khoo (1995) had made a study on the listed property trusts and found that based on monthly returns, the listed property trusts generally did not perform better than the stock exchange for the 1991-1994 period.

Hutchison (1995) considered whether residential property investment was a worthwhile addition to the institutional investment portfolio in the United Kingdom. The study found that residential returns were less than the share market returns over the 1984 - 1992 period. Housing produced higher average annual returns than commercial properties. Housing also could offer the same diversification advantage as a commercial property investment.

Objectives of The Study

The objectives of this paper are to examine :

(a) whether listed property trusts achieved higher risk-adjusted returns than shares and direct investment in residential properties;
(b) whether listed property trusts could offer portfolio diversification potential when included in an investment portfolio;
(c) whether listed property trusts could act as a substitute for direct investment in residential property.

The first objective was achieved by carrying out a risk-return analysis followed by the calculation of the Sharpe Index. The second objective was achieved by examining the correlation of returns between the listed property trusts and the Kuala Lumpur Composite Index, the EMAS Index and the Second Board Index. The third objective was achieved by comparing the risks-returns and the correlation of returns of the listed property trusts with the Malaysian House Price Index (MHPI).

Data Sources

Data on annual closing prices of three listed property trusts (AMFPT, FMPT and AHP) and the related KLSE indices were obtained from the Kuala Lumpur Stock Exchange. The Mayban Property Trust Fund One was excluded as it was only listed on 25 March 1997. The Kuala Lumpur Composite Index (KLCI) was used as a proxy for the performance of large capitalisation stocks, while the EMAS Index represents the overall performance of the Kuala Lumpur Stock Exchange. The Second Board Index was used to represent small capitalisation stocks. Direct residential property investment was represented by the Malaysian House Price Index published by the Valuation and Property Services Department, Ministry of Finance, Malaysia.

The study period was from 1991 to 1998. The year 1991 was chosen as the starting year since it coincided with the maximum period covering all the three listed property trusts and the MHPI. In order to allow comparisons with the MHPI, year-end values and indices had been used in this study as the semi-annual MHPI was only available beginning June 1997.

To allow comparisons of performance, the KLSE indices related to property i.e. the Property Sector and Plantation Sector sub-indices were also included in the study.

Risk-Return Analysis for The Period 1991 to 1998

For the risk-return analysis, the returns were computed based on :-

$$Rt = (Pt - Pt\text{-}1) / Pt\text{-}1$$

where Rt = return for the period t
Pt = price of security at period t
Pt-1 = price of security at previous period

Total return was not adopted as total return indices for shares and MHPI are not currently available in Malaysia.

Risk was measured by the standard deviation of the annual returns which quantifies the variability of the returns over time. The standard deviation provides a statistical summary of the dispersion of the assets' return.

An analysis of the annual risks and returns was carried out and the results are shown in Table 3. To provide a meaningful assessment of the performances of the various investment options, the Sharpe Index has been used as an index of performance for risk-adjusted returns :-

$$\text{Sharpe Index} = \frac{2 - Rf}{s}$$

where 2 = average return for investment option
Rf = average risk free return
s = risk for investment option

The risk free return of 7.28 per cent for the Sharpe Index is based on the average coupon rate of the Malaysian Government Securities for the same period. By using the Sharpe index, investment options are able to be ranked on risk-adjusted performance.

Analysis of Results

Overall Performance

Table 3 shows the Sharpe Index and its risk adjusted ranking. The result shows a mixed performance for the three listed property trusts.

Except for the Second Board Index, AHP and FMPT had performed better than the shares. The difference in performance is attributable to the higher returns enjoyed by AHP and FMPT. For the study period from 1991 to 1998, there was an episode of over-speculation in the KLSE from December 1993 to February 1994. This has led to highly excessive returns for the listed property trusts with a monthly (Dec 1993) return of 502 per cent, 233 per cent and 115 per cent for AHP, FMPT and AMFPT respectively. As a result of the speculation, the risk-return profiles of the listed property trusts could have been distorted.

AMFPT had the highest risk/return ratio and ranked lowest among the investment options. The results showed an anomaly of return among the property trusts as AMFPT has the best office property portfolio compared to the other two property trusts. This is reflected through the NTA of AMFPT which was the highest among the three trusts since launching (refer Table 2). Investors have probably down-rated AMFPT for the

Table 3 : Average Annual Risks and Returns of Investment Options (1991-1998)

Investment	Average Annual Return (%)	Annual Risk (%)	Sharpe Index	Risk Adjusted Ranking	Risk/Return Ratio
Listed Property Trust					
AMFPT	9.27	70.46	0.030	9	7.16
FMPT	36.13	155.13	0.201	3	3.98
AHP	52.87	218.88	0.225	2	3.84
Shares					
KLCI	9.17	43.36	0.044	8	4.73
EMAS Index	12.11	56.42	0.086	6	4.66
Second Board Index	26.27	69.69	0.272	1	2.65
Property Sector	13.25	78.52	0.076	7	5.93
Plantation Sector	21.23	81.77	0.172	5	3.84
Direct Residential Property Malaysian House Price Index	9.27	10.63	0.187	4	1.15

fact that it has poorer diversification in its portfolio which has only two office buildings.

The best performance on a risk-adjusted basis was the Second Board Index. The risk adjusted performance of AHP and FMPT is comparable to the Second Board Index which comprises small capitalisation shares.

Correlation

Table 4 shows the correlation matrix for all the investment options. For the period of analysis, the listed property trusts showed a high positive correlation with the stock market (i.e. KLCI, EMAS Index, Second Board Index, Property Sector sub-indices and Plantation Sector sub-indices) with correlation coefficients greater than 0.78. One explanation for the high correlation is that Malaysian investors were treating listed property trusts as equities where capital appreciation is more important than dividend yield. Thus, investors were trading listed property trusts like shares which explains its equity-like characteristics and returns.

Thus, listed property trusts also have high returns correlation with each other. Investors were treating the listed property trusts as similar investment options despite the property trusts and the investment portfolios not being alike.

Thus, listed property trusts could not offer portfolio diversification potential when incorporated in a share portfolio due to its high positive correlation with the stock market returns.

Also, listed property trusts cannot be viewed as substitutes for conventional direct investment in residential property as exhibited by the low negative correlation coefficient between listed property trusts and MHPI returns.

Table 4 : Correlation Matrix of Returns of Investment Options (1991-1998)

	AMFPT	FMPT	AHP	PROPERTY	PLANTATION	MINING	KLCI	EMAS	2ND BOARD	MHPI
AMFPT	1.00									
FMPT	0.98	1.00								
AHP	0.96	0.98	1.00							
PROPERTY	0.97	0.96	0.97	1.00						
PLANTATION	0.95	0.98	0.99	0.99	1.00					
MINING	0.98	0.98	0.98	0.99	0.99	1.00				
KLCI	0.91	0.88	0.88	0.96	0.92	0.92	1.00			
EMAS	0.94	0.93	0.93	0.99	0.96	0.92	0.92	1.00		
SECOND BOARD	0.81	0.78	0.78	0.89	0.84	0.86	0.95	0.93	1.00	
MHPI	-0.26	-0.20	-0.20	-0.09	-0.21	-0.17	0.10	0.03	0.22	1.00

Limitations of Study

Han and Liang (1995) pointed out that the use of a short sample period to draw inferences on the performance of real estate investment trusts(REITs) is inappropriate as the sample period may coincide with a boom or bust period. The findings on short term performance are not predictors of short term performance of subsequent periods or reliable indicators of the long term performance of listed property trusts.

In view of the short 11 year history of listed property trusts in Malaysia which coincides with a recovery of the economy and property market from the 1985-1987 recession, the performance of the listed property trust for the 1990 to 1997 period is biased towards an upside performance. The recent currency crisis which sparked the economic downturn had nipped the performance of listed property trusts for 1998. However when the stock market and property market recover, they would provide the opportunity for a study of the performance of listed property trusts on a full economic and property cycle.

Major proxies for the stock market such as the S & P Index is not an appropriate performance benchmark as it does not include small stocks while most REITs/listed property trusts are small stocks (Han and Liang, *ibid*).

The same argument may be applied to the use of KLCI as a proxy for the KLSE performance whereby its index components are comprised of high capitalisation issues/companies. On the other hand, listed property trusts in Malaysia are small capitalisation stocks with capitalisation of less than RM150 million for each listed property trust.

It would be ideal to include Government Securities/Bonds into the study. However, it is difficult to establish the Government bond capital returns despite the existence of a RAM-Quant Shop Malaysian Government Securities Index. The Index is an accumulation index and the fact that the Malaysian Government Securities are long-term bonds of varying terms, with different year of issues and varying interest rates makes it difficult to establish a new bond capital series that would allow returns to be analysed and compared.

Currently there are no commercial property indices being developed in Malaysia. The lack of such property performance measures hampers any analysis that compares the performance of listed property trusts with direct property investments in commercial properties.

The results of the performance analysis have been constrained by the lack of a higher frequency Malaysian House Price Index. The results of the analysis could have exhibited a higher volatility on risk and returns since the data used is based on an annual basis.

Conclusions

Among the listed property trusts, only AHP and FMPT provided higher risk-adjusted returns than shares. However, this result has to be interpreted with caution as the analysis is based on annual data series which could have introduced higher volatility to the property trust return series.

The listed property trusts do not offer portfolio diversification when included in an equity investment portfolio due to its high correlation with shares. Also property trusts do not act as substitute to direct residential investment due to its low negative correlation and because property portfolios of property trusts comprise primarily commercial properties.

Although the results of the study do not cover a full property cycle, nevertheless it shows that once direct property has been securitised, its performance is dependent more upon the share market movements (r = 0.78 to 0.94) and less on the underlying assets. A longer period of analysis is necessary to draw more useful conclusions.❑

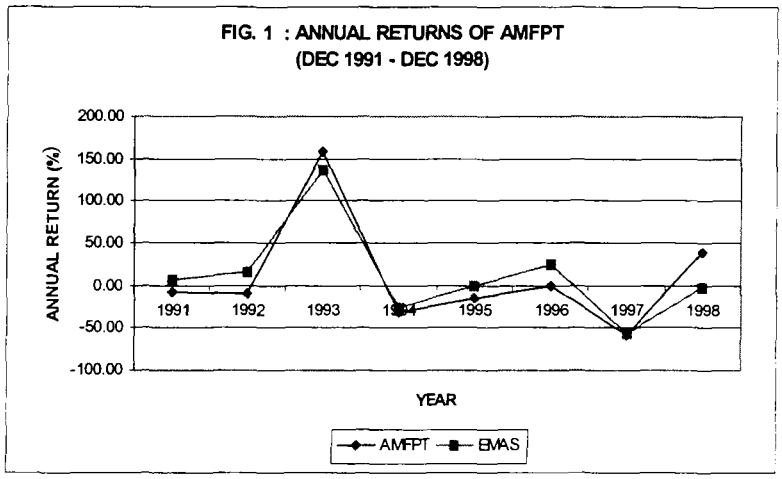
FIG. 1 : ANNUAL RETURNS OF AMFPT
(DEC 1991 - DEC 1998)
ANNUAL RETURN (%)
200.00
150.00
100.00
50.00
0.00
-50.00
-100.00
1991
1992
1993
1994
1995
1996
1997
1998
YEAR
AMFPT
EMAS

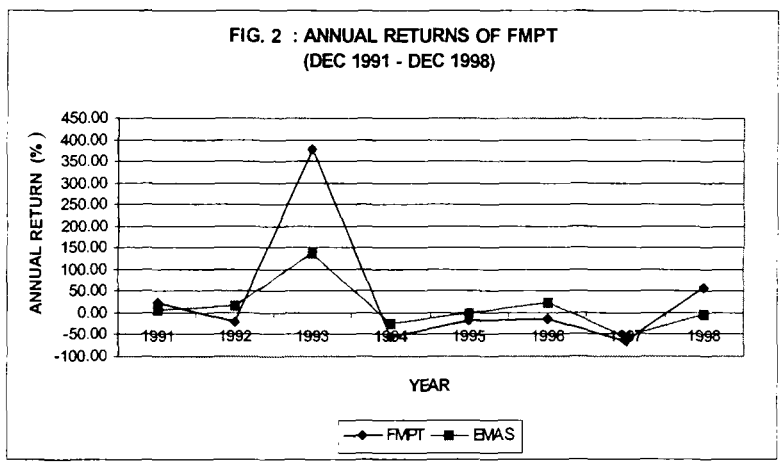
FIG. 2 : ANNUAL RETURNS OF FMPT
(DEC 1991 - DEC 1998)
ANNUAL RETURN (%)
450.00
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
-50.00
-100.00
1991
1992
1993
1994
1995
1996
1997
1998
YEAR
FMPT
EMAS

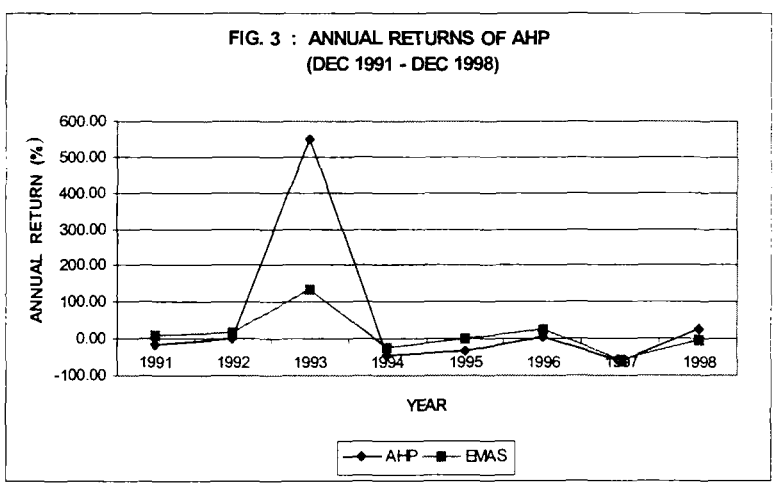
FIG. 3 : ANNUAL RETURNS OF AHP
(DEC 1991 - DEC 1998)
ANNUAL RETURN (%)
600.00
500.00
400.00
300.00
200.00
100.00
0.00
-100.00
1991
1992
1993
1994
1995
1996
1997
1998
YEAR
AHP
EMAS

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Computer Assisted Rating Valuation of Commercial and Industrial Properties in Malaysia : Developing an Expert System from a Multiple Experts Knowledge Elicitation Methodology

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Abstract

The feasibility of developing an expert system in the valuation of commercial and industrial properties for rating purposes in Malaysia from several experts was investigated by empirical research. Knowledge was elicited mainly from these experts using various techniques: separate interviews, group interviews and observation. The main source of knowledge came from several core valuers who acted as a panel to provide core domain knowledge. The knowledge was then augmented by knowledge from complementary valuers: seven local authorities' valuers; a private valuer and an academic to contribute local contextual knowledge, market knowledge and legal knowledge respectively. Supporting specialists provided building technology knowledge, spatial knowledge and macro-economic knowledge. The opinions of tenants were also elicited. Secondary sources of knowledge were provided by supporting staff from the local authorities, observation of documents and objection hearings. A simple regression analysis to find the weightings of the main factors was also incorporated in the knowledge-base for the purpose of complementing the heuristic approach and as a possible comparison with that approach. The knowledge-base was analysed and represented in a prototype consisting of four modules: purpose-built office complex, shopping complex, shophouse/flat/office and factory. The prototype was evaluated through valuers commenting upon the knowledge-base contained in the prototype and by a comparison of actual valuation against the prototype's predictions.

Keywords : expert system, rating, knowledge elicitation process, multiple expert

Aim of the Research

The main aim of the research was to investigate the use of knowledge from a number of experts in developing an expert system for rating valuation of commercial and industrial properties in Malaysia.

This paper reviews:

(1) the background to the research
(2) the process of eliciting the knowledge
(3) the knowledge that has been elicited
(4) a description of the prototype (i.e. the system that represents the knowledge) and its evaluation and

(5) the conclusions drawn from the research.

Background

Regular revaluations have always been difficult for local authorities in Malaysia (Nahappan, 1968; Manuel, 1986; Hizam, *et al*, 1990). Whilst political pressures may sometimes be contributory to revaluation delays (Othman, 1986), shortage of qualified personnel is significant. Expert systems which were being marketed as a means of "deskilling" areas where "experts" were in short supply (Jenkins, 1992, p.2) was considered to be an appropriate information technology strategy to alleviate the problem.

Expert System

An expert system can be defined as "a computer system which contains knowledge pertaining to an area of human specialisation. The system can also implement that knowledge in such a fashion as to be able to act as a consultant expert in that field of specialisation. Such a system typically requires the user to provide answers to relevant questions in order to supply advice based on those responses. In addition the system is able to justify or explain the reasoning behind a course of action it recommends, in order to defend its deduced solution". (Scott, 1988, p.27).

The development of an expert system is thus centred on the elicitation of the knowledge from an expert or experts, and representation and validation of that knowledge in a computer program.

Nature of Properties in the Research

The scope of properties in the research includes purpose-built office complexes (of more than 5 storeys), shopping complexes, shophouse/office/flat and industrial properties. The wide spectrum of commercial and industrial properties was purposely selected rather than the more traditional approach by previous researchers to concentrate on just one particular type of property (Scott, op.cit p.18; Jenkins, op.cit p.1). This is unique to this current research involving the investigation into the possible variability of knowledge used within the same generic class of property and between different types of properties.

The Core Principle of Rating Valuation in Malaysia - Annual Value

The concept of *annual value* forms the basis for rating assessment in Malaysia (except for the Johor state which uses the "improvement value" i.e. capital value) (Hizam, 1991, p.46). The concept envisages a hypothetical tenancy leading to a hypothetical rent fixed by a hypothetical owner and a hypothetical tenant which in itself is guided by legal principles in the English rating law such as *rebus sic stantibus* and tenancy from year to year.

Annual value can be interpreted from Section 2 of the Local Government Act, 1976 as the *estimated gross annual rent at which the holding might reasonably be expected to let from year to year having no regard to any restrictions or control on rent and also disregarding enhanced rent resulting from use of machinery for certain purposes.*

The knowledge to be elicited from the experts in this research thus is all sub-sets of knowledge related to the process of estimation of the gross annual rent. This involves using the comparative method of valuation, i.e. a method of formulation of opinion of value (in this case rental value) at a particular date (date of revaluation or date of tone of the list) based on comparison of market rentals and characteristics of the subject property and other comparable properties (Mahadi, 1988).

The Knowledge Elicitation Process

The targeted experts

The research commenced with knowledge elicitation from valuers from the City Hall of Kuala Lumpur, the City Hall being the main collaborating local authority in this project. Due to the large number and complex nature of commercial *holdings'* in Kuala Lumpur and the range of experience of the valuers in valuing these properties, it was decided that the main source of knowledge of *core valuers* would come from City Hall.

Their knowledge would be complemented by the knowledge of other local authority valuers to bridge the gap of contextual knowledge from valuers having experience of other geographical and market conditions, e.g. the effects of the siting of a shophouse on its rental in towns which mainly consisted of such properties.

Within the valuation, an element of forecasting is necessary, especially when there was a significant gap between rental evidence dates and the date of valuation. Market knowledge of private valuers, who are generally more in touch with the market, could provide assistance to the valuers in making the forecast and so private valuers would form a distinct group within the knowledge elicitation process.

The legal knowledge of the rating valuers was mainly embodied in their working practice in terms of selecting suitable rental evidence and the application of the concept of *rebus sic stantibus*. An academician was included in the knowledge elicitation strategy to bridge any possible gap in the legal knowledge.

Other local authority valuers, private sector valuers and academicians are referred to as "complementary valuers" in this research.

For the purpose-built office complexes and shopping complexes, it was found that certain gaps in the knowledge of the core valuers existed in making objective comparisons on factors related to building characteristics and in the case of shopping complexes, the status and tenant mix. Throughout the knowledge elicitation with the valuers, a more detailed means of comparison would be useful to supplement the broad heuristics in making comparisons and adjustments.

For these reasons the elicitation process was further broadened to encompass supporting specialists, property managers, building related experts, a transport expert and an economic planning officer.

The general framework of the multiple experts knowledge elicitation approach adopted is illustrated in Figure 1.

Although for the majority of the work the knowledge of experts was elicited, the research had also sought to complement the whole knowledge by obtaining opinions from "non-experts" i.e. tenants.

Methodology

Within the methodology defined here, the function of the core valuers is to act as the central knowledge source as well as to act as the main "panel" to comment on the knowledge coming from the other sources.

The knowledge elicitation from the complementary valuers and supporting specialists was undertaken separately but iteratively with the knowledge elicitation from the core valuers.

Essentially, the process involved selection of experts, identification of other knowledge sources and examining the knowledge using a variety of knowledge elicitation and knowledge analysis techniques.

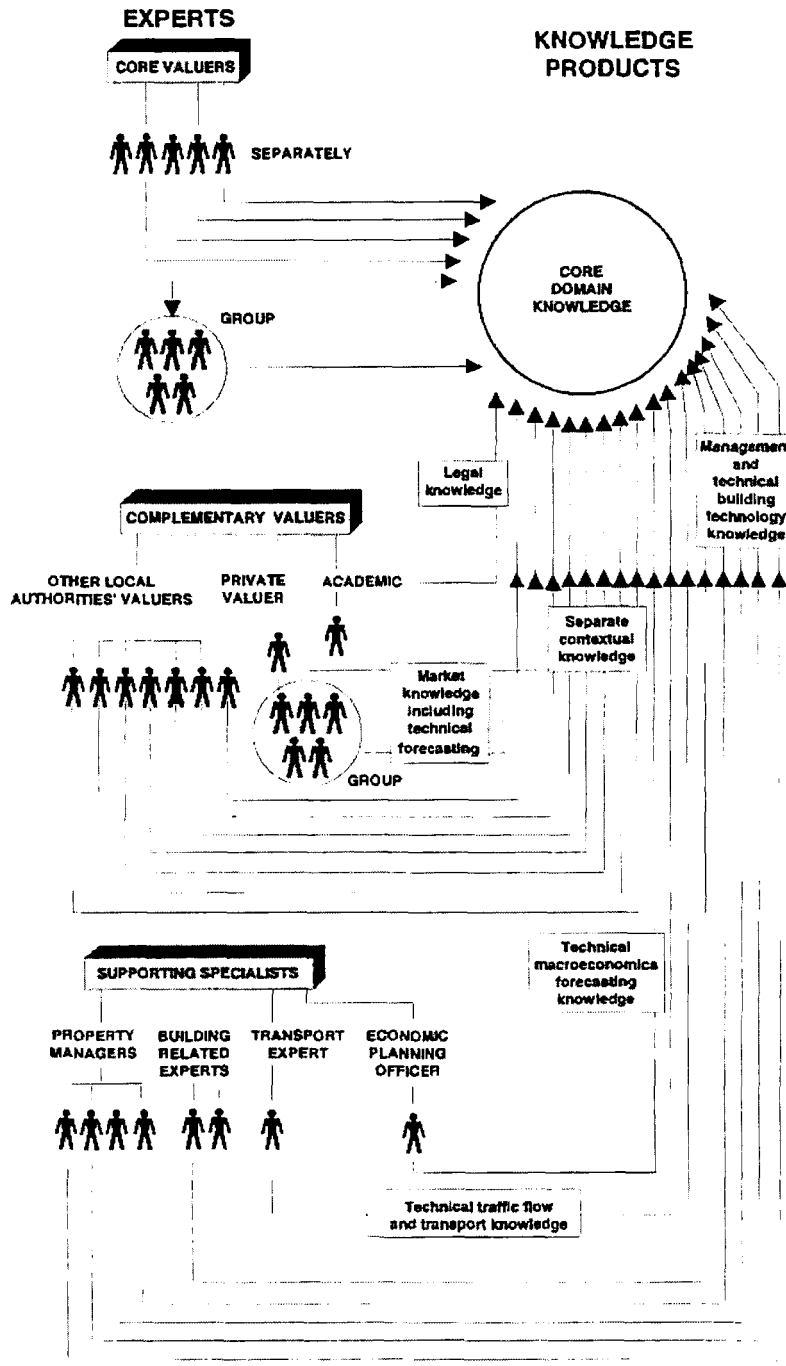

Figure 1: General Framework of The Multiple Expert Knowledge Elicitation Approach

Selection of experts

The criteria in the selection process was mainly divided into first, selection of the organizations from which the experts should come and second, selection of the individual experts themselves.

a. Selection of organizations

This was mainly applicable in selecting the local authority valuers. The criteria applied was a significant number of commercial and industrial properties in the local authorities to provide the basis for the experience of the valuers. The six local authorities selected were Seremban Municipal Authority, Petaling Jaya Municipal Authority, Klang Municipal Authority, Shah Alam Municipal Authority, Ipoh City Hall and Seberang Perai Municipal Authority (shown in Figure 2).

Factors such as geographical dispersion (Medsker, *et al*, 1994) and the consequent travelling time from the research base to the local authorities and uniqueness of

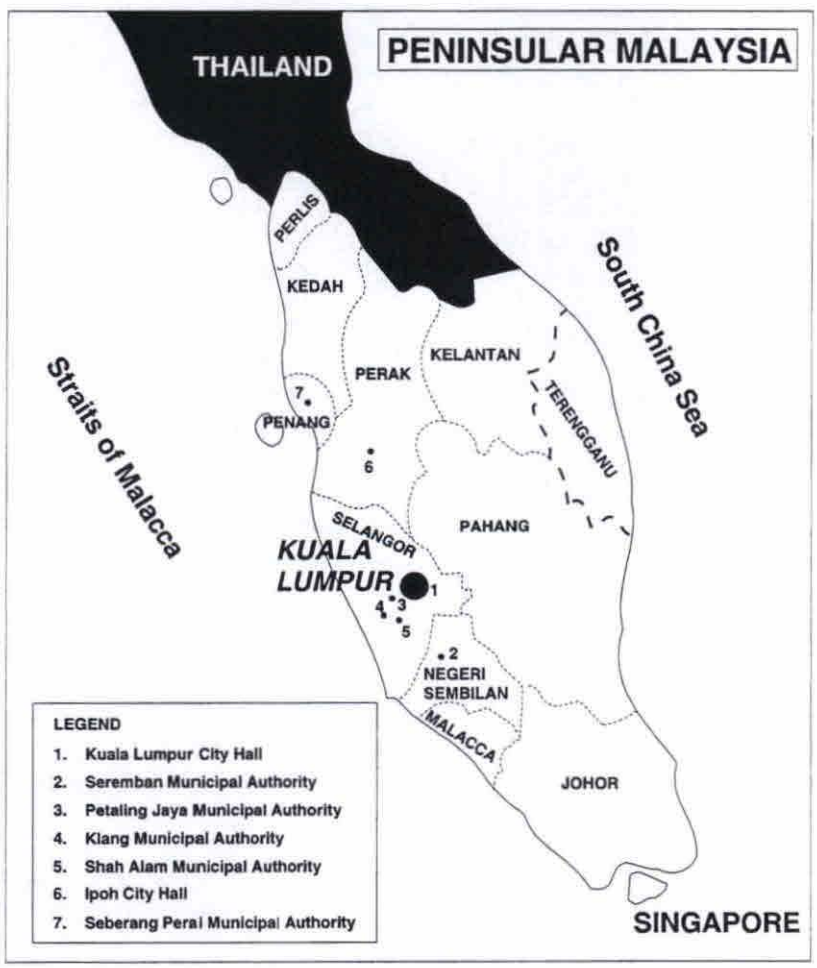

Figure 2: Location of The Local Authorities Selected in The Research

valuation practices (e.g. valuation of plant and machinery) were also relevant selection criteria.

b. Selection of individual experts

The common criteria for selecting the individual experts were academic background and experience in their respective fields (McGraw and Harbisson Briggs, 1989, pp. 97-98).

The group of multiple experts chosen consists of:
(1) five core valuers;
(2) nine complementary valuers namely seven local authority valuers (i.e. a valuer from each of the six local authorities and an ex-valuer from the Ipoh City Hall who had wide and long experience in rating valuation), an academic and a private valuer and
(3) eight supporting specialists namely four property managers, two building related experts, a transport expert and an economic planning expert.

Other knowledge sources

The secondary source served as a form of triangulation (to complement the knowledge from the primary source). This comprised mainly relevant valuation documents, objection hearings, site visits and assistant valuation officers and technicians.

Knowledge elicitation approach

Three configurations were observed: using experts individually, using primary and secondary experts, and using experts in small groups (Medsker, *et al*, op. cit). Using experts individually and as primary and secondary experts eliminate problems of managing groups but may not have the advantages of group interaction such as "rich idea generation."

The research had adopted a combination of the three approaches to reconcile the advantages and disadvantages of each approach.

Individual consultations were adopted for each of the core valuers, complementary valuers and the supporting specialists. The core valuers were consulted individually to allow detailed investigation into possible individual differences of valuation approach between the valuers. The other experts were also consulted individually due to the specialised nature of their knowledge (Chung and Ng, 1989) e.g. building technology and management knowledge.

In addition, the core valuers were also referred to as a group to study the extent to which the differences of approach could be reconciled in a group in the form of a consensus. Where there were differences in approach, the knowledge engineer had the opportunity to accommodate the alternative multiple lines of reasoning based on the separate individual consultations with the respective valuers.

Knowledge elicitation techniques

Traditional active knowledge elicitation techniques (Scott, op.cit p.97) were adopted, namely interviews and observation for both individual and group consultations with the experts. Observations were also made to the secondary knowledge sources. Simulations (Crofts, 1987, p.38) of core valuers' work on actual data were also undertaken individually and discussed in a group.

Knowledge analysis techniques

The data and knowledge were continuously coded into the themes that emerged. For example, in the case of the core valuers, procedural aspects of the valuation process, e.g. selection of comparables, rental analysis,

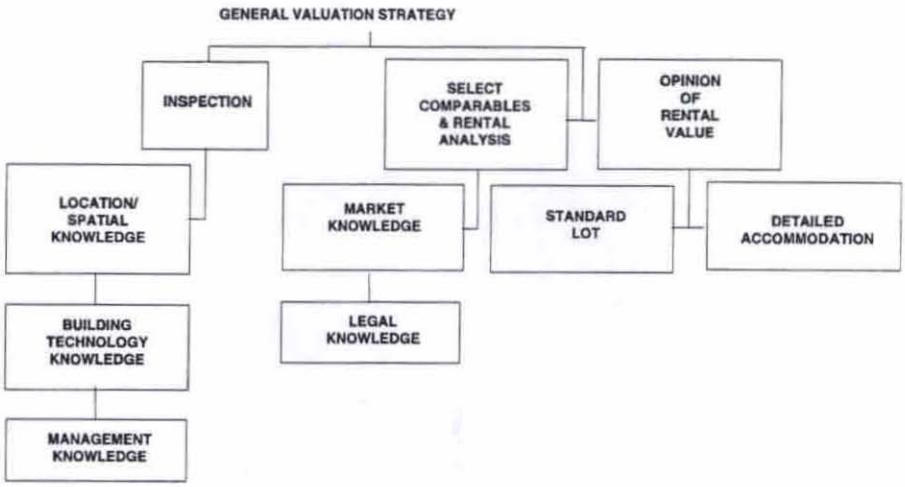

Figure 3: General Valuation Strategy of Core Valuers

inspection/referencing and the formulation of opinion of rental value. The knowledge was identified by codes in respect of each expert.

The Knowledge Elicited

The total amount of hours of formal interview with the core valuers, complementary valuers and supporting specialists was approximately 40 hours, 44 hours and 11 hours respectively.

The general strategy of carrying out a valuation of the core valuers was quite similar, namely that work was looked at from the point of view of a set of stages and for each stage, certain types of knowledge were applied. The local authorities' valuers adopted broadly the same strategy as the core valuers. This is summarised in Figure 3. The "standard" lot for office space as indicated in the diagram was agreed by the valuers as the space used as offices on the second and upper floors of the purpose-built office complex. For the shopping complex, a standard lot was agreed with the valuers as an intermediate shop lot with the standard size (within a particular shopping complex) and not close to the main entrance nor to the escalators.

Inspection

Inspection involved the valuers collecting data and information on the locational and building characteristics of the subject property and its comparables.[2] The valuers used the inspection information together with rental analysis of the properties to formulate an opinion of rental value per square foot of the subject property.

At this inspection stage, the valuers utilised knowledge related to locational/spatial aspects, building technology and management.

While at a strategic level there was no significant difference among the valuers, in terms of the knowledge related to locational/ spatial aspects, building technology and management, there were many variations.

Locational and spatial comparison knowledge

The perception of the valuers as to quality of locations was guided by the address of the properties (Figure 4 shows the classification

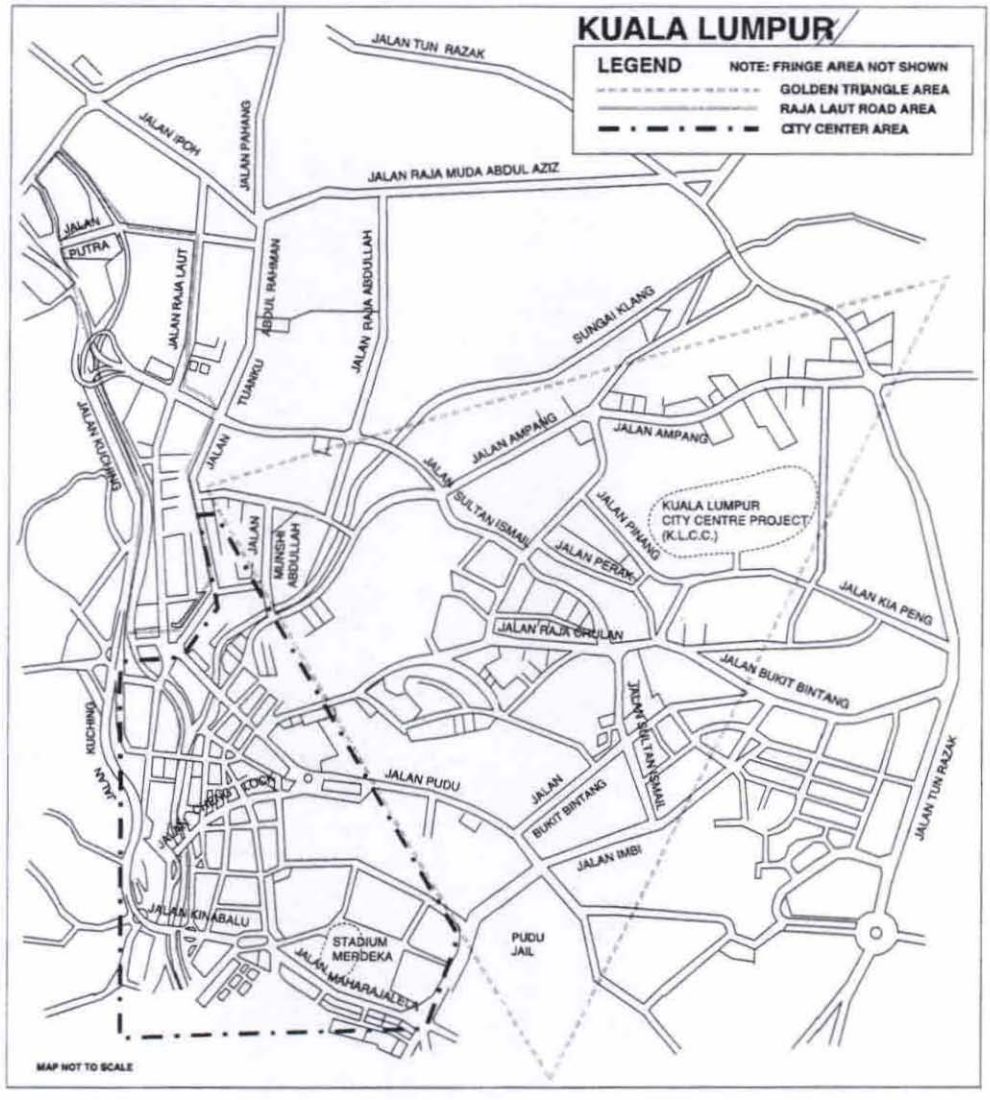

Figure 4: Classification of Office Location in Kuala Lumpur

of office location in Kuala Lumpur). However, some core valuers went deeper by sub-dividing the main locations into further sub-locations in terms of accessibility, traffic flow and detailed siting and neighbourhood.

There was no significant conflict but greater depth was provided to the knowledge base it self.

Valuers from the growing medium-sized local authorities showed a tendency to discuss more local issues such as the development of sub-core commercial complexes and their implications in the spatial comparison of rental patterns, thus bridging the gap in contextual knowledge. Among the different local authorities, the approach to valuation differs according to the local layout of the town. For example, rather uniquely, Seberang Perai Municipal Authority based the rental pattern of the shophouse/office/flat on different "blocks" which could be considered to relate broadly to the blocks' distance from the town core.

Building technology knowledge

The building technology knowledge of the valuers is analysed with regard mainly to the quality of the buildings.

The lines of reasoning varied. In the case of shophouses, they range from merely looking at the general age to looking at the detailed specialist uses of the properties, for example the banks and fast food restaurants, both commanding higher rentals compared to other categories of shophouses.

In general, the knowledge of the valuers complemented each other. Some conflicts arose, however, as regards the appreciation of certain recreational facilities in an office complex and whether to value them using a flat rental per square foot or to value them according to the number of units of the facilities. This conflict, however, was resolved by the availability of rental evidence in the former.

Building technology knowledge elicited from the property managers and building experts added depth to the knowledge-base.

The general criteria for purpose-built office building classification such as design, services and facilities were found by the valuers to be beneficial. Deep technical knowledge, e.g. distance between different air-conditioned ducts, were set aside from the knowledge-base.

Management knowledge

The knowledge was mainly exhibited by the valuers in the context of shopping and office complexes.

In general, there was no conflict in the management knowledge of the valuers. In some cases, the management knowledge of certain valuers could help valuers resolve conflicts. For example, the knowledge regarding the items of the service charges was used to reach a consensus opinion on the deduction of items in the service charge to comply with the definition of annual value.

Marketing strategy knowledge of property managers such as facilities in a shopping complex was useful. These were developed more through consumers' behaviour. The elicitation of opinion from such a group of people will be discussed later in this paper.

Selection of comparables, analysis and formulation of opinion of rental value

The second stage in the valuation was the selection of comparables, their respective rental evidence and the subsequent analysis. This was concurrently undertaken at the inspection stage.

The valuers selected comparables from the same type of property, in the same locality and at the same time of letting (date of valuation). Valuers subsequently divided the rental by the size of the area let to arrive at a common unit of rental per square foot for analysis and comparison purposes.

When valuers selected comparables and subsequently carried out rental analysis, market knowledge and legal knowledge were used.

Market knowledge

In terms of the market, valuers generally tried to classify the market in terms of the general type of property, the location and the rental pattern. They also looked at the general movements or trends of rents.

In general, their approach exhibited strong similarities. However, there were differences in various aspects of their approach. At a general level, observations were made about the order of the strategy and about their differing awareness of the market. At a more detailed level, there were

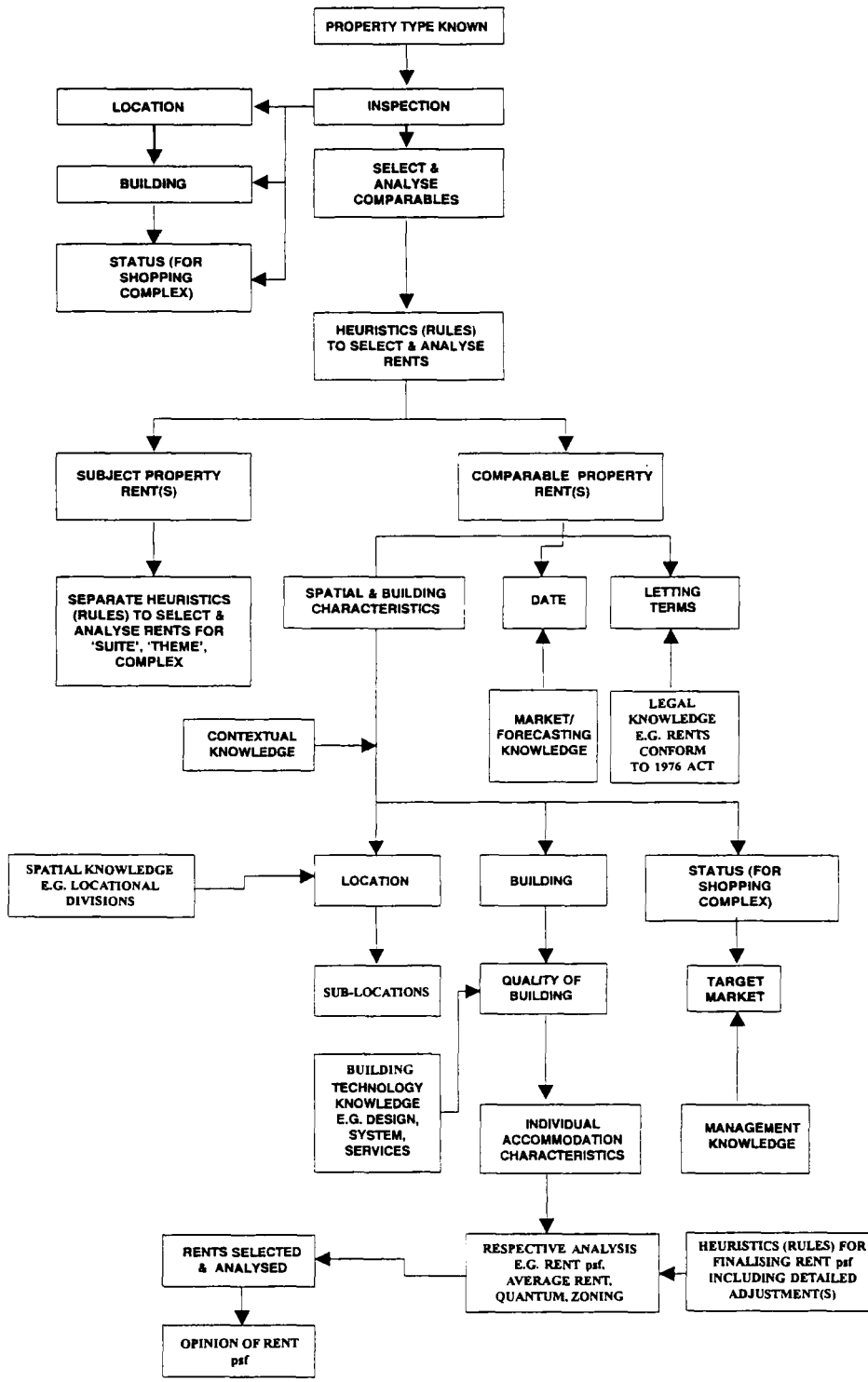

Figure 5: General Representation Of The Knowledge In The Valuation Process

further differences regarding the selection and analysis of rents, and in the formulation of opinion on rents.

a. Order of strategy

Although broad strategies of the valuers in the comparables selection and analysis stage were rather similar, there were some differences in the order or sequence of the strategy (Scott, op.cit p.81).

In the valuation of the office complexes, this ranges from comparison between individual properties to consideration of the rental range of the complexes for the whole of the city of Kuala Lumpur.

b. Market awareness

Another difference in valuation strategy between the valuers was in their awareness of some on the changes that were taking place in the market for commercial properties. This was illustrated by the appreciation of a valuer on the emergence of office buildings having a "suite" concept (where each tenant has exclusive rights to certain facilities in the building) and how to value them.

c. Detailed selection of comparables, analysis and opinion of rental value

The valuers customarily chose the rentals closest to the date of valuation-normally a year before the valuation.

The detailed technical aspect of selection, however, varied. Since there may be several different lettings for a property, some valuers produced a range of rentals of the subject property and comparable properties and then looking at it as a whole gave an opinion of rental per square foot of the subject property. Other valuers, had a simplistic view, just choosing the latest rental of the subject property and/or comparable properties as a basis for their valuations.

An objective rental forecasting model was explored with one private valuer. The macro-economic variables included were Gross Domestic Product, business, income, inflation and employment levels. These gave an indication of the demand for office space expressed in terms of space. A forecast of demand was considered with the level of future supply of office space. The relationship between the ratio and average rentals was then used to predict future rentals.

Legal Knowledge

Valuers had a general appreciation of the legal framework in which they were operating but did not apply it dynamically until they were "challenged". In situations where their knowledge was challenged, the contribution of the academic was useful. For example, one valuer from a local authority had a unique practice of valuing the first floor of a shophouse based on the majority use of other first floor shophouses in the same locality instead of valuing it based on its existing use. The justification given was more on practical grounds, i.e. the use may be temporary and there was a high possibility for the existing use to change to the majority use. The valuer was aware that such practice did not follow strictly the general *rebus sic stantibus* principle of valuing as it is but was not prepared to go into detail on the legal aspect. The general legal principle from the academic literature was against such practice. Ironically, deeper discussions with an academician pointed to the justification of such an approach which introduced the issue of "potential use", provided the building structure, mode of occupation and planning permission were not in contradiction.

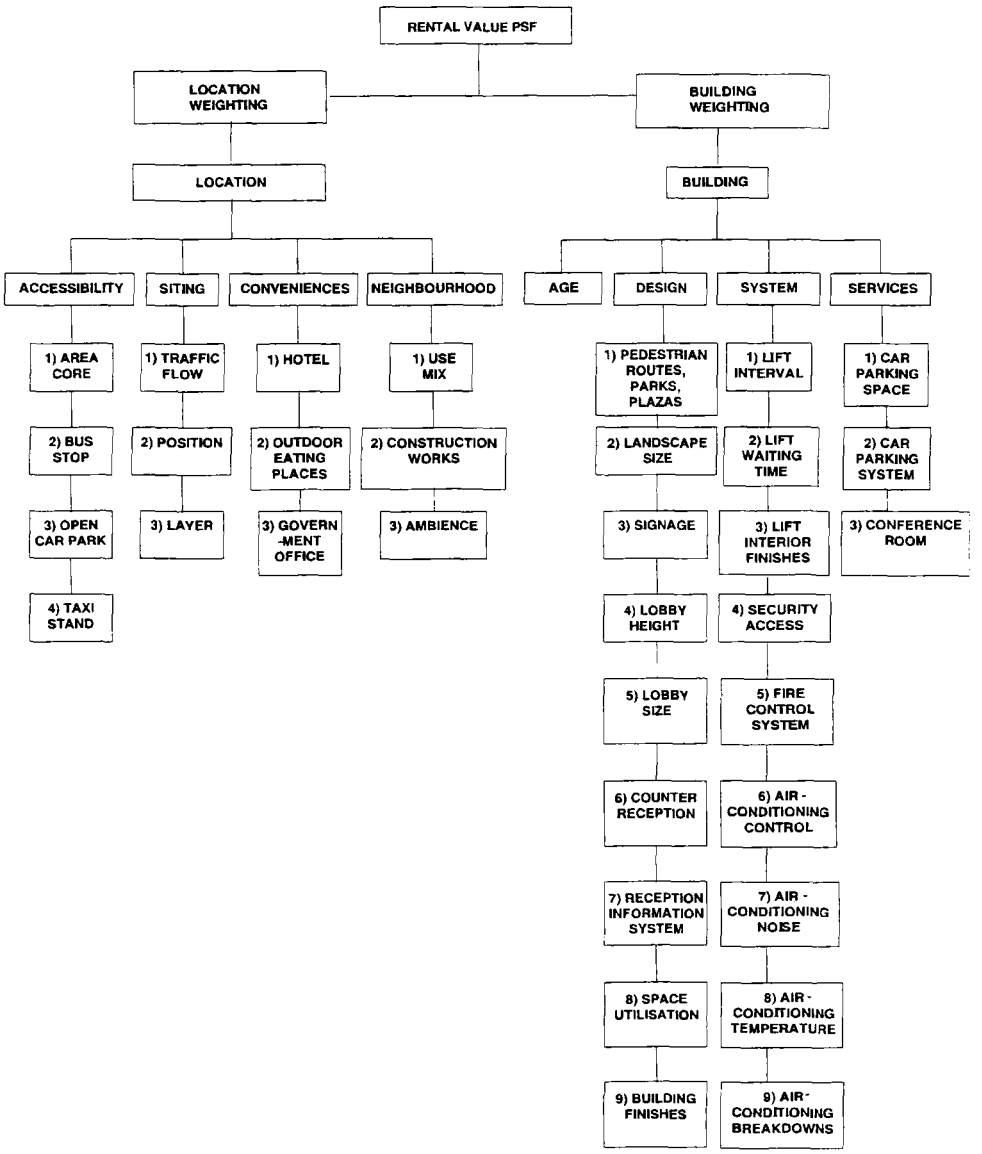

Figure 6: Framework of the Comparison Model for the Valuation of Office Complexes

Knowledge Representation

General heuristical representation of knowledge

Valuers used "reasoned adjustments" (heuristically) to allow for differences between a subject property and its comparables.

Figure 5 illustrates the general diagrammatic representations of the heuristic structure of the valuation process.

The research has also attempted to investigate the application of simple regression analysis to be incorporated in an expert system model (Jensen and Wadsworth 1990[3] and Hermann,

et al, 1994[4]) to find location and building weightings (for office complexes) and location, building and status weightings (for shopping complexes).

The philosophy here was not strictly heuristic and was intended to simplify the valuation process, serve as an empirical comparison and complement the heuristic approach.

Incorporation of the simple regression model in the knowledge-base

This was applied to the purpose-built office and shopping complexes in Kuala Lumpur. The purpose of the model was to establish and provide a detailed and structured comparison of the standard lot's rental of the individual properties.

As an illustration, the framework of the comparison model for the valuation of office complexes could be illustrated by Figure 6.

The attributes in the framework were determined through comprehensive discussions with the experts with the core valuers acting as the main "panel" to comment on them. They represent the rental value laden attributes which the core valuers thought to be relevant in the valuation process. The development of this model comprised several stages.

Stage 1: Knowledge representation and identification of rental value-laden attributes from the knowledge elicitation

The first stage involved structuring the knowledge-base. This involved identification of the main attributes, first level and second level sub-attributes affecting the rental values. In the office complex model, there were thirteen second level sub-attributes to location and twenty-two second level sub-attributes to building. For the shopping complex, there were thirteen second level sub-attributes to location, forty-two second level sub-attributes to building and seven second level sub-attributes to complex's status.

Figure 7 provides an example of the main attributes, first level and second level sub-attributes of the office complex.

Main attributes	1st level sub-attributes	2nd level sub-attributes
Location	Accessibility	Area core distance Bus stop distance LRT distance (subject to completion)
	Siting and traffic flow	Traffic flow Position Layer
Building	General	Age
	External design	Pedestrian routes/parks/plazas distance Landscaping size

Figure 7: An Example of Main Attributes, First Level Sub-attributes and Second Level Sub-attributes of Office Complex

Stage 2: Establishing classes of situations

This stage attempted to refine the granularity of the knowledge-base. For example, in the case of the purpose-built office complexes, the classes of situations for second level sub-attributes for location distance from area core, were "within the city core", "up to 1 kilometre" and "more than 1 kilometre".

A whole series of classes of situations were elicited with the valuers both for the second level sub-attributes for location and building in the case of purpose-built office complexes and for location, building and complex status in the case of shopping complexes.

Stage 3: Eliciting valuers' opinions (in terms of point scores) on classes of situations and combining them with tenants' opinions

This involved eliciting opinions from the core valuers on the relative importance of each class of situation for each second level sub-attributes in some form of numerical measurement. A method more akin to the Likert Scaling (a method of measurement of opinion based on numbered scales) was adopted based on the nature of the many second level sub-attributes (Husin, 1993).

A questionnaire based on the knowledge from the two previous elicitation stages was distributed to each core valuer requesting him/her to provide opinions on the importance based on a point score scheme of 0 (lowest score) to 10 (highest score).[5]

The elicitation of the opinions took place separately. Figure 8 provides a tabular view of the valuers' opinions on the relative importance of each class of situation for two second level sub-attributes to location for purpose-built office complexes namely "area core distance" and "bus stop distance".

Class of Situations-Valuers' and their Opinions

The average of the point scores of all the participating valuers was adopted. Each core valuer was given equal weighting in terms

	1	2	3	4	5	Average	Standard Deviation
Area core distance							
Within core	10	9	10	7	10	9.200	1.304
Up to 1 km	7	8	5	10	6	7.200	1.924
More than 1 km	5	5	1	6	2	3.800	2.168
Bus stop distance							
Within 50 m	10	10	10	10	10	10.000	0
100 m - 150 m	7	7	4	6	4	5.600	1.517
More than 150 m	6	5	1	5	2	3.800	2.168

Figure 8: An Illustration of Five Valuers' Opinions on Different Classes of Situations (Purpose-built Office Complex)

Main attributes	1st level sub-attributes	2nd level sub-attributes	Class situations	Valuer's Score (V)	Mean Tenants' Opinion (T)	Overall V*T (closest integer)
Location	Accessibility	Area core distance	Within core	9.200	0.707	6.508 (7)
			Up to 1 km	7.200	0.707	5.093 (5)
			More than 1 km	3.800	0.707	2.688 (3)
		Bus stop distance	Within 50 m	10.000	0.650	6.500 (7)
			50 m - 100 m	7.800	0.650	5.031 (5)
			100 m - 150 m	5.600	0.650	3.612 (4)
			More than 150 m	3.800	0.650	2.451 (2)

Figure 9: An Example of Purpose-built Office Complex Main Attributes, First Level Sub-attributes; Second Level Sub-attributes; Class Situations and The Point Scores

of opinion as the length and scope of experience were about the same. A survey on tenants' opinions was incorporated to complement experts' consensus opinions (Adair, *et al*, 1996, Pittman and McIntosh, 1992).

Two separate sets of questionnaires of Tenants' Stated Preference Study (TSPS)[6] were designed in accordance with the knowledge-base, each for the office complexes' tenants and the shopping complexes' tenants. The main aim was to obtain tenants' opinions on the degree of importance of the second level sub-attributes. This was based on a Likert scale of 0 (lowest rating) to 10 (highest rating). A rating of 10 would mean that the tenant was of the opinion that a sub-attribute was very important and this will be "translated" as full (100 per cent) importance and equivalent to multiplier[7] 1.0. It followed that the middle and lower end of the rating would have multipliers of 0.5 and 0 respectively. The aim of the multipliers was to facilitate the combination of valuers' opinions and tenants' opinions on the importance of the sub-attributes. The tenants were also requested to state other relevant factors. Seventy-five purpose-built office buildings were selected at random throughout Kuala Lumpur (about 60 per cent of the total number of purpose -built office complexes in Kuala Lumpur city) and 600 questionnaires were sent selectively to the tenants of these office buildings of which 149 replied. In the case of the shopping complexes, 11 shopping complexes were selected (representing 79 per cent of shopping complexes in Kuala Lumpur City). A door to door approach[8] in distribution and survey was adopted. Two hundred questionnaires were distributed at random and 51 replied (26 per cent response rate).

The tenants' opinions were stored in Minitab software for analysis.

The means of tenants' opinions were combined with the valuers' point scores producing a set of point scores for each second level sub-attribute. This approach, agreed with the valuers, served to complement their opinions, providing a composite point score.

An example of the format for a purpose-built office complex in terms of the main attributes;

first-level sub-attributes ; second level sub-attributes; the different class situations and the respective point scores, is illustrated in Figure 9.

The inclusion of tenants' views to complement opinions of experts is unique to this research. First, the views can be combined with the valuers' consensus point scores to arrive at a composite score for each of the class situations of the second level sub-attributes. Secondly, it provides a formally elicited first-hand knowledge of the market. Thirdly, it provides additional attributes to complement previous knowledge elicitation. Fourthly, the views formed the basis of validating the knowledge of the experts.

The approach to date was to combine the tenants' opinions with the valuers' opinions. It would be useful to consider the valuers' opinions alone and compare the results with the approach undertaken so far. This will be subject to further research.

Stage four: Inspection of properties

The fourth stage in the process of the construction of this model was to conduct the inspection of properties based on the attributes and sub-attributes. Ninety-two purpose-built office complexes and 14 shopping complexes throughout the Kuala Lumpur city were inspected and the point scores for each individual second level sub-factors were noted. The information was stored in Minitab statistical software for later analysis.

Stage five: Finding weightings of main factors

This stage of the process involved the compilation of rentals of "standard lot" for the purpose-built office complexes and shopping complexes. The objective was to find the relative importance of the main attributes, i.e. location and building (in terms of the weighting of each) for the purpose-built office complexes and the relative importance of the main attributes location, building and status of complex (in terms of the weighting of each) for the shopping complexes.

Several steps were involved :

a. Calculation of maximum score for each main attribute

The maximum score for each main attribute was derived from the maximum sum of scores of all first-level sub-attributes. The sum of the scores of all first-level attributes came from the maximum sum of scores of all second level attributes.[9]

In the case of office complex, the maximum scores of location and building were found to be 87 and 170 respectively.

For shopping complex, the maximum scores of location, building and status were 96, 254 and 54 respectively.

b. Calculation of proportion to maximum score for each main attribute of each individual property

This was achieved by dividing the score for each main attribute of individual property (obtained from inspection in stage four) with the maximum score for each attribute (as derived from step 1 above) and expressing them in terms of percentage.[10]

Two separate main lists (each for office and shopping properties) of all the proportion to maximum score for each main attribute of each individual property were compiled.

The main list of the office properties was further divided into several sub-lists according to the area cores in which the properties were located.[11]

c. Simple regression of rentals against the proportion to maximum score for each main attribute

Simple regressions of the rentals[12] of each individual property against proportion to maximum score for each main attribute[13] of each individual property (based on the lists from step 2) were then undertaken using the Minitab statistical software.

For the proposed 1997 revaluation exercise, the current rentals at the time when the research was undertaken was mid to late 1995. Rental evidence were searched from the property review section in the media at that time. Rental evidence of standard office space of 54 different purpose-built office complexes were collected. In the case of the shopping complexes, rental evidence of ground, first, second and third floors of 12 different shopping complexes within the Kuala Lumpur city were collected.

From the regressions, the coefficients of each main attribute (and thus regression equations) were obtained for the office complexes and shopping complexes.

As the rental value was generally considered by the valuers to be a function of the main attributes, the total weightings of the main attributes should equal 1.

c. Finding hypothetical maximum rent

Using the coefficients of the main attributes, for both the office and shopping complexes, the hypothetical rent of a hypothetical property having the maximum scores for the main attributes (100 per cent scores for the main attributes of location and building) were predicted.

From this exercise, the hypothetical maximum rent of all the different divisions of the office complex (based on the different area cores) and the shopping complex were predicted.

d. Expressing individual property's rent in terms of rent proportionate to hypothetical maximum rent

This was achieved by dividing the rent of each property with the hypothetical maximum rent and then expressing them in terms of percentage.

e. Finding the weightings of main attributes

This was achieved using simple regressions of rents[14] proportionate to hypothetical maximum rent against the respective proportion to maximum score of the main attributes for each individual property.

An example of the summary of data of purpose-built office complexes in the Golden Triangle - Sultan Ismail Road core which were utilised in finding the weightings of land and building is indicated by figure 10.

In the case of the purpose-built office complexes as in the example provided by Figure 12, the regression was undertaken between columns (4) and (5) as independent variables and column (7) as a dependent variable. For example, in the case of the Golden Triangle - Sultan Ismail Road core, the relative weightings of main attributes location and building (as in Figure 10) were found to be 0.375 and 0.625 respectively.

A summary of the weightings of the main attributes of the purpose-built office complexes and shopping complexes for the different valuers' determined sub-locations are provided in Figure 11 and Figure 12 respectively.

For the purpose of triangulation, attempts were also made to elicit the weightings directly from the core valuers in the case of the office complexes. It was, however, found that not all core valuers were prepared to provide their opinions although they agreed that such an approach could be beneficial and

Building	Location Score (Max. Score=87)	Building Score (Max. Score=170)	Location Proportionate (%) to Max. Score	Building Proportionate (%) to Max. Score	Rent Max. Hypothetical Rent=6.6	Rent Proportionate (%) to Max. Hypothetical Rent
1	2	3	4	5	6	7
KLIH	70	80	80.4598	47.0588	3.80	57.6273
Genesis	66	143	75.8621	84.1176	5.50	83.4079
AMMB	72	139	82.7586	81.7647	5.50	83.4079
S H Chan	69	106	79.3103	62.3529	4.10	62.1768
HLA	74	98	85.0575	57.6471	4.50	68.2428
GHill	70	148	80.4598	87.0588	5.70	86.4409
Boustead	71	117	81.6092	68.8235	5.00	75.8254
WBstead	71	69	81.6092	40.5882	3.70	56.1108
Kewangan	68	93	78.1609	54.7059	4.50	68.2428
Aetna	68	127	78.1609	74.7059	4.80	72.7923
L F Yong	67	87	77.0115	51.1765	3.90	59.1438
WStephen	66	75	75.8621	44.1176	4.00	60.6603
Genting	75	136	86.2069	80.000	5.50	83.4079
SPK	71	94	81.6092	55.2941	4.00	60.6603
Haw Par	70	97	80.4598	57.0588	4.50	68.2428
UBN	80	136	91.9540	80.000	5.80	87.9574
Atrium	68	81	78.1609	47.6471	4.00	60.6603
M Sabre	69	119	79.3103	70.000	4.50	68.2428
SMK	70	76	80.4598	44.7059	3.50	53.0778
IMS	72	61	82.7586	35.8824	3.80	57.6273
Nusantara	71	74	81.6092	43.5294	3.90	59.1428
MUI Plaza	76	106	87.3563	62.3529	4.50	68.2428

Figure 10: An Example of Data Utilised in Finding Weightings of Land and Building

Location	Number of Properties	Location Weighting	Building Weighting	Total Weighting
Sultan Ismail Road Core	22	0.375	0.625	1.000
Ampang Road Core	11	0.354	0.646	1.000
Raja Laut Road Core	4	0.535	0.465	1.000
City Center Road Core	13	0.462	0.538	1.000
Fringe Areas	4	0.225	0.775	1.000
Total	54			

Figure 11: Weightings of Location and Building (Purpose-built Office Complexes)

Floor Reference	No of Rental Evidence	Location Weighting	Building Weighting	Status Weighting	Total Weighting
Ground	6	0.378	0.435	0.187	1.000
First & Second	12	0.340	0.376	0.284	1.000
Third	8	0.272	0.316	0.412	1.000

Figure 12: Weightings of Location, Building and Status (Shopping Complexes)

explored more rigorously. Only the core valuer with the concentrated experience in the valuation of the office complexes in Kuala Lumpur in the 1992 revaluation exercise was willing to give his opinion on the relative weightings of location and building for office complexes in Kuala Lumpur as a whole although he suggested and appreciated the importance of stratifying the sub-location of the office complexes and to find the respective weightings of location and building for each sub-areas. In addition,in the TSPS, the tenants of the office complexes were also requested to state their opinions of the weightings of location and building when they selected their office space.

The weightings derived from the regression were discussed with the valuer with the concentrated experience in the valuation of the large commercial properties. Insights were highlighted in terms of the significance of the difference of weightings in accordance with the valuers' perceptions.

The weightings from the regression were used to predict rental per square foot of other office buildings in the same geographical area. For example, in the case of the Golden Triangle-Sultan Ismail Road core, the rental per square foot for the standard office space in another building namely Bangunan Yayasan Selangor with location score of 73 and building score of 74, the rental could be predicted as follows.

Proportionate Location Score
(As a percentage to maximum possible location score of 100% (i.e. 87))
= 73/87 * 100 = 83.9080
Proportionate Building Score
(As a percentage to maximum possible building score of 100% (i.e. 170))
=74/170 * 100 = 43.5294 %
Proportionate Predicted Rental Per Square Foot Score
(As a percentage to maximum possible "Hypothetical" Rent of 100% (i.e. 6.60))
(0.839080 * 0.375) + (0.435294 * 0.625)
= 0.314655 + 0.272059
= 0.586714 = 58.6714%

Predicted Rental Per Square Foot
= 6.60 * (0.586714) = RM[15] 3.87 per square foot

The data for the shopping complexes were analysed as a whole for Kuala Lumpur city (in accordance with valuers' market knowledge) using the same procedure as with the purpose-built office complexes with an addition of main attribute status of complex besides the location and building.

Insights were highlighted in terms of the significance of the difference of weightings in accordance with the valuers' perceptions. For example, in terms of the weightings for the Golden Triangle (Sultan Ismail Road and Ampang Road Cores) purpose-built office complexes, it was explained by the valuers that the great locational advantage of the area may mean that it does not matter where in the Golden Triangle the tenants were located (hence low location weighting), whereas the Building weighting was higher reflecting the high competition in the Golden Triangle for high class prestigious buildings.

The weightings were used to predict rental per square foot of other buildings in the same geographical area. In the case of the purpose-built office complexes, Figure 13 provides an illustration of the prediction model.

The simple nature of the model provided an objective, easily understood comparison between properties in the form of point scores of each individual main and sub-attributes.

The Prototype and Evaluation

Validation and concept of prototyping

The validation involved valuers' evaluation of the knowledge-base as the knowledge elicitation proceeds (dynamic evaluation) to achieve knowledge completeness (Shaw and Woodward, 1988).

Generally, the research demonstrated that the valuers used a process - rules and relationships and that it was possible to produce heuristics to represent the weighting of attributes. The heuristically assigned weightings representing this process could be as valid as statistically derived data (Jenkins, op.cit, p.8).

The basic prototype

Rapid prototyping (i.e. building the prototype as soon as the knowledge elicitation starts) has not been adopted due to the size of the knowledge-base (Moore and Miles, 1991), the number of experts involved and the availability of only a single knowledge engineer.

Nevertheless, a prototype has been developed at a stage of the project when it was felt that the knowledge was adequate enough to stand as a platform for discussion among experts.

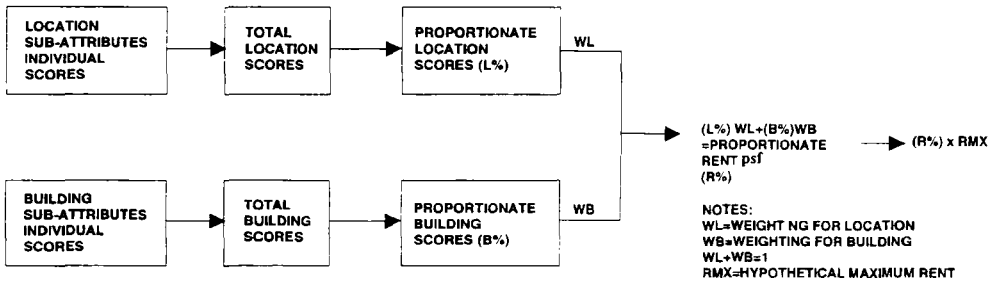

Figure 13: Rental Value Prediction Model for Office Complexes

The prototype is divided into four modules. Each module embodies the specific knowledge-base of a particular type of property. The purpose-built office complex module contains a series of "screen displays" embodying the knowledge of the experts integrated with the structured comparison format based on locational and building attributes (with both first level attributes and second level sub-attributes incorporated). The questions in the system are based on the second level sub-attributes. The computer incorporates rules intelligently to relate the answer given to the system to the combined scores of the valuers and the tenants' opinions through the array facilities in the system.

The individual scores of the second-level sub-attributes to location (to arrive at the total score of the main attribute location) and the individual scores of sub-attributes to building will also be added up (to arrive at the total score of the main attribute building). The proportionate scores of location and building (i.e. proportionate to the respective maximum score of location and building) will be multiplied by their respective proportionate weightings (i.e. proportionate to the maximum scores attainable) to arrive at an opinion of rental per square foot for the standard lot. Options for explanation are also incorporated in the system and these are provided at different levels i.e. shallow and detailed "layers" of explanation (Tayar, 1993).

The class of the purpose-built office complex is decided by the system in terms of categories of "Super", "Class A", "Class B", and "Class C". An option is available for viewing the comparables and their respective Location score, the Building and their respective predicted rentals.

During evaluation, valuers expressed the need for the system to provide information (if any) about the actual rents (average rents) of the subject property and its comparables as a check to the prediction.

The second part of the module contains the detailed accepted heuristic knowledge of the experts which comprise the valuation of individual accommodation in the office complex such as the penthouse and sports club, and swimming pool where rental evidence may be limited.

Module 2 for the valuation of shopping complexes has a similar format as module 1. It contains the knowledge-base relating, for example, to the position of the individual shop lots, the sensitivity of the rentals to size and the layout of the complex.

Module 3 for the valuation of shophouse/ office/flat contains a section analysing the general locational situation of the shophouse and an analysis of their detailed position. Where rental evidence in the immediate

vicinity are scarce, appropriate heuristically assigned adjustment will be made in relation to other comparables located farther away. The second section comprises questions relating to the internal valuation of the shophouse such as valuation between the different floors.

Module 4 consists of a knowledge-base of industrial properties. The rules for location in each is rather broad reflecting the less sensitive nature of factories' rentals to different positions. The second part of the module comprises valuations of accommodation within factories. Heuristical judgment is inherent in the valuation of factories reflecting specialised valuers' knowledge. For example, in making adjustment for size, a sliding scale in the form of a percentage deduction with increasing size of the factory space is embodied in the prototype.

Evaluation and Further Knowledge Elicitation

In general, the valuers were in agreement of the knowledge represented in the system. Further refinement is, however, taking place.

Objective testing of shopping complexes and office complexes modules

An objective testing on the accuracy of the "opinion" of the system which incorporates the simple regression for twenty-one purpose-built office complexes and nine shopping complexes in Kuala Lumpur against the valuation of an experienced core valuer was undertaken. The results of the testing of the model for office complexes valuation is summarised in Figure 14.

The test showed a difference of within 10 per cent compared to the core valuer's valuation for twenty of the properties. There was a difference of 12.75 per cent for LUTH Building with the prediction falling outside the 90 per cent confidence interval. A discussion with the valuer revealed that LUTH was valued lower by the valuer despite its high building score as a result of lettings to special tenants, namely, government bodies.

Rules relating to type of tenants were subsequently incorporated for flexibility.

As a whole, the valuers agreed that such a model would be useful in providing structured explanation.

The valuers also agreed for an option to value property in broad terms. Where the scores fall within a certain range, the prototype could automatically assign a common rent per square foot for the properties.

Comments On The Use of Regression In The System

Despite the usefulness of incorporating a regression model, based on the dynamic evaluation undertaken, it was found that some elements of rigidity existed. Some examples are:

a. Weightings

The weightings of the main attributes were not strictly following the valuers' actual thought process. Valuers seemed to be put in a position to explain an environmentally determined (Czernkowski, 1990) weighting instead of "utilising" the rental evidence (selecting and analysing) to arrive at an opinion and explaining the process. User acceptance requires *reasoning* rather than the simple implementation of systems and techniques so familiar in traditional data processing chores (Chorafas, 1990, p.4).

b. Amount of rental evidence

Related to (1), the front end of the model requires a substantial amount of rental evidence. In practice, valuers only select several suitable rental evidence, analysing them against similarities and differences to arrive at an opinion. Rules could be developed

Building	Loc Score (Max. Score=87)	Bldg Score (Max. Score=170)	Loc Proportionate (%) to Max. Score	Bldg Proportionate (%) to Max. Score	Rent Proportionate (%) to Max. Hypo. Rent	Predicted Rent psf (RM)	Valuer's Opinion On Rent psf (RM)	Difference (%)	Confidence Level (%)
Sultan Ismail Road									
SPK	71	94	81.6092	55.2941	65.0000	4.29	4.00	7.25	90
SMK	70	76	80.4598	44.7059	58.0303	3.83	3.50	9.43	90
Nusantara	71	74	81.6092	43.5294	57.7273	3.81	3.50	8.86	90
Aik Hua	54	92	62.0690	54.1176	57.1212	3.77	3.50	7.71	90
Ampang Road									
Getah Asli	62	103	71.2644	60.5882	64.7154	3.98	3.80	4.74	90
S.Dredging	68	108	78.1609	63.5294	68.9431	4.24	4.00	6.00	90
MCA	70	103	80.4598	60.5882	67.9675	4.18	3.80	10.00	90
LUTH	58	130	66.6667	76.4706	73.3333	4.51	4.00	12.75	<90*
RHB	54	129	62.0690	75.8824	71.3821	4.39	4.50	-2.44	95
Raja Laut Road									
Bumi Raya	75	84	86.2069	49.4118	63.0252	3.75	3.50	7.14	95
C&Carriage	65	124	74.7126	72.9412	67.5630	4.02	4.00	0.50	95
PKNS	75	84	86.2069	49.4118	63.1933	3.76	3.50	7.43	95
City Centre									
Public Bank	62.5	96	71.8391	56.4706	63.9344	3.90	4.00	-2.50	95
UMBC	58.5	103	67.2414	60.5882	63.9344	3.90	4.00	-2.50	95
KOP	55.5	69	63.7931	40.5882	51.6393	3.15	3.00	5.00	95
TSMB	58.5	98	67.2414	57.6471	62.4590	3.81	3.50	8.86	90
Bangkok Bank	62	71	71.2644	41.7647	50.8197	3.10	3.00	3.33	95
Bangunan Zainal	62	90	71.2644	52.9412	61.6393	3.76	4.00	-6.00	90
Fringe Area									
IGB Plaza	53	89	60.9195	52.3529	54.5098	2.78	3.00	-7.33	95
Perkim	59	81	67.8161	47.6471	50.5882	2.58	2.50	3.2	95
Pengkalan	51	106	58.6207	62.3529	61.7647	3.15	3.00	5.00	95

Figure 14: Purpose-built Office Complex - Result of Computerised Model Testing against Valuer's Opinion (Rent of Standard Office Space)

in the selection of comparable properties in terms of alternatives provided in the selection strategy where actual close comparables may not be available (Nawawi and Gronow 1991, Nawawi, *et al*, 1993, 1994).

c. New developments in the market

In a dynamic market such as in Kuala Lumpur city, new developments in the market e.g. new concept of "suites" in office complexes may require flexible rules (e.g. rental selection strategy) instead of pre-determined weightings.

The system should grow with additional knowledge on new developments in the market. Despite some of the possible limitations of the incorporation of a regression model in the knowledge-base, the elements of point scores in the model could be helpful in complementing the experts' heuristics in the selection of comparables and possibly in making adjustments.

Conclusions

The research has shown that an expert system for the valuation of commercial properties for rating purposes in Malaysia can be developed from the knowledge of several experts. The system could benefit from an enriched consensus knowledge of experts as well as multiple lines of reasoning.

The regression model incorporated in the system offered a structured and simplified dimension in providing a general weighting of main attributes with a prediction generally within 10 per cent difference from the valuers' opinion. However, it has introduced elements of rigidity, inability to work with limited data and inflexibility to accommodate growing knowledge of the market.

The research is currently refining the knowledge-base to make the system more subtle, modelling both consensus knowledge as well as multiple lines of reasoning.❑

Endnote

[1] The Local Government Act 1976 refers to all rateable hereditaments in Malaysia as holdings.

[2] It is important to note that data and information that the valuers utilised in relation to their knowledge was not necessarily collected by the valuers. Especially in the context of revaluation exercises, the number of properties that needed to be inspected was large (Dewan Bandaraya Kuala Lumpur, 1994) and the need for assistant valuation officers and technicians to inspect the properties (under supervision of the valuers) was a major consideration.

[3] For valuation of residential properties.

[4] Incorporated a quantitative analysis in their intelligent system designed for an interactive floor planning tool.

[5] A scoring scheme of 0 to 10 was adopted based on the discussion with the valuers. In general, it was found that the valuers were "comfortable" in giving their opinions within the scale of 0 to 10.

[6] In this research, the preference was in terms of tenants' opinions on the importance of a number of factors when selecting a complex.

[7] The multiplier represented the weighting (of importance) placed by the tenant on the sub-attributes.

[8] A door to door approach was adopted as it was found that the response through the postal method was poor.

[9] The maximum sum of the score of all the second-level sub-attributes technically means that a property obtained the highes class of situations for each second-level sub-attribute.

[10] Percentage of the maximum location score achievable i.e. 100 per cent.

[11] Area cores of purpose-built office complexes within Kuala Lumpur city (based on a valuer's specialised knowledge of the market agreeable by the team of valuers) namely Golden Triangle; Sultan Ismail Road Core; Golden Triangle Ampang Road Core; City Center core (banking belt) and city fringe.

[12] Rent as a dependent variable.

[13] Each main attribute as the independent variable.

[14] Rental evidence of standard office space of the 54 different purpose-built office complexes and rental evidence of ground, first, second and third floors of the 12 different shopping complexes within Kuala Lumpur city.

[15] RM stands for Ringgit Malaysia.

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Legal Issues in the Rating Valuation of a Power Sub-Station Plant

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Abstract

Presently, most local authorities in Malaysia have not included power sub-station plant as a rateable property component. The current practice is to include only land and buildings, but not the plant. In the light of this point, there are some disputes between the local authority and the rate-payers as to the admissibility of the sub-station plant for rating purposes. This paper addresses this issue from the legal perspective. The fundamental legal problem in valuing power sub-stations is discussed. A possible solution to this problem is proposed. Finally, the prospect of rating power sub-station plant is assessed.

Key words: power sub-station plant and machinery, rating valuation, local authority

Introduction

Under the Local Government Act (LGA) 1976 (Act 171) all holdings within the jurisdiction of a particular local authority to which it renders public services[1] are subject to local rates. Rates are chargeable on all of such holdings irrespective of whether these holdings comprise land and buildings or only vacant lands.

Under Section 2 of the Act, a "holding" is defined as "any land, with or without buildings thereon, which is held under a separate document of title and in case of subdivided buildings, the common property and any parcel thereof ...". For rating purposes, a holding may:

(1) be partially occupied or partially built upon;
(2) be not occupied and there is no structure on it;
(3) have any structure but not being completed yet;
(4) have derelict buildings not fit for occupation.

Holdings under category (1), which are confined to rented properties, can be charged an annual value based on the gross annual rental minus all annual expenditure (e.g. repair, maintenance, taxes). Alternatively, rates can be calculated as 10 per cent of the open market values of the holdings, subject to the absolute discretion of the valuation officer. Holdings under categories (2), (3) and

(4) can be considered vacant lands, whereby the Local Authority imposes rates as much as 10 per cent or a reduction to a 5 per cent figure, subject to the approval of the State Authority, of the open market values of the holdings.

Many Local Authorities include power sub-stations as property holdings under Section 2 of the LGA and, thereby, subject these properties to rating.[2] In the current practice, the rating valuation of these sub-stations includes only land and buildings as rateable components. The valuation, which is based on the annual value of land and building, does not include plant.[3] This exclusion has been a source of dispute between the Local Authority and the rate-payer, in particular, Lembaga Letrik Negara (LLN) - now known as Tenaga Nasional Berhad (TNB). The dispute culminated in the case of **Majlis Perbandaran Seberang Perai vs. Lembaga Letrik Negara** [1994] Land Tribunal Case No. 1/94.[4]

Briefly, in this case, LLN submitted seven points of contention on the valuation of the Perai power station by Majlis Perbandaran Seberang Perai (MPSP). One of these, which is the focus of this paper, concerned the admissibility of plant and machinery for rating purposes. MPSP has included while LLN has excluded plant and machinery in their rating valuations. The Tribunal decided in favour of LLN.

The dispute principally relates to the definition of annual value as per paragraph (b), Section 2 of the LGA 1976 (Act 171) which requires, among other things that, in estimating the annual value of a holding, in or upon which there is any machinery used for any or all of the following purposes:

(i) the making of any article or part of an article;
(ii) the altering, repairing, or ornamenting, or finishing of any article;
(iii) the adapting for sale of any article, the enhanced value given to the holding from the presence of such machinery shall not be taken into consideration, and for the purpose of the paragraph, "machinery" includes steam engines, boilers or other motive power belonging to such machinery.

The above definition has given rise to three main issues in valuing power sub-stations for rating purposes. First, whether electricity is an article. Second, whether a power sub-station plant is a machine. Third, whether the said plant is a machine which is used to make, alter, ornament, repair, or adapt an article for sale (see Ishak, 1999).

Objectives and Scope

Having presented the above issues, this paper has three objectives. First, to highlight the possible dispute between the Local Authority and rate-payer pertaining to rating of a power sub-station plant. This includes the issue of whether electricity is an article as defined under Section 2 of the LGA. Second, to argue on the definition of plant from another legal perspective: plant as part of land or building. Third, to conclude based on the second objective, whether rating of a power sub-station plant is possible.

This paper has four sections. Introduction and objectives have been outlined. The third section contains issues and discussion. The description of the movement of electricity (from generation, transmission, to distribution) and the main components of a power sub-station are presented. The issues of dispute, then, follow. Next, the proposed solution is discussed. Finally, some comments on the prospect of rating a power sub-station plant are made.

The Power Sub-Station : Design and Processes

Based on the TNB'S power generating, transmission and distribution infrastructure, the making of electricity output starts at the generating stations, which are considered as the actual factories producing the output. The output is then transmitted and distributed throughout the country via the Grid System Transmission, using high-voltage transmission lines (500KV, 275KV and 132KV) to PMU sub-stations, PPU sub-stations, P/E sub-stations, and finally, to terminal receivers (households, industries, schools, offices, etc).[5]

The PMU sub-stations, PPU sub-stations, and P/E sub-stations are interrelated systems in the whole process of power supply, which includes power (generating) stations. On the one hand, electricity generated at the power stations could not be supplied to the end users without a step-down process at the three intermediate sub-stations. This is because power stations produce very high-voltage current, which is of no use to end users. On the other hand, the intermediate sub-stations would be useless without the power supply from the generating stations. Only when all these components exist and function together at all times will the electricity supply process be complete and the output be beneficial to the consumers.[6]

Power sub-stations in Malaysia fall into three categories: main intake or transmission sub-stations (PMU) (275/132/6.6KV), main distribution sub-stations (PPU) (22/6.6KV), and electricity distribution sub-stations (P/E) (6.6/1.5KV).[7] Out of these categories, there are two main types of power sub-stations by construction. First, those housed entirely in buildings. Most P/E sub-stations and some PPU sub-stations with gas insulator system fall under this type. Second, those fenced in the open yards with equipment fastened to concrete foundations. PMU and PPU sub-stations with conventional systems fall under this type.

A power sub-station consists of land, building and plant. The status of the land depends on a number of factors, particularly its title and zoning. Power sub-stations normally fall under TNB reserves, with titles restricted only for power transmission. The land use is normally classified under industrial.

Power sub-stations housed in buildings have different building design and materials which need to be noted down case by case during a rating assignment. Generally, the building is made up of a permanent cement and concrete structure.

The general design and layout of a power sub-station can be cited, for example, in Hicks (1986), Pansini (1992), and Fardo (1997). However, the specific components of such a station may differ from one power sub-station to another.

PMU sub-stations has two main compounds. The first compound is where the control building is sited. The internal building is subdivided into a number of rooms including control panel room, relay room, battery room, LGVA room and fibre optic control room. The equipment in these rooms is bolted to the cement floor at the base. The second compound is the switch yard. Erected in the yard are steel structures, bolted to concrete slabs, which support equipment such as isolators (main bus bar and reserve bus bar); current transformer; reserve circuit transformer; voltage transformer; lightning arrestor (circuit braker); cooling plant; power transformer (super grid transformer); and landing tower. PPU and P/E sub-stations do not have switchyards and, therefore, they consist of mainly buildings which house control panels, relays rooms and transformers.[8]

These components need mentioning since they have direct relevance to property rating. For land and buildings, they are directly rateable. As for the plant, there are issues that need to be resolved as to its admissibility

as a rateable component. This will be further discussed in the later part of this paper.

Issues of Dispute

Whether electric current is an article

With regard to interpreting the meaning of an "article", the Local Authority claims that electric current is not an article because an article should be able to be seen and should be in a physical form. This claim is not totally baseless. In the case of **Longhurst vs. Guildform Godalming and District Water Board** [1960], Justice Devlin defined an "article" as something that is articulated, that is, separated from an amorphous mass, and given shape and form. His Lordship's definition of an "article" did not seem to include electricity. In other words, since electricity does not exhibit any of the said characteristics, it cannot be regarded as an "article".

The rate-payer maintains that electric current is a symbolic article because, although it does not appear in a physical form, it does exist and, it has importance, so much so that people regard it as a commodity and are willing to pay for its consumption (adapted from Ishak, 1999). The Pocket Oxford Dictionary (1982) defines an "article" as a "thing" which, in turn, is defined as "any possible object... including material objects, events, qualities, circumstances, ideas, utterances, and acts". The connotation from this broad linguistic definition is that, something that we are aware of its being, presence, or existence, whether physical or non-physical, can be regarded as an article, a thing, or an object.

The Tribunal decision cited above did not share the view of Justice Devlin and made an exception in the case of electricity. Mentioning a number of Acts of Parliament dealing with electricity (one of which is the Electricity Act 1949), the Tribunal agreed that electricity is an article. The Tribunal pointed out that, one cannot dispute that LLN is manufacturing something. That something can only be regarded as an "article", otherwise it would be impossible to know what it produces. Therefore, in conclusion, there is a good ground of argument and there are statutes recognizing electricity as an article, from which the Tribunal made its decision.

Whether a power sub-station plant is a machine making /altering /repairing ornamenting /repairing /finishing /adapting an article for sale

While "machinery" has a specific reference under Section 2 of the LGA, no specific reference to "plant" is made in the Act. As a matter of fact, it is important to differentiate between these two terms because they do not always bear the same meaning and, thus, do not bear the same implications in rating valuation. While machinery may be excluded from rating valuation, subject to a clear interpretation of Section 2 of the said Act, such exclusion may not automatically apply to plant. This suggests that a specific and clear legal definition of plant needs to be spelt out, although it may be quite difficult.

Usually the term "plant" is defined together with the term "machinery". The Oxford Pocket Dictionary (1982) defines plant as "fixtures, implements, machinery, etc., used in industrial process; factory". It also defines machine as "an apparatus for applying mechanical power, having several parts, each with a definite function". Derry (1985) defines plant and machinery as "the fixed assets, of a company, other than land and buildings". They include moving plant, ship, locomotive, aircraft, and the like. Watts (1989) also defines plant and machinery as "all fixed assets other than land and buildings".

A court case ruled that the term machinery ought to be treated as having been used in its popular meaning. In the case of **Auckland City Corporation vs. Auckland Gas Co.**

Ltd. [1919] N.Z.L.R. 321, Sim J. said that, a machine in its popular sense is a piece of mechanism which, by means of its interrelated parts, serves to utilize or apply power, but does not include anything that is merely a reservoir or conduit, although connected with something which is without doubt a machine. In the case of **Waratah Gypsum Pty. Ltd. vs. Commissioner of Taxation** [1965] 112 C.L.R. 152, McTieman J. defined a plant as fixtures, implements, and machinery used in an industrial process. In the **Grey County vs. Grey Electric-power Board** [1936] N.Z.L.R. 253, Northcroft J. concluded that the whole of the defendant's electric-power plant was a combination of mechanical parts by which motion and force are applied to the production of electricity in a merchantable state. Thus, it constituted a machine.[9]

It seems that the technical meaning of plant and machinery are rather muddled up: even the court has created some confusion. Nevertheless, court definitions have made, at least, two distinctions about machinery. First, machinery is a specific category of plant (hence, the case of *Waratah Gypsum Pty. Ltd*). Second, a machine has a connotation of motion, power and force. Besides the *Auckland City Corporation*'s case, this connotation can be derived from the case of **Cuttack Municipality vs. The Executive Manager, S.E. Board** [1975] I.L.R. Put another way, plant is a general term describing physical or mechanical equipment with or without locomotive power, immoveable (as part of land or building) or moveable, which are used for operation, production, and/or conveyance of a particular output. Included in this definition is machinery, which is reflected in the term "locomotive" or "power". In this regard, Section 2 of the LGA has extended the definition of machinery to include power-generating machines.

The implication of the above issue on rating valuation is that, one may need to identify which of a power sub-station equipment is machinery and which is non-machinery. This could be important as far as manufacturing of electricity is concerned. Although it is quite clear that electricity is an article, not all of the components of this manufacturing process are machinery. In this regard, the Tribunal has decided that a power generating station (with the exception of some components, which come under the ambit of building), comprises machinery. However, a power sub-station does not comprise machinery, except the air cooling system of a PMU sub-station. The main function of a PMU, PPU, and P/E sub-station is to alter electric current into the desired levels of voltage through a stepping-up or stepping-down process. There is no motive power in the alteration process itself as well as in the equipment used. As far as electricity transmission and distribution are concerned, a power sub-station plant is more of a complex conduit system or a complex electricity by-pass, rather than a machine.

However, the clause "making, altering, repairing, ornamenting, repairing, finishing, adapting an article for sale" in Section 2 of the LGA is an overriding clause. From the chain of movement of electricity output mentioned in the early part of this article, obviously, a power sub-station plant is part of the "making", "altering", and "adapting" process of electricity output for sales. Therefore, it is not rateable.

Although Section 2 of the LGA has mentioned about "machinery" and its excludability from rating valuation, it makes no distinction between machinery as a fixture and machinery as a chattel. The distinction is quite important because a fixture can be part of a realty and, thus, is rateable. However, in the case of **Northern Roller Milling Co. Ltd. vs. Valuer General** [1964] TNZV, Vol. 19, No. 4, 153, the presiding judge, referring to Section 2 of the Rating Act 1925, said that, all machinery whether fixed

or not are to be excluded from any valuation used for rating purposes.

The Proposed Solution

It is not too difficult to consider that a power sub-station plant has many structural parts, some of which may fall under the category of building while others under the category of land - the main realty of a power sub-station holding. Therefore, the status of such a plant can be considered on the basis of whether or not it is part of the realty. In this regard, even if the plant could be proved to be a machine, the nature of the annexation, purpose, and intention for which it is installed may render it to be a fixture, in which case, two possible situations may arise. First, it will be part of land or building, the onus of proof of which is on the party who so claims. Second, the court has to decide whether the interpretation of Section 2 of the LGA covers "fixed" machinery and, if yes, whether the decision of the tribunal should remain.

Whether a power sub-station plant is building or part of building

"Building" in the ordinary sense, according to Funk & Wagnalls Standard Desk Dictionary (1984) is, "that which is built; a structure; edifice; as a house or barn". The Oxford Pocket Dictionary (1982) defines this term in a more popular fashion as "(especially) house, school, factory, etc". From these general definitions and from the definitions of plant given earlier, a plant can be "something other than" or "something of the type of" building. A plant is part of a building, if its installation is so attached to a building or main structure as in the case of the tower of an oil rig (see Iannacito, 1989) and steel bins of a flour mill (see the case of *Northern Roller Milling Co. Ltd.*, 1964). In the same way, plant can be a stand-alone component associated with a building, but, not part of a building, e.g., split-system air-conditioning units. So, as we may concede, the ordinary meaning of "building" will need to be legally clarified.

Section 2 of the LGA defines "building" to "includes any house, hut, shed or roofed enclosure, whether used for the purpose of human habitation or otherwise, and also any wall, fence, platform, septic tank, underground tank, staging, gate, post, pillar, pilling, frame, hoarding, slip, dock, wharf, pier, jetty, landing-stage, swimming pool, bridge, railway lines, transmission lines, cables, redifussion lines, overhead or underground pipelines, or any other structure, support or foundation".

At the outset, based on this definition, some other components of a power sub-station plant (other than mentioned above) can be categorized as "building". For example, "building" may also include landing towers, control panel and relays instrumentation. This suggests that the identification of each structural component of a plant is fundamental to rating valuation, and that legal tests need to be used to determine their category - as a building or otherwise.

However, even the courts have some difficulty in the interpretation of "building" as can be seen from a number of court cases such as **Shell Mex & British Petroleum Ltd. vs. Clayton** [1961] R.V.R. 357; **Shell Mex & British Petroleum Ltd. vs. Childa** [1962] EG.R. 939; **Clayton vs. Good, Havercraft & Co. Ltd.** [1961] R.V.R. 6; and the local case of **Shell Co. of the Federation of Malaya vs. President of the Town Council of Bandar Penggaram, Batu Bahat** [1962] M.L.J. 277. Nevertheless, these cases, which were cited in the case of **Socfin Co. Ltd. vs. Chairman of Klang Town Council** [1964] M.L.J. 325, have delineated some principles on the legal definitive use of "building". First, although the word "building" must be given its ordinary every day meaning, it does not necessarily prevail in whatever context it may appear. This means that something may not look like a building but may be so regarded depending on particular circumstances. Second, there is a distinction between "building" and "structure": structure

must have a wider embrace, not every structure is a building, though, it may be that every building is a structure. Third, a structure can be considered as building if, for example, the structure is connected with certain particularization such as a platform and pillars.

Whether a power sub-station plant is land or part of land

Apart from the definition given in Section 5 of the National Land Code 1965, under Section 2 of the LGA, *land* includes things attached to the earth or permanently fastened to anything attached to the earth. In other words, land means "land and its fixtures". According to Abbott (1987), fixtures are defined as objects fixed to the land or building and depend on other objects and become part of the land.

This definition raises an issue of whether a power sub-station plant constitutes fixtures. In the broadest sense, all structural improvements on land are chattels, unless the laws define them otherwise. If the definition identifies any structural component of a plant to be a fixture (either as part of land or building), then, it can be subject to rates. The concept of fixtures and land under the Malaysian Torrens system adopt the maxim *quic quid plantatur solo solo cedit* meaning *that which is affixed to soil belongs to soil* (Salleh, 1989; Hishamuddin, 1996).

The courts in Malaysia have set three principles of whether an object is a fixture or a chattel, viz. degree of annexation (in the case of **Shell Co. of the Federation of Malaya Ltd. vs. Commissioner of the Federal Capital of Kuala Lumpur** [1964] M.L.J. 302); the purpose of annexation; and the intention of the party involved (both in the case of **Socfin Co. Ltd. vs. Chairman, Klang Town Council** [1964] M.L.J. 325). The main principle derived from the first case is that, for an object to be a fixture, it must, in effect, be land itself so much so that it cannot be removed without causing damage to the soil. However, there is a more general principle in this regard: if an object is attached or fastened to the wall or floor of a building or to the ground, the object is, *prima facie*, a fixture, even if it is easily removable. If it merely rests on its own weight, the object is a chattel (Salleh, 1989).

Whether this principle applies to a power sub-station plant must remain hypothetical in the absence of specific court cases. Furthermore, for practical purposes, the degree of annexation is a *prima facie* but not a conclusive test for deciding whether an object is a fixture or a chattel. Many court cases have applied the other two principles - the purpose of annexation and the intention of the party involved - as the decisive tests for determining whether an object is a fixture or a chattel.

In the New South Wales' case of **Australian Provincial Assurance Co. Ltd. vs. Coroneo** [1938] 38 S. R. (N.S.W.) 700, Jordan C.J. said that, a fixture is a thing once a chattel which has become in law having been fixed to land. **In addition**, the question of whether a chattel has become a fixture depends upon whether it has been fixed to land and if so, for what purpose. [words in bold is author's emphasis] In the case of **Holland & Anor vs. Hodgson & Anor** [1872] L.R. 7 C.P. 328, Blackburn. J. ruled that, articles not otherwise attached to the land than by their own weight are not to be considered as part of the land, unless the circumstances are such as to show that they were intended to be part of the land. On the contrary, an article which is affixed to the land even slightly, is to be considered as part of the land, unless the circumstances are such as to show that it was intended all along to continue as chattel. This latter and two other cases of **Reynolds vs. Ashby & Sons** [1904] All E.R. 401 and **Benger vs. Quartermain** [1934] N.Z.L.R. 13 have set the principle that if an object is proved to have been fixed for a temporary purpose it is not a fixture and, that the intention of the person fixing it must

be for the purpose. This principle was applied in a local case of **Goh Chong Hin & Anor vs. The Consolidated Malay Rubber Estates Ltd.** [1924] 5 F.M.S.L.R. 86, in which Sproule C.J. decided that, whatever is annexed to the realty becomes part of it, but, only if the annexation was intended to be permanent. If the nature, degree and object of the annexation is such as to show that the intention was to annex the chattels to the land temporarily, then the general rule will not apply.

Another test, to distinguish between fixtures and chattels when objects have been fastened to land or building, is to determine whether the purpose of annexation is to increase the value of the property (land or building) and giving a long term improvement effect to it, or merely to increase the utility or facilitate the enjoyment of the chattel as chattel. This test is derived, for example, from the court decision by Blackburn J., in the case of **Hellawell vs. Eastwood** [1851] 6 Ex. R. 295 and *Socfin Co. Ltd.* (1964).

The second and third principles can be applied to a power sub-station plant. Based on the case of **Holland & Anor vs. Hodgson & Anor, Reynolds vs. Ashby & Sons, and Benger vs. Quartermain**, the nature and degree of annexation of the power sub- station plant signifies it to be intended as a permanent structure. The plant, once fixed to the concrete foundation, is intended to remain *in situ* for as long as the power sub- station continues in operation. Hence, its attachment to the earth is, for all practical purposes, as permanent as the building erected on the holding. Based on the cases of **Hellawell vs. Eastwood (1851) and Socfin Co. Ltd. vs. Chairman of Klang Town Council (1964)**, it can also be argued that the intention of the owner of a power sub-station in installing the plant is to make it part of the improvement to the property. Likewise, the purpose of annexation of the plant is to make it part of the power sub- station's complete electricity distribution system, without which the whole functioning of the power sub-station would completely fail.

Prospect of Rating A Power Sub-Station Plant

The discussion so far, hinges upon the issue of whether or not electricity is an article; a power sub-station plant is a machine; and the machine is part of the "making, altering, and adapting the article for sale". Section 2 of the LGA 1976 has its own criteria in determining the admissibility of a power sub-station plant as a rateable component. The criteria imply that, if electricity is an article and if it is produced by a machine which is part of the "making, altering, and adapting the article for sale", then that machinery is excluded from rating.

This problem can be resolved from another angle. The plant is rateable on the ground that it is part of realty. The ground of argument for this is fundamentally a matter of switching from one legal perspective to another. Such a phenomenon can be seen, for example, in the judgements of two cases, which have the same core of contention. The two cases were approached from two widely different standpoints. In the case of **Shell Co. of the Federation of Malay vs. The President, Town Council, Penggeram, Batu Pahat** [1962] M.L.J. 227, the stress by Adams J. regarding the status of underground tanks of the oil company was on the basis of whether the entity is "building". In the case of **Shell Co. of the Federation of Malaya vs. Commissioner of the Federal Capital Kuala Lumpur** [1964] M.L.J. 302, the stress by Ong J. on the the status of underground tanks of the oil company was on the basis of whether the entity is "land". In the first case, it was decided that the tanks **were not** buildings while in the second case, the tanks **were** land [words in bold are author's emphasis].

In a similar manner, switching the argument from whether a sub-station plant is "machinery" to whether it is "land" or

"building" is a possible alternative to resolving the dispute, without overshadowing the interpretations of Section 2 of the LGA. Switching to the later ground of argument will likely find that some components of the plant are parts of land or building and, thus, are rateable. Examples of these components are: control panels, relay instrumentation, landing towers, overhead transmission lines (building); and concrete slabs/foundation in the switchyard, cabling and earthing.

With the admissibility of such components in rating valuation, local authorities in Malaysia can now find new items to add to the annual value of power sub-station holdings. Valuers can expand their valuation activities and expertise into the area of plant and machinery valuation.

Conclusion

The dispute between the Local Authority and the rate-payer on the admissibility of a power sub-station's plant for rating purposes arises, among other things, from the legal entanglement concerning the interpretation of Section 2 of the LGA. In this context, there is a notion that plant and machinery are not rateable, based on the Tribunal's decision in respect of power generating stations. Although the case specifically refers to a power generating station, the grounds of dispute can also involve power transmission and distribution sub-stations.

However, the dispute can be taken onto an alternative ground of resolution, viz. to consider the plant based on the concept of fixtures. This can be done by expanding the interpretations of Section 2 of the LGA and, consequently, determining which components of the plant are parts of building and which are parts of land.❑

Endnote

[1]Examples are garbage collection, cutting grass, cleaning drains and ditches, building of community markets, bus terminals, and business stalls.

[2]Examples are Majlis Perbandaran Seberang Prai (Penang); Majlis Daerah Port Dickson (Negeri Sembilan); and Majlis Daerah Cameron Highlands (Pahang); Majlis Perbandaran Johor Baharu; and Pihak Berkuasa Tempatan Pasir Gudang (both in Johor).

[3]This method has been a standard practice by all valuers. For rating purposes, the bare site value of a power sub station is assessed based on the values of comparable industrial properties nearby, after adjusting for a number of factors such as location, accessibility, land size, surrounding development, and sale date. Added to this value is the replacement or substitution cost of building new less depreciation. The sum value of both components is the added value of the property (used in the state of Johore) or annual value of the property after reducing the sum value by an appropriate percentage (in other states). The word "plant" is defined in the paper.

[4]This was a test case for all five Local Authorities involved in the 'dispute': Majlis Perbandaran Seberang Prai, Majlis Daerah Cameron Highland, Majlis Daerah Port Dickson, Majlis Bandaraya Johor Bahru, and Pihak Berkuasa Tempatan Pasir Gudang. Despite the Tribunal decision, the dispute was pursued to the High Court, which is still under way to date. Pending the final decision by the Court, the decision by the Land Tribunal is binding upon the disputing parties.

[5]Verbal communications with Senior Engineer (Protection), Tenaga Nasional Berhad, No.3 Jalan 10/10 Taman Permas Jaya, P.O. Box 777, 81750 Johor Bahru and Senior Engineer (Planning), Tenaga Nasional Berhad, Level 4, Block C (Middle), Pusat Bandar Damansara, 50490 Kuala Lumpur. No specific published information is available on this aspect except, perhaps, the information on http://www.tnb.com.my/ . The words PMU, PPU, and P/E stand for "Pencawang Masuk Utama", "Pencawang Pembahagian Utama", and "Pencawang Elektrik", respectively.

[6]Reconstructed from the Valuation Officer (Rating), Tenaga Nasional Berhad, Level 4, Block C (Middle), Pusat Bandar Damansara, 50490 Kuala Lumpur. Verbal communication.

[7]Most of the power sub stations within the jurisdiction of local authorities are under the category of electricity transmission and distribution network. This paper concentrates on this type of sub stations (henceforth referred to as power "sub stations"), and not the generation power stations, which comprise, among other things, power-generating plants.

[8]No specific documented information on the design and layout of power sub stations is available from Tenaga Nasional Berhad. The description here is based on site inspection involving a number PMU, PPU, and P/E sub stations in Johor Bahru.

[9]This case referred specifically to power generating plants, which are characterized by motion, power, and force. In our present discussion, however, we refer to power distribution sub stations, which do not constitute any of such characteristics.

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Sources of Property Investment Depreciation : A Theoretical and Empirical Approach

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Abstract

The paper presents theoretical and empirical analyses of the sources of property investment depreciation with particular reference to offices in the city of Kuala Lumpur. It reviews three major sources of depreciation; physical deterioration, building obsolescence and site obsolescence. The paper considers variables other than 'age' in the analysis of depreciation. The principal component analysis, eliminates multicollinearity (a common problem associated with a large number of explanatory variables) and produces orthogonal factors which have better links to the sources of depreciation, described in this paper. The study indicates that the main sources of depreciation in the city of Kuala Lumpur offices are building obsolescence and physical deterioration.

Keywords : depreciation, physical deterioration, building obsolescence, site obsolescence

Introduction

Many works on depreciation undertaken in the United Kingdom and the United States of America (US) focused on estimating its impact. However, a large number of the US works, for example, Cantwell (1988), Krasker (1982) and Clinch (1983), emphasised the importance of maximising the impact of depreciation for maximum tax shelter. Furthermore, most of the works are concerned with the analysis of residential properties' depreciation (Clapp and Giacotto, 1998; Epley, 1989; Cannaday and Sunderman, 1986; Palmquist, 1979). In the United Kingdom, the analysis of depreciation focused on methods of estimating its impact on the economic life of a building and the issue of property mispricing due to depreciation. In contrast to the USA, most of the studies focused on office properties with regards to the rapid changes in tenants' requirements. This is due to changes in the way business is performed especially with an increasing use of high-technology equipment (see Salway, 1986; Baum, 1989; Barras and Clark, 1996).

There has been little attempt to analyse sources of depreciation theoretically as well as empirically which may provide a basis for further works relating to estimating its impact on property investment performance. Some of the previous works in this area (for example, Wootton, 1986) lack a general theoretical base which resulted in a failure to identify and account for the contribution of each source

of depreciation. Other works (Baum, 1989; Khalid, 1992) departed from the analysis of sources of depreciation but attempted to link these sources to its impact on property investment performance, with varying levels of success.

The importance of distinguishing each source and carefully defining it is emphasised in this paper. This is achieved by clarifying its definition, as in many cases, the definition outlines the sources of depreciation empirically. The paper also critically examines the adequacy of 'age' as a sole source and proxy for depreciation, as opposed to Sykes (1984), Salway (1986), Epley (1989), Barras and Clark (1996) which treated 'age' as main explanatory variables. This is based on the fact that 'age' is strongly correlated to other variables, such as design and finishes of the building, hence these variables may become less significant to be considered in the analysis of depreciation. The paper also addresses the problems in considering multiple depreciation factors and highlights statistical problems associated with the analyses. It also recommends a solution for the problem.

The paper is organised into three main sections. The first section provides a review of the concept and causes of depreciation along with the critical analysis of the 'age' variable as a proxy for depreciation variables. The second section contains the research design, data and discussion of the results. The final section offers concluding remarks.

Literature Review

The review is undertaken in two stages. The first stage critically defines depreciation from various sources. The second stage discusses causes of depreciation.

Definition of depreciation

Various definitions of depreciation can be found in accounting, economic and property literature. In early accounting practice, depreciation represented the portion of an asset consumed in operating the business (Bonbright, 1937 citing Guthrie, 1883). The current practice of accounting requires an allocation so that a fair proportion of a cost or valuation is charged against the expected benefits from the use of the asset over each accounting period. In property investment, depreciation is related to a decline or loss in value. The real meaning of depreciation should, therefore, be analysed through the meaning of 'value' which refers to 'that of appreciation, of worth, of favourable importance'. The 'value' is of prime concern in property investment, thus decline in value (instead of cost allocation, decline in price and physical deterioration as in accounting) is generally accepted to refer to depreciation. This general definition of depreciation is outlined by the Accounting Standard Committee (SSAP), Royal Institute of Chartered Surveyors. Additionally, Md Yusof (1999) introduces the concept of comparing rentals between offices to derive differences in rental depreciation. Accordingly, she defines depreciation as a decline or loss in value of a property in comparison with the equivalent prime modern or new property which earns the best rental in a similar market. The definition suggests that depreciation may arise from many sources which are related to values. Since these factors influence or determine property investment values, they should be regarded as depreciation variables.

Causes of depreciation

Many depreciation studies have focused on two broad sources of depreciation, physical deterioration and obsolescence; for example in the field of accounting (Chapman, 1973; Baxter, 1981) and property investment (Wofford, 1983; Salway, 1986; Baum, 1989).

Physical deterioration indicates the situation of decline in utility due to physical usage and the passage of time. The importance of passage of time or age has been recognised

as the principal depreciation determinant (for example Sykes, 1984; Epley, 1989), supported by strong level of associations between age and other variables such as type of design and finishes. Sources of physical deterioration comprise non-environmental and environmental factors (Flanaghan, *et.al*, 1989). Non-environmental factors refer to 'use' whilst environmental factors are related to weather and the action of elements. Therefore physical deterioration emanates from the 'use' and 'action of elements' which require the passage of time, as both 'use and action of elements' occur progressively through time. Physical deterioration is also signified by continuing expenditure. As a result, the degree or level of utilisation influences deterioration. Intensive use may also demand early capital outlays to slow down the rate of deterioration. The rate at which physical deterioration occurs is also a function of the design and the quality of construction, including the nature of the materials and the level of maintenance (Dubben and Sayce, 1991). Although physical deterioration is unavoidable, a high material and construction quality employed together with a proper maintenance as well as a reasonable level of use may slow down the rate of deterioration. This means that prudent expenditure and choosing the right materials help to minimise the impact of depreciation on property investment.

In addition to physical deterioration, studies have also identified sources of depreciation due to obsolescence (Baum, 1989; Khalid, 1992). Obsolescence is defined in these works as a decline in property utility or usefulness which is not directly related to physical deterioration. The property may become obsolete due to several factors, such as better technology or modern design of a new property. Obsolescence may also arise from very sudden or unexpected changes that cause a sharp decline in utility (The Arnolds Encyclopaedia of Real Estate, 1978). A range of obsolescence categories has been proposed: functional, economic, aesthetic, environmental, legal and social (Salway, 1986; Baum, 1989; Khalid, 1992). These categories, however, are a subset of two main categories of obsolescence: building and site (Md Yusof, 1999), since property embodies site and building.

Building obsolescence refers to a degree of mismatch between a building and its use; when the buildings or part of them can no longer match the current trend and taste. Whenever a building loses its appeal, it is no longer acceptable based on the standards by which it was put there during its prime time. For example, an increasing use of computers in the business demands an open-space office lay-out as well as sufficient floor to ceiling height. As a result, some offices which were built with large columns will be less favoured. It is clear that as the society's way of carrying out social and economic activities changes, the desirability of various properties to tenants also changes. Factors, such as a change in working fashions and a need to occupy high quality space for better business image can be seen as major sources of depreciation. Md Yusof (1999) suggests that building obsolescence may rise from four factors- three are related to the building: design, system and services. The other factor is related to site and market.

Building Design

Buildings with 'good' architecture seem to yield a higher level of rent (Vandell and Lane, 1989). As design is a function of taste within the period in which it was built, changes in taste may cause a building to become unsuitable at some period in the future. However, as mentioned earlier, the situation may be reversed, such as the recent development of fibre optic cabling which will minimise the space required for cabling. Hence, the buildings which were obsolete a few years ago are now serviceable. Types of building finishes, either internal or external, may also contribute to the building obsolescence. The potential tenants may be

attracted to the buildings which were built with modern external facades and finished with high quality materials, such as granite and curtain walling compared to the old ones. As a result, older buildings are filtered to less reputable tenants at lower rents, with a greater risk of depreciation.

Building Systems

There has been increasing concern over the efficiency aspect of buildings systems which include air-conditioning, security, lift and telecommunication systems. It is important for every modern building to have a hospitable environment for the occupants and equipment within the space and at the same time minimising energy consumption in the building. Lack of efficient systems in a building may cause property to become less efficient compared to one which has been built with modern and efficient features, such as a high-speed elevator in a high-rise building. Properties will face a problem of falling standards as more and more new ones are built with higher systems specifications.

Building services become more and more important in today's properties, especially offices. The need to provide ample parking spaces may become a statutory requirement as well as a social obligation to meet the increasing demand of tenants who drive to the workplace. The number of parking spaces provided in the building may affect the demand for the property. Although, this may not be directly related to the function of the property, the need for efficient services aimed at providing comfort to the tenants may be considered by potential tenants as an important factor.

Other factors may also cause obsolescence such as 'out of town' developments. This may result in decentralisation of development. Hence, the existing town centre may be affected. Since the phenomenon is related to locational factors it is refered to as site obsolescence.

Site obsolescence is a decline in usefulness of a site (Md Yusof, 1999). In order to study the causes of site obsolescence, it is important to analyse the mechanism upon which site values are derived. The value of a site is a function of a complex series of factors, such as the general level of economic activity, property markets and local activity in the sub-market. In other words, land or site value, in general, is affected by the level of supply and demand for land which is based on the demographic structure and the patterns of land use in a particular area. The factors include the location, accessibility, service and the consumption of space available, including affordability, financing and density for development. Therefore, it is generally accepted that the value of land especially in urban areas is purely affected by the level of demand where the supply is fairly inelastic (Alonso, 1964; Ball, *et al,* 1998).

There are several factors which may cause obsolescence of a particular site or location. They include (i) accessibility factors, (ii) site specific factors, (iii) planning factors, (iv) environmental factors, and (v) other market-wide factors.

(i) Accessibility: Accessibility is the ease with which contacts can be made from one place to another (Pang, 1981). Good accessibility is always regarded as the main feature of good location, since by locating in accessible areas, the distance, cost, time and inconvenience involved in maintaining communication and linkages will decrease. This, however, may no longer be critical as electronic communication becomes widely used in business. Nonetheless, accessibility is always regarded as an important factor in locational theory. Accessibility is improved by a good or efficient transportation network which forms part of an infrastructure system. Deterioration in public transport, an alteration to the traffic systems and imposition of parking restrictions can have very damaging

effects on property, especially retail. As a result of these factors, the affected site may be less favourable.

(ii) Site-specific factors include physical characteristics and size of the site. Properties in prime locations in the city centre, for example, fetch higher values compared to secondary areas. Other site-specific features such as being close to other uses (retail or offices), utilities and amenities, are also important.

(iii) Planning factors normally cover changes in planning policies, in particular areas which may affect the locational preference of the location. This includes changes in the plot ratio, zoning and development density, which either increases or decreases demand for the site. Sites or locations which are affected by adverse planning decisions are prone to obsolescence.

(iv) Environmental factors create obsolescence through changes in characteristics of an area, for example, urban decay, contamination and pollution. Gloster and Smith (cited in Adams, *et al,* 1994) stated that traditional industries had exploited the land to the point that it was unsuitable for its existing and future use. The contamination of land and the dereliction of buildings is a negative effect which may cause obsolescence.

(v) Other market-wide factors. They include social aspects, such as the state of the economy, demographic factors and changes of taste. Van Manen (1983) suggests that property, as other commodities, is also affected directly or indirectly by changes in the price of other commodities. Accordingly, changes in the level of economic activities, either at national, regional or local level, can influence demand for property.

Demographic changes rely on a mixture of planning, economic and social factors. In the short term, a shifting population may also affect the demand for properties either commercially or residentially in a particular area. In addition to this, Salway (1986) and Greer and Farrell (1992) indicate that the gradual changes in the operational methods of industry can change the locational requirement. Salway (1986) points out that others factors, such as the introduction of efficient working practices, may reduce the aggregate demand for floor space. Similarly, new economic activities such as high technology industries using flexible production and services have different locational interests and pressures, which cause the demand to fall in the inner-city areas and at the same time increase it in outer areas.

The above identified sources of depreciation arise from physical deterioration, building obsolescence and site obsolescence. In contrast, Clapp and Giacotto (1998. p. 417) suggest that residential depreciation can be defined '... as the decline in value with respect to age because of increased maintenance costs (i.e., the present value of maintenance expenditures increases at a decreasing rate with age) and decreased usefulness (because of changes in design, electrical and mechanical systems, and the like)'. They argued that depreciation is the (expected) change in intrinsic value with respect to age alone, independent of changes in demand and supply. They recognised that depreciation can change over time: neither actual nor expected depreciation is constant and changes in value due to demand changes are independent of depreciation.

The definition by Clapp and Giacotto (1998), led to a critical argument of 'age' as an explicit proxy for depreciation in either residential or commercial properties. Age has been shown in many studies to be a sufficient proxy for depreciation; that is, deterioration and obsolescence can be accounted by 'age'

(although it is more difficult to show site obsolescence with 'age'). If only 'age' is considered in the analysis, it will be difficult to anticipate the impact of every source of depreciation separately. Therefore, depreciation can be explained more explicitly by considering the property characteristics (Baum, 1989; Khalid, 1992; Md Yusof, 1999). Nonetheless, analysis of a large number of independent variables in property investment is less favoured due to the difficulty of obtaining information on related variables. This is also due to the lack of tools to consider a large number of variables in the analysis as the relevant statistical technique is seldom used in property investment analysis. Furthermore, the consideration of the number of variables is normally constrained by the problem of close association or 'multicollinearity' between the explanatory variables specified in the model.

The above problems have received less attention in the analysis of depreciation. Methods such as principal component analysis (PCA) have been hardly used in property investment analysis. PCA derives the underlying dimensions of the issue under investigation by simplifying the description and understanding of depreciation. PCA overcomes several problems by reducing the number of independent variables (if there is a large number of initial independent variables, the variables are unlikely to measure different constructs) and eliminating the potential multicollinearity as the factors derived are orthogonal. A good discussion on PCA can be found in Myers (1990), Steven (1986) and Norusis (1988).

Research Design

This section describes the methodology used to identify the underlying sources of depreciation with particular reference to rental difference (expressed in percentage) as a dependent variable which is denoted as DepR. As mentioned earlier, differences in rentals between the subject property and the best or highest rental in a similar market (the city of Kuala Lumpur) represent the rate of depreciation for any particular building. A similar indicator for depreciation was used in Khalid (1992) and Baum (1989). The first stage of the work is data collection. The second stage involves the analysis of correlation between variables (dependent-independent and independent-independent). The analysis identifies variables which are significantly correlated to rental depreciation. The role of 'age' is examined and explained. The third stage of the work addresses the crucial aspect of considering the multiple causes of depreciation. The strong association between independent variables; (multicollinearity), which causes problem in the analysis is minimised by using PCA. The objective of PCA is to derive the underlying dimensions of depreciation. PCA normally proceeds in four steps:

(i) A preliminary test for an appropriateness of the analysis through an observation of correlation matrix, partial correlation and Kaiser-Meyer Olken test,
(ii) An extraction of factors where a linear combination of the observed variables are formed. 'Eigenvalue' and 'Scree test' are used to determine the number of components to be retained in the analysis,
(iii) Factor rotation which transforms the initial matrix into one that is easier to interpret or to achieve a simple structure, and
(iv) Computation of the score of each factor for further analysis.

Data

This study analyses a set of data on property characteristics and rental depreciation. Rental depreciation (denoted as DepR) for each property was derived by comparing the average rental of a particular property to the highest rental of equivalent property in the

1996 Kuala Lumpur's market. Forty-nine offices of different ages in the city of Kuala Lumpur in the data set were surveyed. The sample accounted for about 50 per cent of the city's stratified office population. The offices have been stratified to various criteria, such as tenanted building, private office and building more than 8 storeys high as well as located in the three traditional commercial areas; the Golden Triangle Area (GTA), the Central Business District (CBD) and the Decentralised Area (DCA). A total of fifty-three property characteristics was collected in the surveys. A list of the variables is shown in Exhibit 1.0. The selection of offices was based on the Kuala Lumpur City Hall classification. Excluded were cases where the rental used is not an actual rental for the building. For example, owner-occupied buildings were not selected due to the absence of rental evidence.

The characteristics collected are related to property location, building design, building services and electrical and mechanical systems as identified in the literature. The characteristics of the properties are compared to the best characteristics in the market. The quality of the characteristics are assigned with scores as appropriate. The best characteristic for a particular variable is assigned the highest score. For example, there were five types of external finishes for the buildings surveyed. The highest score (denoted as 5) will be given to granite finishes whilst the lowest (denoted as 1) was for cement plastered and painted. It is therefore, easy to relate these characteristics to rental depreciation.

Empirical results

The result of the analysis is presented in two parts: the analysis of 'age' and the multiple causes of rental depreciation. The first part aims to show that 'age' could provide a reasonable explanation for rental depreciation. However, when the data allows it, it is better to consider other causes of depreciation. A list of variables used in the analysis is in Exhibit 1.0. A series of correlation matrices for variables was computed as shown in Exhibit 2.0.

Level 1

A correlation between 'age' and rental depreciation indicated a value of 0.5748 in absolute values which can be considered as a moderate level of relationship (Norusis,1989). In comparison, there are many variables related to the building system which are significantly associated with rental depreciation either at the 0.05 or 0.01 significance level. These variables are negatively associated, that is, the decreasing quality of property characteristics has increased the level of depreciation. It shows that age has a reasonable association with the age of the generic in the data set. An analysis of rental depreciation and 'age' of the offices in the data set is summarised in Figure 1.0. The pattern or rate of depreciation follows a smooth curve line to indicate the actual phenomenon. In general, the level of depreciation increases as 'age' increases. However, there appears to be a distortion to the smooth line of depreciation at age 10. The peak point at age 10 suggests that 10-year old offices suffered a high level of depreciation compared to the older ones. Although some studies, such as Barras and Clark (1996), showed a linear correlation between 'age' and depreciation, it is not so for the city of Kuala Lumpur offices in 1996. The linear pattern of the Kuala Lumpur office depreciation is distorted with a high level of depreciation at age 10. The phenomenon thus requires further explanation.

As can be seen in Exhibit 2.0, there are a number of variables which are strongly associated with 'age' as well as rental depreciation. The correlation coefficient of 0.5748 between 'age' and DepR indicates that only about 58 per cent of rental depreciation variation are explained by 'age'. The possibility that the remaining 42

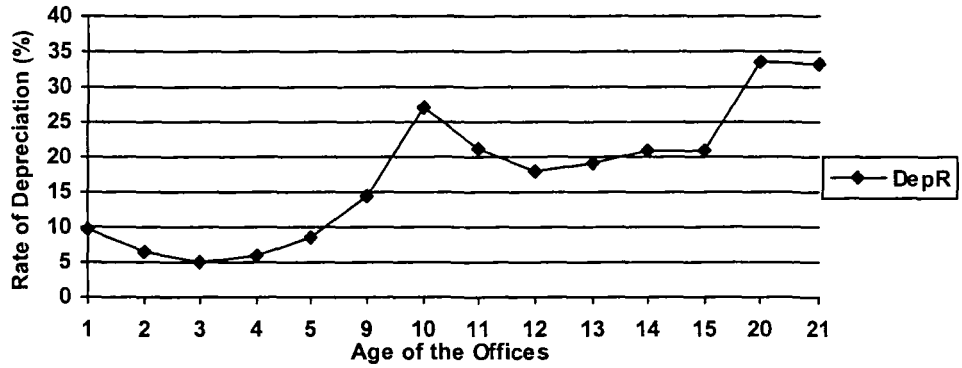

Figure 1: Rental Depreciation by Age

per cent of variation will be explained by other variables is examined in the following part.

Level 2

In Exhibit 2.0, there are a number of variables that are significantly correlated (at both the 0.05 and 0.01 significant levels) and they represent three sources of depreciation: physical deterioration, building obsolescence and site obsolescence. There are a large number of variables which are linearly associated with rental depreciation. It is, therefore, important to classify the variables under each source of depreciation to reveal and explain the underlying sources of depreciation. The significant correlation between variables as indicated in Exhibit 2.0, creates the problem of multicollinearity. Consequently, this limits the attempt to consider more variables in the analysis of depreciation. As mentioned earlier PCA is used to address the problem of multicollinearity. In principal component analysis, thirty-seven variables were selected based on the significant level of association with DepR. The inclusion of location-related variables is an attempt to complement the other site-related measures in order to consider the effect of site obsolescence.

The first step in the Principal Component Analysis is to observe relevant associated statistics. The analysis used three levels of statistics: Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO), Bartlett Test of Sphericity and significance level to determine the appropriateness of PCA to explain rental depreciation. A summary of initial and final statistics is shown in Exhibit 3.0. Based on the Eigenvalue of more than '1' in the initial and final statistics, eight components or factors have been derived in the analysis which explained 74.7 per cent of the variation in rental depreciation. The closer the KMO is to '1', means that correlations between pairs of variables are well explained by the other variables (See Norusis, 1989). The KMO of 0.70365 indicates a 'middling' situation for the PCA to be performed (Kaiser, 1960). The components or factors were rotated using the Varimax rotation method to simplify the interpretation. A summary of factors is shown in Table 1.0. Variables with loading of less than 0.2 are suppressed from the matrix.

Factor 1 is a combination of thirty-one variables, most of which have significant loading (more than 0.3). Among the features that obtained high score in factor 1 were Building Automation System (BAS), floor

Table 1.0: A Summary of Rotated Factors - Factor Model 1
(Rental Depreciation - DepR)

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Bas	0.87834	0.23470						
Fire	0.86085	0.21599						
Ac_fl	0.85660							
Cr_fin	0.81943	0.40123						
Ac_sys	0.79886	0.29250						
Lif_con	0.73974	0.2218	0.23623	0.26494				
Spautl	0.73763	0.21110	0.33009					
Security	0.69925				0.21456			
Wait_car	0.68396	1.41094			0.24674			
Int_car	0.68042	0.41281						
Ce_high	0.67139	0.25368	0.36080					
Spd_car	0.65230	0.44478						
Age	-0.6457		-0.27078		-0.2127		-0.3619	
Lop_fin	0.60613		0.46831			0.25281		-0.2791
Ty_con	0.58347		0.28886		0.54475			
Schrg	0.58072	0.32799		0.23272	0.23858		0.25063	
Comm	0.55425				0.49492	0.25684	-0.2200	
Ex_fin	0.54429		0.35433		0.48427			
Fl_fin	0.42897			0.40333		0.41760	0.21337	
Fl_area	0.27058	0.83739						
Nt_let	0.35436	0.81319						
Lif_car	0.31524	0.79005	0.22471		0.20333			
Bay	0.38264	0.78278						
Stry	0.32056	0.61937	0.21132					0.43052
Ld_area		0.60879			0.22462			-0.4137
Re_count	0.33624	0.55291					0.33891	
Lobby	0.34039		0.70515					
Bay_rate	0.28630	0.26606	0.57093	0.24299			-0.2368	-0.3416
Gym			0.53352				0.50643	
Locat	-0.21084			0.85348				
Ty-bay	0.41789			0.72417				0.25862
Lascap	0.33170	0.32342		0.39946	0.36963	0.25269		
Dine					0.68054		0.45437	
Prox						0.82223		
Cm-ref		0.43957				0.65133		
Conf	0.21615						0.82699	
Plratio								0.80980

finishes (Flfin) and variables which are related to building systems. This factor reveals a good quality building due to the high scores of variables under the factor. The factor explains that the largest variation (43.3 per cent) in rental depreciation is due to 'Building Quality'. Building quality is thus an important cause of depreciation.

Factor 2 comprises two groups. Group 1 is a combination of variables which are related to efficiency (for example, Spd_car and Wait_car are used to measure the efficiency of the lift system). Group 2 consists of variables with loading higher than 0.5. This group seems to represent the 'size' dimension (for example, Stry, Fl_area and Ld_area). The link between the two groups explains that as the size of the building increases, more efficient services are needed. Factor 2 which can be identified as 'Size and Efficiency' explains a further 7 per cent of variation in rental depreciation.

Factor 3 indicates design and lay-out dimension as one of the rental determinants which influences rental depreciation. The 'design and lay-out' factor accounts for 5.6 per cent of the variation in DepR.

Factor 4 is identified as Location (Locat), which is a combination of the siting of the offices, the parking provisions and the state of the property landscape. Offices in good locations are mostly new buildings normally accompanied by a higher parking to floor space ratio. The offices are usually well-planned and built with better landscapes.

Factor 5 represents the dimension of 'appearance' of the offices, with variables related to the design such as Fl_fin (Floor finishes). Nonetheless, it accounted for only 4.2 per cent of the variation in rental depreciation.

Factor 6 represents the 'Complementary' dimension, comprising nine variables. However, only the two with very high loadings are used as a basis for interpretation. The factor also measures the closeness of the building to other users.

Factor 7 indicates the aspect of 'facilities' of the property and accounts for 3.2 per cent of the variation in rental depreciation.

Factor 8 explains only 3.1 per cent of the rental depreciation variation. The factor combines development, age and storey as well as 'Bay_rate', interpreted as 'Parking'.

Overall, the above PCA extracted eight components from thirty-seven property-specific variables. The link between the factors and sources of depreciation is developed in the following part.

Link Between Factors and Sources of Depreciation

The results from the PCA categorised thirty-seven variables into eight depreciation factors. Note that 'age' has a lower loading compared to other variables and tends to appear in many factors, indicating a close association between age, the variables and factors. The link between eight factors to the three sources of depreciation: physical deterioration, building obsolescence and site obsolescence, is now explained. Physical deterioration, as mentioned earlier, is related to the normal wear and tear of physical, mechanical and electrical systems. Building obsolescence is regarded as the degree of mismatch between the building and its use as a result of changes in external factors such as changes in technology or user preferences. Site obsolescence, is referred to as a decline in the usefulness of the site caused by changes in locational preferences.

The eight factors derived are 'Building Quality' (BldgQty), 'Size and Efficiency'(SizeEff), 'Appearance' (Appear), 'Location' (Locat), 'Design and Lay-out' (DesLay), 'Complementary' (Compl), 'Facilities' (Facil)

and 'Parking' (Park). Building Quality can be linked to physical deterioration-related factors. 'DesLay', 'Park', 'Facil' and 'Appear' can be classified as building obsolescence factors, as a decline in the usefulness of these factors could lead to obsolescence and consequently depreciation.

Nevertheless, there were problems in classification as 'SizeEff' and 'BldgQty' may also indicate building obsolescence and some building obsolescence factors may also indicate deterioration. The possible distinguishing feature between them is that physical deterioration is concerned with wear and tear but obsolescence is related to property qualities which correspond to changes in demand. Site obsolescence can be proxied by 'Locat' and 'Compl' in this study. The above factors indicate the possibility that offices may be greatly affected by building obsolescence.

Summary and Conclusions

This paper shows that depreciation arises from physical deterioration, building obsolescence and site obsolescence. Physical deterioration is related to the decline in utility due to physical usage and the action of elements which occurs progressively through time. Obsolescence is a decline in property utility or usefulness but is not related to physical deterioration. Studies based on the assumption that depreciation is linearly related to 'age' are found to be less relevant especially in the case of Kuala Lumpur offices in 1996. The pattern indicated that based on empirical evidence, age was insufficient to explain the phenomena of depreciation. Based on real office property in the city of Kuala Lumpur, the characteristics are summarised in the PCA to derive the underlying factors or components of depreciation. Eight components as described in the earlier part of this paper are linked to the three sources of depreciation. The paper has shown that it is possible to consider a large number of depreciation factors. However, further approaches such as using Multiple Regression Analysis and its extension, the Hedonic Price Technique, should be used to determine the relative importance of each of the factors.❑

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EXHIBIT 1.0 A LIST OF VARIABLES IN THE STUDY

Labels	Description
1. Ac_sys	Air-conditioning system in the building. The variable is measured by score with higher values for better and modern systems.
2. Ac_fl	The variable indicates whether the air-conditioning system is equipped with the latest feature of system; Variable Air Volume. The score is indicated by Yes or No.
3. Access	The variable used to describe the accessibility of the property from the main road and public transport
4. Age	Age of the building
5. DepR	Annual Depreciation on Rent
6. DepY	Annual depreciation on Yield
7. Bas	Explains the state of the building automation system of the building. Modern or best system denoted by higher scores.
8. Bay	Number of parking spaces provided in the building
9. Bay_rate	Indicates percentage provision of parking spaces based on floor area and space ratio
10. Big_spac	The biggest space occupied by a single tenant in the building
11. Bigs_ten	Number of bigger tenants occupying space of 5,000 square feet and above
12. Ce_high	Measured floor to ceiling height, more or less than 10 feet
13. Comm	Telecommunication system in the building
14. Cm_ref	Shows whether a common refreshment area is available in the building
15. Conf	Conference hall or room in the building
16. Cr_fin	The state of architectural finishes of lift car
17. Dine	Dining facility
18. Ex_fin	External finishes of the building
19. Fn_com	Tenants profile - Finance Companies
20. Fire	Fire prevention system of the building
21. Fl_area	Gross floor area of the building, denoted by several categories
22. Fl_fin	Building floor finishes
23. Gen_com	Type of the ownership - general commercial
24. Govtagen	Tenants profile - Government agency
25. Gym	Gymnasium facility
26. Int_car	Car interval movement
27. Lascap	The state of landscape in the building
28. Ld_area	Land area of the property
29. Lif_car	Number of lift cars
30. Lif_con	The control system for the lift
31. Locat	Location of the property - Three commercial areas in Kuala Lumpur used
32 Mj_Inst	Type of ownership - Major institution
33. Numten	Number of tenants in the building
34. Occrate	Occupancy rate of the building
35. Owrel	Relationship to owner
36. Plratio	Plot ratio of the property

37. Profser	Tenants profile - professional service
38. Prox	Proximity to other uses such as retail
39. Rd_fr	Is the property situated on road frontage
40. Re_count	The state of reception counter in the building
41. Refur	Any refurbishment undertaken
42. Rnt_rev	Rent review interval
43. Schrg	Service charge, measured as a fraction of gross rent
44. Security	Security system of the building
45. Sp_utl	The space utilisation (Column free, etc.)
46. Spd_car	The speed of the lift cars
47. Stck_br	Tenants profile - Stock broker
48. Stry	Number of storeys
49. Trdagen	Tenants profile - Trade agent
50. Ty_bay	Type of bay provided in the building
51. Ty_con	Type of construction- modern, transitional or traditional
52. Use_lev	The intensive use, based on type of business and number of tenants
53. Wait_car	The average waiting time during peak hours

EXHIBIT 2.0 CORRELATION MATRICES:

	AGE	DEP_R
AC_FL	-.7184**	-.6377**
AC_SYS	-.6517**	-.6312**
ACCESS	.0545	-.1958
AGE	1.0000	.5748
BAS	-.6186**	-.6251**
BAY	-.4378**	-.6342**
BAY_RATE	-.2802	-.3947**
BIGSPAC	-.2268	-.1417
BIGSTEN	-.0270	.0785
CE_HIGH	-.5887**	-.6860**
CM_REF	-.3585*	-.4773**
COMM	-.4701**	-.4973**
CONF	-.1111	-.3438*
CR_FIN	-.6453**	-.6865**
DEP_R	.5748**	1.000
DEP_Y	.4986**	.4064**
DINE	-.2513	-.3312*
EX_FIN	-.6332**	-.5252**
FINCOMP	.0265	-.0987
FIRE	-.6337**	-.5622**
FL_ARE	-.2823*	-.5411**
FL_FIN	-.2554	-.4986**
GEN_COM	.0001	.1479
GOVTAGEN	-.0153	.1651
GYM	-.2437	-.3558*
INT_CAR	-.4677**	-.5781**
LASCAP	-.3326*	-.5343**
LD_AREA	-.1499	-.2971*
LIF_CAR	-.4931**	-.6118**
LIF_CON	-.4876**	-.5988**
LOB_FIN	-.4837**	-.5403**
LOBBY	-.4043**	-.4594**
LOCAT	.1048	-.1586
MAJ_INST	-.0001	-.1479
NT_LET	-.4308**	-.5864**
NUMTEN	.1592	-.0438
OCCRATE	.3051*	.1349
OWNREL	-.0609	-.1193
PLRATIO	-.2843*	-.2938*
PROFFSER	-.0741	.0299
PROX	-.3713**	-.3398*
RD_FR	.1279	-.0590
RE_COUNT	-.3595*	-.3170*
REFUR	.3289*	.1539

RENTGRWT	.3652*	.2986
RT_REV	-.4755**	-.5512**
SCHRG	-.2883*	-.6886**
SECURITY	-.6001**	-.5800**
SIGN	-.1915	-.2638
SPAUTL	-.7307**	-.6594**
SPD_CAR	-.5302**	-.6834**
STOCKBR	.1775	-.0501
STRY	-.4473**	-.5847**
TRADAGEN	-.1392	-.1844
TY_BAY	-.4039**	-.5713**
TY_CON	-.5945**	-.4088**
US_LEV	.1686	.3789**
WAIT_CAR	-.4568**	-.5918**

* - Signif. LE .05 ** - Signif. LE .01 (2-tailed)

" . " is printed if a coefficient cannot be computed

EXHIBIT 3.0 PRINCIPAL COMPONENT ANALYSIS

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.70365
Bartlett Test of Sphericity = 1551.7976, Significance = 0.00000
Extraction 1 for analysis 1, Principal Component Analysis (PC)

Initial Statistics:

Variable	Communality	Factor	Eigenvalue	Pct of Variance	Cum Pct
Ac_Fl	1.0000	1	16.00847	43.3	43.3
Ac_Sys	1.0000	2	2.57951	7.0	50.2
Age	1.0000	3	2.05512	5.6	55.8
Bas	1.0000	4	1.81071	4.9	55.8
Bay	1.0000	5	1.56792	4.2	60.7
Bay_rate	1.0000	6	1.35546	3.7	64.9
Ce_High	1.0000	7	1.16715	3.2	68.6
Cm_ref	1.0000	8	1.09698	3.0	71.7
Comm	1.0000	9	0.99219	2.7	74.7
Conf	1.0000	10	0.85119	2.3	77.7
Cr_fin	1.0000	11	0.78880	2.1	79.1
Dine	1.0000	12	0.74141	2.0	81.8
Ex_fin	1.0000	13	0.67992	1.8	83.8
Fire	1.0000	14	0.59962	1.6	85.7
Fl_are	1.0000	15	0.58589	1.6	87.3
Fl_fin	1.0000	16	0.54197	1.5	88.9
Gym	1.0000	17	0.50979	1.4	90.3
Int_car	1.0000	18	0.45806	1.2	91.7
Lascap	1.0000	19	0.39122	1.1	92.9
Ld_area	1.0000	20	0.33623	0.9	94.0
Lif_car	1.0000	21	0.28165	0.8	94.9
Lif_con	1.0000	22	0.22817	0.6	95.7
Lob_fin	1.0000	23	0.22116	0.6	96.3
Lobby	1.0000	24	0.19368	0.4	96.9
Locat	1.0000	25	0.16285	0.4	97.4
Nt_let	1.0000	26	0.14884	0.4	97.9
Plratio	1.0000	27	0.13864	0.3	98.3
Prox	1.0000	28	0.10798	0.3	98.6
Re_count	1.0000	29	0.10265	0.2	98.9
Schrg	1.0000	30	0.08281	0.2	99.2
Security	1.0000	31	0.06438	0.1	99.4
Spautl	1.0000	32	0.03720	0.1	99.6
Spd_car	1.0000	33	0.03651	0.1	99.7
Stry	1.0000	34	0.02874	0.1	99.8
Ty_bay	1.0000	35	0.02234	0.1	99.9
Ty_con	1.0000	36	0.01859	0.1	1000.0
Wait_car	1.0000	37	0.00617	0.0	1000.0

Economic Trends and the Property Market : The Malaysian Case

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Abstract

The depth and severity of the Asian financial crisis which started in July 1997 affected Malaysia in many ways. Coming on the back of a prolonged period of rapid economic growth, the full effects of the regional crisis on the ration's economic and property sectors are examined. Prior to the crisis, Malaysia was a model of economic growth with a vibrant property sector. Investors and speculators were attracted to the fast capital gains and increases in equity offered by the property sector. The paper offers a general discussion on the impact of a financial crisis on the buoyant property sector of a fast developing Asian country.

Keywords : financial crisis, speculation, equity withdrawal, economic growth, liquidity

Introduction

The Malaysian economy suffered severe economic turmoil beginning July 1997 following an impressive ten years of continous economic growth accompanied by a steady growth in the property market. The cause of the turmoil is still being debated. The ringgit slipped against the US dollar. Indonesia faced political turmoil. All countries within the South East Asian region suffered to varying degrees from the recession. Japan, considered the engine of growth for the Asian economies saw, their economy slide into a severe recession. The Kuala Lumpur Stock Exchange Index (KLSE) dropped to record levels.

The full impact of the regional financial crisis on the Malaysian economy was felt in 1998 when real output declined to 6.7 per cent, while aggregate domestic demand dropped by 6.5 per cent and personal income declined almost a full 9.0 per cent from RM6,483 in 1997 to RM5,913 in 1998.

As the regional crisis became more entrenched, the nation's economic situation suffered further destabilisation. Weakened external demand caused a sharper than expected reduction in aggregate demand. Inflation moved higher towards the end of 1997 and the first half of 1998 due to the depreciation of the ringgit. The rate of increase in the Consumer Price Index (CPI) peaked at 6.2 per cent in June 1998, compared to as low as 0.3 per cent in 1985. However the CPI dropped to 5.3 per cent in December 1998, lower than expectations due to the fixing of the ringgit exchange rate against the United States dollar which helped to reduce

inflationary expectations generated mainly from food and utilities.

On the employment front, output contraction led to a softening of the domestic labour market. The rate of unemployment increased to 3.9 per cent in 1998 as compared to a low of 2.5 per cent in 1997, resulting in 83,865 workers being retrenched. However, the increase was moderate as compared to 8.3 per cent in 1986 (refer Table 1.0). This was due to the flexibility in the labour market. Demand for labour remained strong in selected sub-sectors such as services, transport and communication. The construction sector suffered the largest job losses, followed by manufacturing, agriculture and wholesale, retailing, hotels and restaurant following lower demand and closure of businesses. At the start of the economic boom in 1987 until July 1997, the percentage of non-agricultural employment grew by almost 82.6 per cent and later declined by almost 3.0 per cent in late 1998.

What makes this downturn all the more painful is its speed and severity, coming on the heels of a period of unprecedented prosperity. Between 1985 and 1996, personal income and labour productivity was rising. Gross Domestic Product (GDP) was on an up-trend from RM57,150 million in 1985 to its peak in 1997, with a value of RM 140,557 million until it dropped to RM131,258 in 1998 (refer to Table 1.0).

Some claimed that the economic downturn was natural and inevitable after a prolonged expansion and that the region, notably Malaysia, Japan and South Korea, with its well-diversified economic base, ultimately will return to a reasonable growth path. In the case for Thailand, it has enjoyed a high real GDP growth of above 8.5 per cent since 1984 and Japan's GDP growth was moderate, around 4.3 per cent in the 1980s. It started to decline to below 1.0 per cent in the early 1990s and gained momentum in the late 1990s (Economic Report, 1998).

Malaysia's property market reacted to the economic crisis by going into its first recession since the mid-1980's (Bank Negara Annual Report, 1998). The last time the Malaysian property bubble burst was in late 1984 when the economy contracted by 1.1 per cent. Signs of a possible downturn in the property market were already evident in 1996 when the higher-end properties were hovering around those prevailing in 1995. These properties registered lower take-up rates which consequently affected the rental market as well.

Throughout Asia, as was also the case in Malaysia, property markets were among the first to consolidate due to the enormous spate of overbuilding and over exposure to foreign debts for development. Capital values and rent have fallen almost 50.0 per cent across the board with high-end residential, commercial and industrial properties at secondary locations being the primary casualties. The collapse in property prices triggered a crisis in the financial and corporate sectors as large sums of bank loans were collateralised with property.

Background Theory

The imperfection of the property market is especially significant where speculators have the chance of making speculative profits by means of anticipating future trends pertaining to demand and supply. If perfect knowledge were available as to future events regarding land and land use, there would be no opportunity for speculative gains because all future potentials and therefore value would be fully and accurately discounted to the present.

Changes in demand and supply result in changes in relative price-the micro effect. But the property market is so important that any surge in demand spills over to the whole economy. As such, movement in the property market are linked to

Table1.0: Malaysia Economic Indicators, 1985-1998

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Population (million, Person)	15.7	16.1	16.5	16.9	17.4	17.8	18.2	18.6	19.0	20.1	20.5	21.2	21.7	22.2
Personal income (RM)	3,573	3,553	3,675	3,907	4,153	4,496	4,656	4,887	5,133	5,468	5,812	6,141	6,483	5,913
GDP (RM, million)	57,150	57,859	60,929	66,258	71,294	79,329	86,149	92,866	100,617	109,915	120,309	130,187	140,557	131,258
Real GDP (growth, %)	-1.0	1.2	5.4	8.9	9.2	9.7	8.7	7.8	8.0	9.2	9.5	8.2	8.0	-6.7
Employment (millions, person)	5.6	5.7	5.9	6.1	6.4	6.6	6.8	7.1	7.4	7.6	7.9	8.4	8.8	3.9
Non-agriculture Employment ('000)	3,865	3,900	4,004	4,179	4,362	4,539	5,246	5,358	5,716	6,100	6,500	6,912	7,310	7,105
Unemployment rate (%)	6.9	8.3	8.2	8.1	7.9	7.6	4.3	3.7	3.0	2.9	2.8	2.6	2.5	3.9
Labour Productivity Growth	10.2	10.2	10.3	10.9	11.1	12.0	12.7	13.1	13.6	14.5	15.2	15.5	16.0	33.6
Average Wage (%) Growth														
-Manufacturing	N.A	4.8	5.6	6.3	7.5	8.8	11.4	9.9	15.1	9.5	11.1	15.0	15.0	8.0
-Agriculture		4.6	5.3	6.2	7.4	8.0	6.0	5.2	4.8	13.9	30.4	11.7	10.2	8.9
Share of Construction to GDP (%)	4.8	4.0	3.4	3.2	3.3	3.6	3.8	4.0	4.0	4.2	4.4	4.7	4.8	3.8
KLSE														
-Composite	234	252	261	357	562	506	556	644	1,275	971	995	1,238	594	586
-Turnover (RM, Billion)	6.18	3.37	10.1	6.76	18.5	29.5	30.1	51.4	387.3	119.0	179.0	463.3	135.0	110.0
Manufacturing Production Index (1986=100)	-	-	-	100	11.2	15.7	13.9	10.5	12.9	14.6	14.5	12.2	12.4	-10.2

Source: Bank Negara Annual Report and Economic Report, 1985-1998.

those of the overall economy and vice versa-the macro effect.

Interaction of demand and supply determines the price, but the supply of property is relatively inelastic, at least in the short run, thus their price is largely demand-determined. Factors leading to increased demand are, firstly, rapid growth in the economy stimulates consumer credit and spending; secondly, expansion in the service industries and thirdly, a fall in the cost of borrowing.

Increased demand for property was engendered by rises in property prices. Rising property prices can have a further impact on consumption spending. It encourages owner-occupiers to spend on cars and consumer durables, existing mortgage-holders are tempted to up-grade their homes and more seriously, additional spending is financed by personal loans or second mortgages on the strength of the property price rise.

On the supply side, higher property prices encourages the construction of more property units and higher land prices. As full-employment output is approached, bottlenecks will appear in labour, materials and their components.

The demand for property has a multiplier effect and later the accelerator may come into play. Together with the loan-generated demand, increased GNP leads to increased consumer spending. Prices generally rise, and property inflation spills out into the economy. At this stage, cost-push inflation can take over from demand-pull and the higher prices of property makes it more difficult to limit the demand for wages to increase.

Objectives of the Paper

In the light of the above-mentioned events, a study had been undertaken to examine the following:

1. To investigate the trend of the real estate sector between 1987 and 1997.
2. To analyse the changes in the macroeconomic variables of the property sector.

As stated above, in 1987, real estate prices exploded upwards but dropped sharply in 1997. The price boom followed by the price crash within a period of ten years, triggered a series of economic changes that had serious consequences on the nation's economy.

At the end of the eighties, consumer spending, as depicted by the aggregate domestic demand, increased, leading to expansion in the trade and service sectors. Later, a building boom, fuelled by the deregulated banking sector and high liquidity in the property market induced the increase in supply of residential, commercial and industrial space. These factors created a substantial increase in the demand for labour. It resulted in a serious labour shortage in the early 1990s culminating in rising wages. In addition, commercial and office rents nearly doubled between 1989 and 1996. At the same time the banking sector was deeply rooted in real estate, thus adding a capital shortage and a serious contraction in the financial sector.

The effects of higher wages, increasing rents and house prices, higher cost of capital and tight monetary policy, followed by serious banking problems discouraged investors, locals and foreign, to increase their stakes in the local market. As the real estate boom came to an end in mid-1997, job losses were evident in the construction sector and other sectors related to construction such as real estate, finance, trade and services. This aggravated the declining economic base.

Methodology and Data

Fundamentally, the trend of the local property market is very much dependent on the current and the future prospects of the nation's economic growth. Changes in the nation's macroeconomic variables such as aggregate demand, interest rate, employment level, population, income and sectoral growth are major indicators of the nation's economy which inherently influence the property market through time. The nature of the property market, which is known to be imperfect and very sensitive to the economic changes are prone to speculative activities which can led to fluctuations in property prices.

For the purpose of this paper, various macroeconomic variables will be used to represent the demand factors in stimulating the supply of property into the market. Income, cost of capital, affordability, capital gains, sectoral growth, stock market and liquidity are the major determinants influencing the performance of the property market.

Data from Bank Negara and Economic Reports ranging from 1985 until 1998 are the source of information pertaining to various macroeconomic variables mentioned earlier. The number and value of transactions on the various categories of properties and their prices transacted in the market between 1985 until 1998, are obtained from the Ministry of Finance Property Market Reports.

Review of Malaysia's Economy in the 1980s

The nation's economy put up a remarkable performance coming out of the severe recession which hit the country in 1984. Property prices began to show clear signs of an up-trend and the local bourse showed signs of a comeback. However, prevalent job uncertainties, high rates of unemployment and persistent increases in consumer prices were areas of some concern (refer to Table 1.0).

As shown in Table 2.0, unemployment rate was 8.2 per cent, higher by almost 18.8 per cent compared to 1985 and non-agricultural employment was increasing at a rapid rate of 4.1 per cent annually between 1986 and 1989, mainly emanating from the manufacturing sector, followed by construction, services and wholesale.

In the wake of business expansion and improved company profits beginning 1987, wage pressures became evident when the weighted increase in wages rose from 4.8 per cent and 4.6 per cent in 1986 to 7.5 per cent and 7.4 per cent in 1989 for the manufacturing and agriculture sector respectively. Higher incidence of industrial action also contributed to the rise in wage rates. Average weighted price and rent for a double-storey terrace house, in the state of Selangor, which exhibited the highest economic growth in the nation, was RM 113,265.00 per unit and RM 413.00 per month respectively. The upsurge in property values in 1987 were due to several factors such as, an increase in the effective demand for properties due to a marked improvement in the economic climate, availability of funds and loans from the government and financial institutions, influx of foreign investment especially from Japan, Singapore and Taiwan and finally, the escalating costs of building and labour.

Period of House Price Increase

Positive macroeconomic indicators, a growing trade surplus, falling unemployment rates, declining interest rates, renewed confidence in the property market and concerted efforts by the government were among the factors which contributed to the revival of the property sector in early 1987. The property market grew from strength to strength since then,

Table 2.0 The Malaysian Economy in 1985 - 1989

Indicator	1985	1987	1989
Unemployment rate (%)	6.9	8.2	7.9
Non-agricultural employment (million)	3,124.0	4,004.0	5,621.0
Weighted increase in wages %)			
Manufacturing	4.5	5.6	7.5
Agriculture	3.9	5.3	7.3
Average weighted price of home (RM)	125,500	113,265	118,200
Average weighted rent of home (RM)	530.00	413.00	420.00

Source: Bank Negara Annual Report, 1985,1987 and 1989
Property Market Report, 1985,1987 and 1989

fuelled by the buoyant Malaysian economy. With the financial institutions expanding their loans to further facilitate property purchases, effective demand for real estate rose due to the higher disposable income. Foreign interest also led to the increase in demand, especially for residential and industrial properties. The construction sector performed strongly with its 15.0 per cent growth rate reflecting the positive stimulus provided by the government in the expansion and upgrading of infrastructure and the role played by the private sector in residential and commercial development.

According to the Property Market Report, prices and rentals for double-storey terrace houses in Selangor rose from RM110,025 per unit and RM308.00 per month in 1984 up to RM171,672 per unit and RM609.00 per month in 1994, and reached a new high of RM235,820 and RM810.00 per month respectively by the middle of 1997. This is an increase of almost 115.0 per cent in house prices and 163.0 per cent in rentals within a period of 12 years. This huge increase in house prices and rentals certainly had a significant effect on growth in consumer prices, disposable income, savings and other composite goods and services. This example is for the case of Selangor, but for the less developed states of Kelantan and Terengganu, the scenario was different. Kelantan experienced an increase in house prices of almost 61.2 per cent and a slight decrease in rentals, whereas Terengganu experienced a marginal decrease in both house prices and rental. This phenomena could be due to the large exodus of population from these two states to seek employment elsewhere, especially in Selangor.

In the case of the City of London, the property boom of 1986 - 89 saw rents in real terms increase by nearly 90.0 per cent and house prices double. The boom was based on rising real incomes, declining inflation rate and an acceleration of economic growth. Fundamentally, the boom was dependent on an ever-growing consumer and investor confidence in the inevitable rise in property values. This was backed by increasingly aggressive bank lending against a background of financial deregulation. A shortage of prime sites caused rental values for shops and office space to rise. Previously stagnant industrial rents also achieved growth ahead of the inflation rate. Many of the sharp rises in London property values and office rents came from organic growth in the financial and service sectors. The expansion of

domestic credit and a rising stock market added to the demand for property.

From an economic perspective, this boom could be debatable. Certainly demographic factors have played a leading role. Case and Shiller (1989) however argued that fundamentals alone do not explain the boom. Economists believe that, potential house buyers and sellers were significantly influenced by psychology. House buyers reacted to rising prices and generally favourable economic conditions by paying inflated prices in anticipation of future price increases and capital gains. Whether the boom was speculative in nature or not remains debateable but its effect on the entire spectrum of the economic sector is of paramount importance and will be discussed in the following sections.

Changing Demand for Locally Produced Goods and Services

Availability, liquidity and affordability were among the features of the property market in early 1987. The private sector and the Government launched an increasing number of new housing schemes to cope with the increase in effective demand. Robust economic performance, healthy Government cash flows and the substantial inflow of foreign funds contributed to the continued liquidity in the system. The property boom made house-owners better-of and enhanced the attractiveness of Malaysia as an investment centre for foreign equity. House-owners who were fortunate enough to own their units during the market up-trend thus found themselves with additional accumulation of new equity.

However, the additional home equity probably changed the pattern of household savings and expenditure. Some borrowed against their home equity, while others simply saved less or spent some of their previous savings. This was evidenced by a moderate drop in savings, by type of deposit among commercial banks, from RM1,599.0 million (15.6 per cent) in 1988 to RM1,118.0 million (9.5 per cent) in 1989 (Bank Negara Report, 1990). However, consonant with the higher level of disposable income, the improved performance of the corporate sector, and the exceptionally bullish stock market in 1993, savings and other deposits with the commercial banks by individuals, business enterprises and other private sectors picked up sharply in middle 1993.

According to the Property Market Report issued by the Department of Valuation and Property Services, Ministry of Finance, for the period of 1988-1990, the total number of transactions and the total value of transactions in the property market increased from 111,113 and RM8.1 billion to 165,272 and RM16.6 billion respectively in 1988 and 1990. Price gains were significant in the residential, commercial and industrial sector with Selangor, Kuala Lumpur, Penang and Johor in the forefront. The expansion in the volume of transactions and capital value can be accounted for by the aforementioned growth in home equity.

During the same period, household debts increased substantially. Reports from Bank Negara showed that loans extended to real estate and housing by commercial banks registered an incredible growth, from RM13,298 million in 1985 up to RM78,167 million in 1998, which consequently triggered an upturn in construction activities (refer to Table 3.0). In tandem with the growth in the real economy, manufacturing, finance, insurance and business services significantly absorbed much of the loans at an increasing rate. Finance companies, merchant banks and other financial institutions followed almost the same trend. As depicted in Table 3.0, commercial banks had granted more loans to building and construction, real estate and housing sectors, as compared to other financial institutions,

Table 3.0: Disbursements of Loans By Financial Institutions (RM, Millions)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Finance Company														
a. Agriculture	712	656	601	783	912	1,015	1,031	1,019	883	764	953	1,166	1,316	927
b. Building & Construction	732	670	817	1,134	1,578	2,115	2,463	2,820	3,557	3,942	4,371	5,552	8,448	7,6220
c. Real Estate	2,500	2,912	3,020	3,242	3,127	2,950	3,061	2,888	2,889	2,778	3,377	5,360	9,841	3,238
d. Housing	1,829	2,075	2,162	2,333	2,671	3,365	5,124	5,798	7,056	8,095	9,239	10,666	12,880	6,423
e. Manufacturing	618	532	554	721	944	1,336	1,669	2,109	2,521	2,945	4,004	4,999	5,557	12,908
f. Purchase of Securities	N.A	N.A	N.A	N.A	N.A	N.A	N.A	1,753	2,253	3,708	4,567	5,351	10,418	9,072
g. Wholesale hotel	760	774	775	912	1,061	1,344	1,482	1,664	1,582	1,577	1,850	2,589	4,021	3,604
Merchant Banks														
a. Agriculture								384	299	332	432	335	404	612
b. Building & Construction	N.A	N.A	N.A	N.A	N.A	N.A	N.A	1,022	1,051	1,402	1,775	2,978	5,010	7,126
c. Real estate								1,057	995	1,043	1,320	1,586	2,452	2,108
d. Housing								50.7	55.8	57.7	40.5	39.2	69.3	105
e. Manufacturing								1,805	2,009	2,160	2,403	2,706	2,781	2,642
f. Purchase of Securities								445	267	717	746	695	4,347	3,956
g. Wholesale hotel								893	757	643	1,060	950	1,442	1,245
Commercial Banks														
a. Agriculture	2,936	3,190	3,115	3,068	3,622	4,238	4,642	4,657	4,125	3,486	3,860	4,541	5,917	6,178
b. Building & Constructionc	3,697	3,974	4,104	4,213	4,763	5,515	6,730	8,808	9,309	10,377	14,087	19,273	29,156	30,662
c. Real estate	6,992	7,511	7,732	7,899	8,522	9,102	9,970	10,987	11,383	10,803	15,875	21,005	34,169	34,794
d. Housing	6,306	7,039	7,259	7,694	8,143	9,587	14,509	15,124	17,212	19,866	23,473	28,911	37,894	43,373
e. Manufacturing	8,584	8,965	9,124	11,099	14,057	18,742	23,536	25,397	26,932	32,233	42,410	47,823	54,952	56,531
f. Purchase of Securities	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	3,035	7,844	8,177	9,706	24,186	19,431
g. Wholesale hotel	8,752	9,117	9,020	9,509	10,546	11,642	12,865	12,907	13,662	16,964	21,224	24,692	29,478	30,262

Source: Bank Negara Annual Report and Economic Report, 1985-1998

and such lending was on the upward trend since 1985. A prominent increase in loans for individual housing was seen in 1991 and 1995 due to the recovery of the nation's economy after a slight trough in the late 1980s and early 1990s. However, loans by commercial banks to real estate started to decline in 1997 and thereafter, but loans to individual housing and manufacturing by financial institutions kept increasing until 1998. Loans to the services sectors, in particular wholesale, hotels and restaurants increased especially from commercial banks beginning in 1989. Growth in the services sectors requires additional floor space, thus encouraging the building of more commercial and office space.

A point to note is that, loans extended for the purchase of securities by the financial institutions made a significant increase between 1996 and 1997, especially loans from the commercial banks. This was due to the bullish stock market which started its uptrend in January 1996 when the KLSE composite index was at the 1,073 level and continued to rise to its peak in Febuary 1997 at 1,271 level, declining thereafter.

The availability of more affordable houses, the continuing low interest rates, as shown by Base Lending Rates (BLR) for commercial banks and finance companies in Table 4.0, combined with the growing expectations of an increase in house prices were among the factors which spurred the recovery in the housing sector. Unlike in the early stages of recovery of the sector in late 1987, the construction of higher-priced houses had also picked up, while the construction of low and medium-cost houses expanded strongly. Following the removal of restrictions on foreign ownership of property on January 1987, there were increased foreign interest in domestic properties. Commercial and industrial properties located in prime areas were purchased by foreigners mainly from Singapore, Japan, Hong Kong and Indonesia. Besides foreign interest, several local property trust funds such as Amanah Harta Tanah PNB, Arab-Malaysian First Property Trust and First Malaysia Property Trust entered the local property market in 1988.

Buoyancy in the construction sector stimulated increases in the production of construction-related materials such as cement, roofing tiles, paints, steel pipes and several other related building materials. Several items experienced accelerated prices due to the temporary shortage of basic materials, the increased cost of imported raw materials and the increased cost of transporting raw materials to construction sites, thus exerting pressure on property prices.

Accelerated growth in the key sectors of the economy caused the services sector to register higher growth, well above the increase in the overall GDP of 8.5 per cent. In terms of contribution, the services sector remained the single largest sector in the economy constituting nearly 42.0 per cent of GDP in 1989, increasing to 44.2 per cent in 1993 and 44.7 per cent in 1996. Growth of intermediate services comprising transport, storage and communication, finance, insurance and business led to growth in the final services group, emanating mainly from utilities, wholesale and retail trade, hotels and restaurant. Other final services sub-sector including Government services remained relatively stable. The finance, insurance, real estate and business services sub-sectors were the second largest contributor to the services sector's growth, after wholesale, retail, hotel and restaurants but outpaced the latter's annual growth beginning 1993. The share of the construction sector to GDP reached its peak of 4.8 per cent before the recession in 1985 and 1997 and reduced thereafter. Higher consumer spending and influx of tourists were the main factors contributing to the strong growth in the wholesale, retail, hotel and restaurant sub-sectors.

Table 4.0: Annual and Monthly Data for KLSE, CPI and Interest Rates: 1985-1998

	KLSE (composite)	Consumer Price Index (1994=100)	Consumer Price Indicator (1994=100)	Interest Rate (BLR)	
				Commercial Banks (%) (%)	Finance Companies
1985	234.13	125.1	0.3	10.75	12.00
1986	251.90	125.8	0.7	10.00	11.5
1987	260.91	126.8	0.3	7.50	9.25
1988	356.73	130.0	2.5	7.00	9.00
1989	561.61	133.7	2.8	6.99	8.74
1990	505.92	137.8	3.1	7.49	9.20
1991	556.22	88.9	4.4	8.68	10.01
1992	643.96	93.1	4.7	9.29	10.58
1993	1,275.32	96.4	3.6	8.22	9.97
1994	971.21	100.0	3.7	6.83	8.4
1995	995.17	103.4	3.4	8.03	9.38
1996	1,237.96	107.0	3.5	9.18	10.65
1997	594.44	109.9	2.7		
1997					
Jan	1,216.72	108.9	3.2	9.19	10.66
Feb	1,270.67	109.5	3.1	9.2	10.66
Mac	1,230.10	109.3	3.2	9.24	10.67
April	1,080.17	109.1	2.6	9.25	10.67
May	1,104.83	109.6	2.5	9.27	10.71
Jun	1,077.30	109.5	2.2	9.50	10.85
July	1,012.84	109.6	2.1	9.58	11.01
Aug	804.40	109.9	2.4	9.61	11.22
Sept	814.57	110.2	2.3	9.61	11.28
Oct	664.69	110.6	2.7	9.53	11.20
Nov	545.44	111.0	2.6	10.07	11.88
Dec	594.44	111.0	2.9	10.33	12.22
1998					
Jan	569.51	112.6	3.4	10.44	12.33
Feb	745.36	114.3	4.4	11.08	13.16
Mac	719.52	114.9	5.1	11.96	14.23
April	625.97	115.2	5.6	12.16	14.56
May	538.24	115.5	5.4	12.21	14.65
Jun	455.64	116.3	6.2	12.27	14.70
July	402.65	116.0	5.8	12.07	14.49
Aug	302.91	116.1	5.6	11.70	14.17
Sept	373.52	116.3	5.5	8.89	10.54
Oct	405.33	116.4	5.2	8.49	10.00
Nov	501.47	117.2	5.6	8.04	9.50
Dec	586.13	117.4	5.3	8.04	9.50

Source: Bank Negara Annual Report and Economic Report, 1985-1998.

The stimulus to the prolonged strong growth in construction activity, to a large extent, was due to the potential for high returns within a relatively short payback period. This encourages speculation as capital gains were ensured. Findings from the Bank's Annual Survey of Companies in the Construction Sector in 1996 indicated that, profit margins on medium and high-cost property in prime locations were relatively high compared with returns in other major economic sectors, namely manufacturing and services. This encouraged a significant diversion of resources into property development in general, and residential property in particular. As such, this promoted the increase in house prices which consequently had several effects on the consumers in terms of equity. A buyer who buys before the boom sees her equity increasing but for non-homeowners, they are considered worse off and could lead to an increase in savings. However this pattern of behaviour is yet to be proven. Skinner (1989) found that a 23.0 per cent increase in market value of house prices predicts a 1.4 per cent increase in consumption. The estimated change in private and public consumption among Malaysians between 1987 and 1993 increased by almost 68.0 per cent from RM36.6 million to RM61.6 million for the period which consequently made a big change in the domestic demand condition and labour market (Bank Negara Annual, 1997).

The Building Boom and House Sales

When real estate prices rise sharply, a building boom is likely to follow. In Malaysia, the most dramatic swing occurred between 1987 and early 1997 with a moderate correction between 1990 and 1992 due to a hike in interest rates from 7.2 per cent in the fourth quarter of 1989 to 9.3 per cent in first quarter of 1992 and 6.83 per cent in 1994, (refer to Table 4.0). Ample liquidity generally prevailed in the financial system and the overhang of liquidity from 1988, together with strong inflows of capital exerted an upward pressure on demand and property prices. A marked upswing in the economy, facilitated by lower interest rates following a drop from 10.0 per cent in 1986 to 7.0 per cent in 1988 created a rapid rise in credit.

As indicated earlier, the number and value of transactions in the property market increased tremendously. Beginning in 1988, the number of transactions was 111,113, valued at RM8.1 billion. In 1992, the number of transactions had increased to 190,939 valued at RM21.4 billion, showing a moderate increase between 1991 and 1992. Transactions rose further to 275,328 valued at RM53,128.4 billion in 1997. Through the period, the residential sector was dominant in terms of the number of transactions followed by the agriculture and commercial sector. In terms of the value of transactions, the residential sector was also the highest, followed by the commercial, industrial and agricultural sector. (Property Market Report, several issues). The trend shows that, as a result of the vigorous economic growth, agricultural land were in high demand to accommodate the need of various economic sectors. However the demand for agricultural land for conversion to non-agricultural uses differs between states as it depends on the pace of the economic growth of the state. Large numbers of transactions on agricultural land shows three scenarios;

(a) agricultural land being converted for non-agricultural uses,
(b) agricultural land for productive agricultural uses and
(c) agricultural land bought for speculative purposes due to its potential for further development. Broadly, the demand for agricultural land was either in

expectation of returns from income generated or to capitalise on its appreciation in value through time.

Due to the different rates of economic growth between different states, agricultural land was demanded for different reasons. This resulted in different levels of prices for agricultural land in different states. This can be demonstrated by comparing the number and value of transactions between developed states (Selangor and Pulau Pinang) and less developed states (Kelantan and Terengganu). Based on the Property Market Report, in 1989 the number and value of transactions of agricultural land for Selangor and Pulau Pinang were 3,894, valued at RM315.34 million and 1,410, valued at RM77.3 million respectively as compared to Kelantan and Terengganu for the same period with 1,272 valued at RM18.04 million, and 1,922 valued at RM30.25 million respectively. However, in 1997, Selangor significantly increased its number of transactions to 4,974, valued at RM2,045.48 million.

Factors that contributed to this increase in the number and value of transactions were:
(a) improved infrastructure in the rural areas which created an impetus for the development of new townships,
(b) increased efforts by the State Government of Selangor to enhance agricultural productivity by implementing agricultural projects on a commercial scale and
(c) renewed interest in agriculture due to its potential for further developments and capital gains. In the same period.

Kelantan increased its number of transactions to 2,695, valued at RM70.44 million. As for Terengganu, the number of transactions increased to 5,333, much higher than Selangor but with a much lower value, at only RM140.46 million. The relatively large number of transactions at much lower values as compared to Selangor may be due to several reasons :
(a) Terengganu's economic growth was much lower,
(b) the agricultural sector was the main contributor to the state's growth, at least until the early 1990s, with oil palm as the major agricultural activity,
(c) almost 66.0 per cent of the transactions in the sector were below RM25,000, comprising rubber smallholdings, paddy land, vacant agricultural land, village land and orchard land. As such, owning agricultural land for speculative purposes, especially at secondary locations, would not be a good decision, as returns from income generated and expected capital gains through time were not very attractive.

The building boom was fuelled by the influx of foreign investors and a supportive banking sector. As stated earlier, loans granted by commercial banks and financial institutions almost tripled between 1985 and 1997 for the purchase of real estate and housing. In 1988, the share of loans to the broad property sector by commercial banks amounted to 35.1 per cent, second to manufacturing. However, in 1993, the property sector absorbed 41.2 per cent of total loans by commercial banks, surpassing that for manufacturing. By 1997, the property sector had taken up 33.2 per cent of total loans, lower than in 1993 but still but much higher than the manufacturing sector which took up only 15.0 per cent of the total amount granted for the year. The decline in the loans extended was due to both demand and supply factors. Demand was reflected by higher repayments in response to higher interest rates. Supply was affected by the tight liquidity conditions in early 1998 and more cautious lending policies by banking institutions.

Changes in Demand for Labour

The housing boom had a significant impact on the demand for labour in the nation. The most dramatic effect was in the construction sector, where employment rose from 355,000 persons in 1987 to 874,000 persons in 1997, an increase of 146.1 per cent within a period of ten years (Economic Reports, several issues). Significant growth in new enterprises within the construction sector further enhanced job creations in the manufacturing, wholesale and retail trade, hotel and restaurant services sectors. This ultimately helped to ease the unemployment rate from a high of 8.2 per cent in 1987 to 2.5 per cent in 1997.

Employment in the finance, insurance and business services sector rose by almost 102.0 per cent within the same period. It is impossible to say precisely what percentage of increase in these related sector's employment was due to the real estate boom, but it is clear that much of it was. As mentioned earlier, the significant increase in employment in the various economic sectors, namely the non-agricultural employment, was due to the real estate boom.

Spending on locally produced goods and services affected the labour market through the trade and services sectors. Overall, trade and services combined, accounted for an average of 17.5 per cent of the nation's total employment in the 1990s. It is impossible to pinpoint exactly how many of these jobs would have been created had the real estate boom not happened. What is clear is that the real estate boom had a significant impact on the demand for labour between 1987 and 1997.

Effects of the Housing Boom on the Labour Supply and the Housing Market

Generally favourable economic conditions and the housing price boom had a significant and positive effect on the demand for labour in the country. From 1987 until 1997, the average annual growth rate of employment was 3.2 per cent, with the highest growth of 3.9 per cent recorded in 1996, in line with the growth in labour force for the nation during the period. The expansion of the labour force in early 1988 resulted from two factors, firstly, increased participation and secondly, increased inmigration. Increased participation can increase labour supply up to a limit, and those limits were being approached in the early 1990s. The tightening of the employment/labour market situation was reflected by the continued decline in the number of job seekers and the total number of new registrants for jobs. In view of the tight labour market, the Government took measures to ease the labour shortage such as liberalising the employment of foreign labour and intensifying training for professionals and skilled workers. Regions which enjoyed continuous and prosperous growth experienced a steady flow of inmigrants. Evidence strongly suggest that housing prices had an effect on this flow. It suggests that, the high cost of houses could be an important deterrent to growth in labour force in a locality or state, as the high costs of servicing mortgages can deter migration from lower cost to higher cost localities.

The effect of population concentration in any specific locality due to continuous and prosperous economic growth can be a factor towards increasing the labour force within an area. Attractive wages and ample working opportunities can increase the level of labour participation in the labour market but they are faced with escalating housing prices due to high demand for shelter. Consequently, the shortage of affordable housing, which is a symptom of the housing crisis, with the ever mounting population, led to an increasing number of squatters.

Effects on Wages

The house price boom beginning 1987 caused an increase in the demand for labour. They drove the unemployment rate to all-time low levels, and created a severe labour shortage, which drove up wages sharply. The pressure on wages increased amidst the buoyant economy and a tighter labour market due to the shortage of skilled and experienced workers. According to Bank Negara, the weighted wage increase in the manufacturing sector wes 5.6 per cent in 1987 and 15.0 per cent in 1997, following higher incidence of industrial actions.

Effects on the Supply of Credit

The real estate cycle has clearly had a significant impact on the supply of credit and the state of the nation's financial institutions. Traditionally, funds for the property sector are influenced by the policies of Bank Negara. As such, through the years, the industry's performance had swayed according to the nature of the bank's regulations which determined the cost of funds and the extent of credit to be released. Bank Negara took several steps towards controlling loans by financial institutions to the broad property sector, such as; (a) freezing the minimum base lending rate (BLR), (b) restricting foreign access to local funds, (c) setting a credit limit of 20.0 per cent of total loans by banks to the property sector, (d) curbing lending to new property projects, and curbing financing for the development of hotels, office buildings, golf courses, clubs and shopping complexes. The steps had a significant effect on the cost of funds and the amount of loans for reaching the property sector.

The financial turmoil which hit the region in mid-1997 proved to be the most challenging period for the banking system. The banking system, which is the largest financial intermediary, accounting for 70.1 per cent of the total assets of the financial system at the end of 1998 (72.9 per cent at the end of 1997), experienced a decline in the value of the total assets by RM21.4 billion or 1.9 per cent to RM1,093.1 billion by the end of 1998 (Bank Negara Annual Report, 1998). This huge decline in total assets of the financial system was due to a fall in the assets of the banking system. The decline in the value of the assets of the banking system, especially the finance companies, was partly reflected by the higher non-performing loans (NPLs) due to the tight liquidity in early 1998, the high interest rates and the contraction in economic activity. In terms of NPL by sector, by the end of December 1998, loans to the broad property sector accounted for 35.3 per cent of total loans. A major proportion of NPLs came from the construction, commercial and real estate sectors, which accounted for 61.6 per cent of the total broad property sector NPLs (52.0 per cent at the end of 1997) and was the main reason for the increase in NPLs. Recognising the vulnerabilities of these sectors, Bank Negara prohibited banking institutions from extending bridging finance for development of properties above RM250,000.

As indicated in Table 5.0, commercial banks had the highest amount of NPL to the broad property sector which amounted to RM13,212 million, followed by finance companies RM6,161 million, and merchant banks RM1,415 million in late 1998. Loans granted for the purchase of securities had contributed significantly to the NPL problem. Drops in the share prices on the local bourse had created severe equity depreciation and thus compounded the problem of paying back the loans, as the shares were pledged to secure the loans.

To deal with the rising NPL, Bank Negara embarked on a comprehensive restructuring programme for the banking sector. Finance

Table 5.0: Non-Performing Loans by Sector

	1997		1998	
	RM Million	% of total loans to sector	RM Million	% of total loans to the sector
A. Commercial Banks				
Agriculture, hunting, forestry and fishing	247	4.2	568	9.2
Manufacturing	2,734	5.0	7,223	12.8
Broad property sector	887	4.8	13,212	12.1
Finance, insurance anf business services	4,823	3.1	3,132	10.3
Purchase of securities	1,4111	5.8	4,130	21.3
B. Finance Companies				
Agriculture, hunting, forestry and fishing	129	9.8	172	18.5
Manufacturing	773	13.9	1,242	30.8
Broad property sector	3,676	11.8	6,161	20.4
Finance, insurance and business services	400	10.2	2,419	26.7
Purchase of securities	865	8.3	4,927	13.5
C. Merchant Banks				
Agriculture, hunting, forestry and fishing	111	27.5	77	12.7
Manufacturing	161	5.8	555	21.0
Broad property sector	268	3.6	1,415	19.8
Finance, insurance and business services	94	2.4	471	12.3
Purchase of securities	260	6.0	974	24.6

Source: Bank Negara Annual Report and Economic Report, 1997 and 1998

companies were merged to create bigger entities. Pengurusan Danaharta Berhad (Danaharta) and Danamodal Nasional Berhad (Danamodal) an interim funding vehicle to meet the required capital injections of affected institutions were set up. The resultant 'credit crunch' meant that a tougher credit regime was imposed. The real estate cycle, whatever its cause, has inflicted serious damage on the region's financial institutions and very few have been spared.

Malaysia's Economy in 1997

Table 6.0 shows the position of the nation's economy for the years 1995, 1997 and 1998. Compared to the position in 1987 as in Table 2.0, conditions had changed significantly. First of all, a labour shortage is clearly evident due to the tight labour market for the last 10 years. The unemployment rate in the nation stood at 2.5 per cent (considered full employment) with foreign labour constituting 10.0 per cent of the labour force, thus exerting inflationary pressures. Non-agricultural employment increased to 7,310,000 people in 1997 as compared to 4,004,000 people in 1987. The labour shortage caused the weighted increase in wages for the manufacturing and agricultural sector to increase to 15.0 per cent and 10.2 per cent respectively for 1997. The average weighted price and rent for a double-storey terrace house in Selangor for the year 1997 were RM198,500 per unit and RM750.00 per month respectively. These factors could have a negative effect on the nation's growth rate. Studies by Steven (1979) and Leuw (1971) shows that, housing prices, wage rates and labour availability are all very important determinants of a nation's employment growth rates.

Table 6.0 The Malaysian Economy In 1995, 1997 and 1998

Indicator	1995	1997	1998
Unemployment rate (%)	2.8	2.5	3.9
Non-agricultural employment (million)	6,587.00	7,310.0	7,308.00
Weighted increase in wage (%)			
Manufacturing	11.1	15.0	8.0
Agriculture	6.8	10.2	8.9
Average weighted price of home (RM)	193,650	198,500	174,500
Average weightted rent of home (RM)	720.00	750.00	660.00

Source: Bank Negara Annual Report, 1995, 1997 and 1998
Property Market Report, 1995, 1997 and 1998

FINDINGS : Effect of the Asian Financial Crisis on the Economy: Mid - 1997 Until End - 1998

The full effect of the regional financial crisis on the Malaysian economy was felt in 1998 when the real estate market began to make a U-turn. The crisis occurred following a decade of strong economic performance. All the crisis-affected countries in the region suffered a significant wealth loss, declines in assets prices, sudden capital flight and threats to the stability of the banking system due to the high degree of financial excesses, over-investment and unrealistic speculation in the real estate sector in the preceding years.

The shift from the public sector to the private sector as the engine of growth in Malaysia created new risks. Loans for the private sector were mainly obtained through loans collateralised against properties and shares which made the banking system vulnerable to declining asset prices. At the same time, total loans outstanding to the broad property sector were the highest compared to other sectors, increasing from 30.1 per cent in 1993, to 36.4 per cent at the end of 1998. Thus, when the property market and the KLSE suffered a severe drop in late 1997, the private sector and the financial institutions faced financial crisis as did other sectors of the economy. The downward movement in asset prices became more pronounced in 1998 when the Kuala Lumpur Stock Exchange Composite Index (KLSE) touched a low of 262.70 points on 1 September 1998, a decline of 55.8 per cent from the end of 1997 level. To a large extent, this drop was due to the liquidation of portfolio capital by non-residents.

As evident from Table 4.0, the KLSE began its downward trend in Jun 1997 to hit below the 1,000 points level in August the same year. It continued to perform badly for the whole of 1998. The cost of borrowing, as shown by the BLR of commercial banks, started to increase beginning late 1996 and persisted through 1997 until it reached its peak of 12.27 per cent in Jun 1998 and was hovering around 8.8/8.4 per cent by late 1998. The cost of living for the Malaysian population, as indicated by the Consumer Price Index (1994 = 100) has been increasing since 1995 (refer to Table 4.0).

The ringgit and the KLSE experienced significant downward pressure as a result of weak investor confidence and large outflows of short-term capital. The depreciation of the ringgit and the decline

of share prices reinforced each other, creating a vicious circle of exchange rate and falling stock prices that further undermined confidence. Consequently, the economy experienced a contraction of 6.2 per cent in the first nine month of 1998, and an overall contraction of 6.7 per cent in 1998. Furthermore, the inflation rate increased to 5.3 per cent, the highest recorded since 1982 (5.8 per cent) whist the unemployment rate increased to 3.9 per cent in 1998.

According to the Property Market Report, 1998, between the month of January 1997 and December 1998, the number and value of property transacted nation-wide dropped tremendously. For the first-half of 1997, the number of transactions increased from 64,972 in the first quarter up to 70,260 in the second quarter (April-June) and dropped marginally to 69,077 in the last quarter of 1997. However, in the last quarter of 1998, the number of transactions was 50,359 and dropped to 44,889 transactions in the third quarter (July-September), finishing slightly higher at 45,103 transactions in the last quarter of 1998. The total number of property transacted for 1997 was 274,749, the highest since 1988. It declined to 186,077 transactions in 1998, a reduction of 47.6 per cent.

The total value of property transacted between 1997 and 1998 followed the same pattern. In the first quarter of 1997, the total value of property transacted was RM12,834.66 million, reaching its peak in the second quarter at RM14,051.10 million. It however declined continuously until the last quarter, valued at RM12,470.62 million. In 1998, the value of transactions in the first quarter was RM8,088.39 million and started a dropping trend to as low as RM6,415.63 million in the third quarter . However, it finished the year marginally higher with a value of RM6,820.86 million in the last quarter. Thus, the total value of property transacted reached its peak in 1997 at RM53,217.32 million, the highest since 1988 but declined to RM27,911.52 million in 1998, a drop of 90.7 per cent in total value transacted within a year.

In the last quarter of 1998, the value and number of transactions increased marginally due to a month-long government supported Home Ownership Campaign (HOC) which kicked of in December. Some RM1.0 billion worth of properties were transacted during the first week of the campaign. In terms of the number of units, this could be in the region of 6,000 units sold nation wide, assuming an average value of RM150,000 per transaction.

In terms of retail complexes, many shopping malls, especially in the Klang Valley were seeing more vacant lots by the end of 1998. Rentals, occupancy rates, number and value of transactions plummeted in the first nine month of 1998 and persisted until early 1999. Owners of retail complexes had to offer generous discounts to secure existing tenants while owners of less established shopping complexes had to offer very competitive rates to fend off competition from the newly opened complexes. Shopping complexes at prime locations were offering as low as RM1.20 psf rental, or as low as RM3.00 psf rental inclusive of RM1.50 psf service charge. Prices and rentals declined as much as 38.0 per cent and the average occupancy of shopping complexes plunged 13.1 per cent to 78.2 per cent compared to 91.3 per cent in 1997.

Hotel occupancy in Kuala Lumpur dipped to an average of 52.8 per cent in 1997 with rates dropping as much as 15.0 per cent from 1997 prices. The major contributing factor was oversupply. By the end of 1998, room supply increased by 23.0 per cent to 20,914 rooms compared to 16,989 rooms in 1997, the largest increase so far in this decade. With 12,030 additional rooms under construction at

present, not to mention a further 15,143 rooms on the drawing board, the supply overhang delayed the investment plans of many hotel investors.

The economic and financial crisis had been most traumatic for the office sector. Crippled by escalating interest rates during the first half of 1998, the sector experienced declining occupancy, rental rates and capital values. Existing office buildings had to deal with tenants downsizing or shifting out, while those buildings which were under construction scrambled to find ways to service their loans. With a vacancy ratio of about 25.0 per cent, there would be an excess of around 10 million sq. feet of office space in 1999.

By the end of 1998, the resulting decline in employment was dramatic. According to the 1998 Bank Negara Report, the decline was more pronounced in the construction sector (148,000 persons) followed by manufacturing (86,000) and agriculture (61,000). Reflecting mainly the significant slowdown in the construction sector (-24.5 per cent), the job loss in this sector was the largest, whereby the share of this sector to total employment declined from 9.9 per cent to 8.5 per cent. The job loss in the manufacturing sector was concentrated in industries producing construction-related materials and transport equipment. Employment in the wholesale and retail trade, hotels and restaurant sub-sectors dropped decline by 0.6 per cent in 1998 following lower demand and closure of businesses. In 1998, a total of 83,865 workers was officially retrenched. Based on data from the Ministry of Human Resources, the retrenchment was because of the decline in demand following the downturn in activity (60 per cent), financial constrains (13 per cent), closure of companies (8 per cent) and restructuring of companies (6 per cent). How much of this decline is directly linked to events in the real estate market is hard to say, but the real estate decline certainly played a role.

Beginning in the first-quarter of 1999, the Malaysian economy was showing a glint of recovery emerging from the country's worst economic turbulence. Many believed that the country can recover faster than expected. Factors to support the contention of faster economic recovery are prudent macro-economic management, fiscal and monetary policies as well as a productive allocation of capital through banks to the critical sectors.

Malaysia's broad policy thrust will be directed at re-engineering growth strategies for the immediate and long-term approach where fiscal policy will lead economic growth through a fiscal stimulus package while monetary policy will remain accommodative and complementary, creating an environment of stability. Development expenditure was aimed at socio-economic projects to expedite economic recovery and generate demand for domestic goods. This strategy of domestic-driven growth is essential to regain the increase in aggregate domestic demand which has declined by 20.6 per cent in current prices for the year 1998, the first time since 1986. Thus, promotion of consumption from both the public and private sectors are necessary before investment can pick up.

The focus of monetary policy in 1999 was to control inflation, ensure a competitive interest rate and preserve price stability, to provide stability for producers, traders, investors and consumers. This policy ensured adequate funds at reasonable costs were available to support private sector activities, investments in real sectors and favourable returns on savings. The restructuring of the banking and financial sectors were among the major pre-requisites of economic recovery. Efforts towards consolidation, rationalisation and

reform of the sector were initiated through mergers, setting up of an asset management company, a bank recapitalisation agency and a corporate debt restructuring committee. Implementation of selective exchange control measures and the fixing of the exchange rate at US$1 = RM3.80 facilitated economic recovery measures and accelerated the necessary restructuring and reform in the financial and corporate sectors. Imposition of capital controls and new investment rulings were aimed at establishing a more predictable and reliable investment environment in the country.

The economic collapse in Asia has caused the local property market to be hit by an unexpected downturn. As discussed earlier, various sectors of the nation's economy were hard hit as the property sector certainly played a major role in the national economy. Financial institutions faced severe financial difficulties due to overborrowing for property developments which led to oversupply in the property market. This was due to the considerable speculative element, especially in the big urban centres such as Kuala Lumpur, Johor Bharu and Penang. As such, several policies and measures have been drawn up to reinforce the role of the property sector as a critical component of the nation's economic recovery plan.

Summary and Policy Implications

Malaysia's economy performed well coming out of the 1984 recession. The local stock market and property market were on the up - trend. Aggregate demand for consumption goods and services grew, thus stimulating sectoral growth. Liquidity and affordability further enhanced economic growth and related sectors. Increasing demand for labour increased wages.

However, the Asian crisis that began in July 1997 brought adverse consequences to Malaysia's economy as reflected by severe problems in the corporate sector, rising non-performing loans in the banking institutions, declining output, rising unemployment, escalating costs structure and inflation. Some believed that the crisis stemmed from weaknesses in domestic financial systems and corporate governance in the crisis- affected countries. Others noted that overheating pressures were manifested by large current account deficits and property and stock market bubbles. Nonetheless, there is strong evidence that the real estate cycle amplified the business cycle significantly, both on its way up and on its way down. In a boom, the real estate sector stimulates growth in almost every sectors in terms of employment, capital flows, asset values and rising effective demand. Within the property market, rent and capital values increased. However, wages and cost of construction also increased due to escalating demand and affordability. In a recession, effective demand will fall as confidence ebbs with tighter monetary and fiscal measures, and banks become unwilling to lend. Income, employment, share prices and demand on property tend to decline.

Property-price inflation encouraged the construction of more higher-priced properties. Land prices rose, factor output approached full-employment and eventually bottlenecks appeared in labour, materials and its components. Property was bought not as a necessary consumer durable, but as an investment asset which is expected to continue rising in price. In short, houses were regarded as a way towards 'easy money'. The 'wealth effect' of rising house prices encouraged consumption spending through *equity withdrawals* which led mortgage-holders to up-grade their housing, moving to larger and newer houses. House-owners were tempted to use part or all of the value of properties inherited. Properties experienced increases in asset value due to capitalisation on its price increase, as

additional collateral to purchase consumer goods thereby boosting demand, increasing money supply and thus raising retail prices and the rate of inflation.

The impact of the property slump was the reverse. Instead of divergence, the property market converged. House owners and speculators were caught in the 'negative equity trap' due to overborrowing during periods of property boom. NPLs on broad property sector and purchase of securities mounted to almost double. Pressures on the labour market eased as the construction industry reduced its output, reducing employment and lowering the rate of increase in wages, thus helping to lower overall consumer demand. Falling house prices deterred housebuyers from taking out second mortgages to purchase consumer goods and services. Equity withdrawals was further constrainted by the fast eroding value of inherited properties.

In many ways the 1985 and 1998 recessions exerted different pressures and affected the nation's economy in different ways. In 1985, real GDP declined by 1.2 per cent while in 1998 it declined by as much as 6.7 per cent. Percentage change in CPI was as low as 0.3 per cent in 1985 as compared to 5.3 per cent in 1998. Unemployment rate was 6.9 per cent in 1985 and declined to as low as 3.9 per cent in 1998. The huge surplus in the current account balance of RM36.1 billion in 1998 contributed 13.7 per cent to total GNP as compared to -2.1 per cent in 1985. During the same period, net international reserves increased from RM12.5 billion in 1985 to RM99.4 billion in 1998.

In the financial sector, the average base lending rate among the commercial banks was 10.75 per cent in 1985 as compared to 8.04 per cent in 1998. Loans to the private sector was equivalent to 85.2 per cent of GDP in 1985 but was much higher at 148.4 per cent of GDP in 1998.

On the business front, the 1985 and 1998 recessions resulted in sharp downturns in aggregate demand, drops in profits and rising numbers of corporate bankruptcies. The property market which experienced a boom in 1983-84 and 1991-1996 was badly affected, with prices declining by up to by 30 per cent during the 1985 recession and 65 per cent during the 1998 recession, especially the higher-end properties located in the large urban centres of Kuala Lumpur and Johor Bharu.

The property crisis has taught us to look into the role of financial institutions as the financier. Previously, the tendency was to look at property development solely from the supply side, treating developers not as entrepreneurs but as manufactures of floor-space. As such, the role of the bankers changed from that of conservative risk-managers to a target-achieving seller of loans. Competition between the main lending institutions led to easier mortgage terms, throwing aside their traditional caution regarding safe loan-earning ratios. This meant that lending was done in a highly speculative market, where the property market is highly sensitive and responsive to monetary conditions. Increasingly, debt-financed speculative development added to the supply of property without adequate consideration on the demand aspect. Developers who had pre-let or pre-sold were relatively secure, whilst speculative development were vulnerable, as were over-geared property companies with optimistically valued assets. When the recession happened, it had a traumatic effect on the property market. Developers were left with expensive land banks and unfinished buildings on their hands. As for the financiers, their asset quality was adversely affected. This was evident in the sharp increase in their NPLs.

As such, to prevent overlending to property, financial institutions are encouraged to reduce the property content in their

investment portfolios, considering that equities offered better long-term prospect. The property crisis reinforced this view.

The property crisis had also caused valuers to reflect on what part (if any) they played in fuelling the preceding boom. If their valuations were based on the assumption that the economic conditions underlying the price of comparables would remain constant, this would lead to inaccurate valuations. More weight should be given to the implications of wide shifts in the economies of their localities and surroundings, the estimates of future price movements and to carrying out a sensitivity analysis.

Valuers should be able to estimate demand based on reasoned analysis, as demand for land and real property is closely related to the level of real national income and cost of borrowing. Demand for houses depends on personal income relative to mortgage repayments. For commercial and industrial property, demand depends on net profitability; a derived demand, which depends on the income and borrowing cost. As such, valuers should have the knowledge of what determines the level of property market activity, the interdependence among main macro-variables and their changes which affect the economy.

To conclude, the Malaysian economy, which hitherto enjoyed a prolonged period of relentless economic growth, was stopped in its track by the regional economic maelstrom which hit the nation in the middle of 1997. The real property sector swiftly followed suit, suffering a drastic drop in the total number and value of property transactions in 1998. Job losses were prominent in major sectors, whose contribution to the country's GDP also dropped noticeably. Financial institutions had to manage more NPLs and undervalued shares. Real estate investors and speculators were faced with huge asset devaluations. Overborrowing and overbuilding were identified as the twin spectres of the property market recession. Much of the reasons for this change in fortunes lay hidden in what we thought was evidence of a great success : the great real estate boom of 1991-1996.❑

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Brief Notes on Land Acquisition Practice - Part II

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Severance and Injurious Affection

As damages for severance, and consequently injurious affection, would be considered only in relation to other land being reduced in value, it is pertinent to consider what is meant by *other land*. In the United States the courts have outlined two rules in relation to severance damages. One is that, in such proceedings, a parcel of land which has been used and treated as an entity, should be so treated as an entity in determining compensation. Further if a portion of a single tract is taken, the owner's compensation includes any element of value arising out of the relation of the part taken to the entire tract.

In considering what is his other land, the problem to be considered is what is the unit. In the United States three factors are considered :

i) physical location
ii) use
iii) ownership

This did not absolutely require that the land be contiguous rather than being divided by streets or intervening ownerships. However, it had been generally held that intervention of lands owned by other persons destroys the unity of the tracts even if they are used together.

One has to be very careful in instances where the unitary use of two parcels which are not adjacent are used to claim other business losses rather than depreciation in the value of land. The general test would be the integrated use of the various properties held in the same ownership, physical separation being important only to the extent to show that it indicated that they cannot be operated as a unit.

In Malaysia, the meaning given to other land is fully expounded in the Federal Court decision of **Lim Foo Yong vs. Collector of Land Revenue (1965):**

> *Here I would ... agree that the case of* **Cowper Essex vs. Local Board for Acton** *is authority for the proposition that for the purposes of ascertaining whether one piece of land has been severed from another piece of land, it is not necessary that the two pieces of land should have been in physical contiguity. It is however, necessary to quote the actual words that set out Lord Watson's reasoning in this connection:*
>
> *Where several pieces of land owned by the same person are so near to each other and so situated that the possession and control of each gives an enhanced value to all of them, they are lands held together within the meaning of the Acts, so that if one piece is compulsorily taken the owner will be entitled to damage by severance and injurious affection of the remainder.*

From a discussion of the above case, it is clear therefore, that in considering what the *other land* or "land held" is, the important factors should be :

i) possession (ownership)
ii) situation (physical location)
iii) control and use (use)
iv) each giving enhanced value to the whole.

Severance

Severance is depreciation of land by virtue of its own inadequacy after being cut off from other land previously held with it. The phrase "damage due to severance" can have two interpretations:

i) It may refer to the damage caused to the rest of the owner's land by the loss of a part that is taken. For example where a part of a larger parcel is acquired, the compensation includes the value of the part acquired and also damage for the balance.

ii) It may also refer to the damage caused where one part of an owner's land is separated from the rest by another part. For example, where an acquisition of a strip of land through a farm separates the farm into two or more parts. Thus in addition to value of land, the owner would be entitled to compensation to increased cost of working and other losses caused by one portion being severed i.e. physically separated from the other.

Whether there in fact was damage is a question of fact and the onus of proof is on the claimant. The argument was very succinctly put in the case of **Lim Foo Yong vs. Collector of Land Revenue (1963):**

> *Here there are two questions to be considered. The first is whether any damage at all has been sustained by the Company's remaining land (the hotel land) by reason of the acquired land being severed from it; and the second is if there has been such damage what is the amount of it? In other words, as a result of the taking away the acquired land has there been any diminution in the value of the remaining land of the owner and if there is what is the value of that diminution?*

Injurious Affection

This term indicates a depreciation in value to the land due to the exercise of statutory powers. Where the land is held with land taken, then such depreciation will give a right to compensation provided that the compensation can be traced to some act by the Government, or acquiring authority. Depreciation is due to some act or doing of the acquiring authority or omission of any act.

Injurious affection of land is depreciation of land by what happens on other land acquired. It is similar to compensatable nuisance so long as it arises on land taken by the acquiring body, from the claimant.

In the case of **Duke of Bucceleuch vs. Metropolitan Board of Works (1872),** a strip of land to build an embankment was acquired. The value of land taken was minimal, but the injurious affection due to noise, dust and loss of privacy to the remainder was so high that it was greater than land taken.

The situation has been clearly explained by Tun Suffian in his judgement in the case of **Collector of Land Revenue vs. Mooi Lam @ Looi Lam (1981).** Quoting the Indian case of **Collector of Dinagpore vs. Girja Nath Roy** and others he said;

> *A proprietor is entitled to compensation for depreciation of the value of his other land in so far as such depreciation is due to the*

> *anticipated legal use of works to be constructed upon the land which has been taken from him under compulsory powers.*

The above quotation was to answer the Collector's contention that the damage sustained was attributable not to the acquisition of the land, but to the use of it when the bridge has been constructed and opened for use.

Very often properties which are not affected by any proposal for compulsory acquisition are also affected injuriously. However, under the system of law practised in a number of countries (including Malaysia), there can be no claim for injurious affection if no land has been acquired. In some other jurisdictions it is possible to claim for such losses.

The remedy for injurious affection as in all cases of compensatable nuisances is damages. In considering the damages that is payable, the following points need to be considered:

i) compensation is only payable to an interested person.

ii) there must be an acquisition on a part of the land, otherwise there can be no claim for injurious affection.

iii) the damage must be such as would otherwise be a nuisance or an actionable wrong.

iv) the damage should arise from the execution of the purpose declared or authorised by the acquisition.

v) injury must be an injury to land and not merely be a personal injury or an injury to trade.

vi) it must be caused by the construction of the works and not by their subsequent user. All claims are limited to what is done on the land taken.

Measure of Damage

The measure for damages either of severance or injurious affection is diminution in the value of the remaining land (per Aggrawala). However, a perusal of the decision made by the Courts would show that this diminution or depreciation of value is gauged from any one of the following three approaches.

i) loss in value of retained land by taking a percentage of the market value

ii) costs to remedy the loss

iii) loss of profits or earnings from land capitalised to compensate for the loss.

Generally the accepted method of computing severance and injurious affection is through what is called the "Before and After Method". This was stated in the case of **Datuk Dr. Murugasu & Anor vs. Superintendent of Land and Survey First Division, Sarawak (1983):**

> *Where a claim is made involving a diminution in value it is essential to have two valuations relating to the appellant's other land, namely, one, the market value immediately prior to the acquisition of the land and the other immediately after the acquisition. The difference between the two valuations may be taken as representing the extent of the injurious affection relating to diminution in value of land taken.*

Loss in Value

In the above case, compensation for injurious affection was given at 5 per cent of market value of land taken. The contention that value should be a percentage on retained land was rejected on grounds that insufficient evidence was given.

Costs to Remedy Loss

This approach is sometimes adapted by the courts especially when the courts feel that there is a need for the owner to have mitigated or minimised his losses.

Loss of Income

Sometimes the damage due to severance and injurious affection is computed by the increased costs in operating a firm or an undertaking. Very often the loss in income is used directly to compute the compensation.

Extent of Damage

Even though at the time of the acquisition no damage was found, the likelihood of such damage if anticipated must be taken into account. The injurious affection is not only that which is sustained at the time of the Collector's taking possession but also the damage that is likely to be sustained.

There is no limit as to the nature of the injurious affection except in so far as this is provided for by the other clause of the section- the difficulty is as to the time when the damage is sustained.

The words "at the time of the Collector's taking possession of the land" cannot mean that compensation can only be given for the damages which had actually at that time been sustained without reference to a continuing damage caused by the acquisition.

However, in respect of future damages to the adjoining lands, the damage, which is rather remote as from the time when possession of the land was taken by the Collector, cannot be taken into account.

It follows from the above that

a) all present damages must be taken into account
b) claims for injurious affection has no limit
c) all future foreseeable damages are compensable
d) the damage is a continuing damage i.e. if the damage gets worse all such damages must be paid

Quantification of Damages

It is not an easy task to quantify the amount of damage that is payable as compensation.

Due care must be given to each case and each case must be considered in its own merit. The following factors should be given due consideration:

a) consistency in the value of lands taken and claims for damages
b) size and shape of the remaining land
c) extent, size and shape of the acquired land
d) nature and purpose of acquisition and the subsequent use of land acquired
e) the damages that are sustained and all the probable damages likely to be sustained
f) demand for the remaining land after the acquisition
g) potential of the remaining land
h) location of the remaining land
i) effect of betterment on the remaining land.❑

To be continued...

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Compulsory Acquisition of Land in Malaysia - Recent Developments

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Introduction

This article discusses recent case developments relating to land acquisition matters in Malaysia.[1] Some of the salient issues raised during the arguments in court will be highlighted. For the benefit of readers who do not have access to Volume 1, the Land Acquisition Act was first enacted in 1960[2] and was the subject of a number of amendments. However, one amendment caused much public concern. This was the Land Acquisition (Amendment) Act that came into force on 13 September 1991[3]. Under this Amendment Act, any person or corporation could acquire land for any purpose which in the opinion of the State Authority was beneficial to the economic development of Malaysia or any part thereof or to the public generally or any class of the public. Although the term "economic development" was not defined in the Amendment, the State Authority was vested with the discretion to determine what "economic development" was. The concern was that this discretion may be abused and landowners may be deprived of property unfairly.

A further cause of concern was the addition of a new section, section 68A[4] in the Amendment Act. The section provides that any subsequent disposal, or use of, or dealing with the acquired land, by the party on whose behalf it was acquired, shall not invalidate the acquisition. Under this new section, any subsequent disposal of, use of or dealing with the acquired land, whether or not in compliance with the original purpose for which the land was acquired would not invalidate the acquisition. In one respect, the new section 68A allows the acquiring body to release any acquired land which, for some reason or other, is not or is no longer suitable for the purpose for which it was originally acquired. However, the lack of any substantive or procedural safeguards as to when the acquisition power could be exercised may once again be abused. Land could be acquired and sold to a corporation and the corporation could then use the land for a purpose different from the original purpose of acquisition. This may result in a large difference in the value of the land. Development would enhance the value of the land and there would be a situation where the original landowner would have received far less than what the land was worth after development had taken place. Under the provisions of section 68, the original landowner was prevented from questioning the issue or challenging the matter in court.[5]

This was what happened in the case of **Honan Plantations Sdn Bhd vs. Kerajaan Negeri Johor & Ors**[6]. The State Authority of Johor acquired the plaintiff's land in 1993. According to the plaintiff, it had decided to develop the land in 1990 and had applied to the State Authority for approval of the development. However, there was no reply to the application. Subsequently, the land was acquired and a compensation of approximately 80 sen per square foot was

awarded to the plaintiff. The plaintiff then discovered that the acquired land had been sold to a corporation and the corporation was planning to develop the land in a similar manner as had been earlier proposed by the plaintiff. The said corporation was offering the land for sale to the public at RM17 per square foot.

The plaintiff alleged that the decision to acquire the land was taken in bad faith, especially as the plaintiff had informed the relevant government departments and State Authority of its intention to develop the land. According to the plaintiff, the Menteri Besar had verbally approved the proposal of the plaintiff to develop the land. In disregarding the application of the plaintiff, the State Authority had acted without considering the desire of the landowner to develop his land. During the debate in Parliament when the Amendment Bill was presented, one of the members did raise this issue. The Member of Parliament had suggested that if a landowner had indicated a desire to develop his land, then the State Authority should consider this request and approve the development plans.[7] However, this point was not considered by the court.

The High Court judge, Mohd Ghazali, in his judgement, agreed that the amendment had indeed widened the powers of the State Authority to acquire any land that was needed for the economic development of the country. The provisions of the Act ostensibly excluded judicial review of the State's action. The only matters that could be litigated by the court were limited to those prescribed in Part V of the Act. The plaintiff's proposal, which had been approved in principle by the Chief Minister (Menteri Besar), could not be relied upon because the plaintiff ought to have applied to the Executive Council (Exco), which had the authority to approve or reject such applications. The Chief Minister only presided over the Exco and any approval given by him whilst acting alone could not bind the Exco.

The learned judge, at p.146, appeared to hold that the amendment made to section 3(b) would allow for acquisition of land for economic development to encompass a host of activities not merely restricted to undertaking of works which are public utilities. As long as the proposed development was in the opinion of the State Authority beneficial to the economic development of the country or to the State concerned or to the public or any class of the public, then the State Authority was authorised to acquire such land.

In this case, the plaintiff's land was acquired for the creation of a new township. This was a purpose that is beneficial to the economic development of that part of the State of Johor. Industries situated within the township would create more jobs and result in more commercial activities. The cumulative effect would enhance the economic development of that part of the State of Johor. There is no problem here. But, the observation of the learned judge needs to be clarified further. It may not be accurate to state that the section allows for acquisition of land for "a host of activities not merely restricted to undertakings of works which are public utilities". It is possible that the land may not be actually used for the provision of public utilities, but whatever development planned on any land that is acquired ought to be for a public purpose.[8] The said public purpose ought to contribute to the economic development of the nation. The reason for this contention follows.

The underlying purpose of the Act being enacted was to consolidate the law relating to the acquisition of land, the assessment of compensation to be made on account of such acquisition and other matters incidental thereto. The Act was enacted in order to allow the State Authority to acquire a person's land. Under the Federal Constitution, article 13(1), constitutional protection is provided to a landowner as to his property. To acquire land

from a property owner is going against a constitutional provision. But there is a law that provides for such acquisition and that is the Land Acquisition Act 1960. Such an Act must be read in the light of all the surrounding circumstances governing the acquisition.[9] In the instant case, the Exco did not consider the landowner's application because an individual gave the approval in principle but there was no formal approval.

The plaintiff further alleged that his constitutional right to land had been infringed. The reply to this was that when a State Authority acquires any alienated land, the action no doubt deprives the landowner of his land but then the State was acting in accordance with law, i.e. the provisions of the Act itself. According to the learned judge, there was nothing in the Act imposing any obligation for a pre-acquisition hearing in contrast to the specific provisions of an inquiry and hearing in respect of the quantum of compensation payable. To support this contention, the learned judge relied on **S. Kulasingam & Anor vs. Commissioner of Lands, Federal Territory & Ors**[10]. But with all due respect to the learned judge, the case does not abrogate the rights of a landowner to be given a pre-acquisition hearing. The learned Abdoolcader J (as he then was) when delivering the judgment of the Federal Court said:

> *The conclusive evidence clause in s 8(3) which we have mentioned in effect provides that the decision of the State Authority that the land is needed for the purpose specified under s 8(1) is final and conclusive and cannot be questioned (Wijeysekera vs. Festing AIR 1919 PC 155). The Privy Council however held in Syed Omar Alsagoff & Anor vs. Government of the State of Johore [1979] 1 MLJ 49 (at p. 50) that it may be possible to treat a declaration under s.8 as a nullity if it be shown that the acquiring authority has misconstrued its statutory powers or that the purpose stated therein does not come within s 3 or if bad faith can be established. The purpose of the acquisition can therefore be questioned but only to this extent.*

A landowner therefore has a right to question the acquisition to the extent of proving *mala fide* on the part of the State Authority. The State Authority may not rely upon a statutory provision where a litigant had alleged that the said act complained of was unconscionable or was of unmeritorious conduct.

As observed by Gopal Sri Ram JCA when commenting on the doctrine of estoppel in the case of **Sia Siew Hong & Ors vs. Lim Gim Chian & Anor**[11]:

> *Another way of stating the doctrine when applying it to written law is comprised in the maxim "equity will not permit statute to be used as an engine of fraud". It is a doctrine of wide operation ... The doctrine, when invoked, has the effect of precluding a litigant who is guilty of unconscionable or unmeritorious conduct from relying upon a statutory provision that would defeat his opponent's case. An application of the doctrine requires a meticulous examination of the facts and circumstances of the particular case to determine whether there has been any inequitable conduct. The doctrine has been applied to several statutes, including those governing contracts, wills, trusts and assignments. The categories of statutes to which the doctrine may be applied are not closed and I am unable to find any serious*

impediment in applying it to bar a litigant from raising and relying upon the provisions of the Limitation Act 1953...

At this juncture, it may be relevant to discuss the decision of the Court of Appeal, in **Stamford Holdings Sdn Bhd vs. Kerajaan Negeri Johor**[12]. In this case the CA[13] held that if the said acquisition proceedings had deprived the landowner of his legitimate expectation of profit from the development of the said land, then it may be held that the acquisition proceedings may be challenged on the ground of *mala fide* or bad faith.

The appellant had applied to the Government of Johor for development of his land. The application was not approved even after four years. Subsequently, the land was approved for development. However, the respondents wanted 70 per cent of the equity in the proposed development plans and also that the land should be sold to them for a certain sum of money. The appellant disagreed and the respondents began proceedings for the compulsory acquisition of the said land.

The appellant contended that the acquisition was unconstitutional and outside the ambit of section 3 of the Act. The Court of Appeal held that the acquisition proceedings were *mala fide* and had resulted in the appellant being deprived of its legitimate expectation of profit from the land. The respondents were unconscinable and unmeritorious in the conduct of the acquisition proceedings and if the facts alleged by the appellants were to be proven, then the appellants had a good cause of action against the respondents.

Conclusion

From the two cases discussed above, a number of issues provide fertile grounds for contemplation. A landowner who has proposed his land for development ought to have his plans studied and approved. However, if the State Authority needs the land for economic development, then an amicable solution may be to invite the landowner to be a partner in the proposed development. This move would ensure that justice and fairness are not overlooked. Economic development is necessary but so is a right to property, which is enshrined in the Federal Constitution. Such a right may only be taken away provided adequate compensation is paid. All parties would appreciate consideration and justice, and as far as possible a "win-win" situation should always be the goal of all concerned. ❑

Endnote

[1]This article is a continuation of an earlier article, "Compulsory Acquisition of Land in Malaysia", Journal of Valuation and Property Services, Vol. 1, No. 1, (1998) p. 71.

[2]The Land Acquisition Act 1960 (the Act).

[3]The Land Acquisition (Amendment) Act 1991 (the Amendment).

[4]Where any land has been acquired under this Act, whether before or after the commencement of this section, no subsequent disposal or use of, or dealing with, the land, whether by the State Authority or by the Government, person or corporation on whose behalf the land was acquired, shall invalidate the acquisition of the land.

[5] Section 68A - Where any land has been acquired under this Act, whether before or after the commencement of this section, no subsequent disposal or use of, or dealing with, the land, whether by the State Authority or by the Government, person or corporation on whose behalf the land was acquired, shall invalidate the acquisition of the land.

[6] [1998] 5 MLJ 129.

[7] See the "Dewan Rakyat"Reports dated 30.7.1991 at pages 162-163.

[8] Section 3(1)(a).

[9] Please refer to the "Dewan Rakyat" Reports dated 30.7.1991 at pages 162-163, especially in relation to the paragraph as to what should be done when a landowner had already proposed plans for development.

[10] [1982] 1 MLJ 204.

[11] [1995] 3 MLJ 141, 155.

[12] [1998] 1 MLJ 607.

[13] Court of Appeal

The Impact of Falling Property Prices on the Banking System and the Economy

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Introduction

The property market is an important component of a modern economy. Its primary function is to provide property space for economic activity to take place and for residential and recreational purposes. Ideally, the provision of such space should be in a timely manner, without creating market imbalances.

In a modern economy the property market is also an investment vehicle functioning alongside other capital markets such as the stock, currency or commodities markets.

Participants in the modern economy such as businesses, both small and corporate, need property for use, as collateral for business loans and this is the third and important dimension of property. Loans for property purchases, be it for investment or ownership, are based, *inter alia*, on the market value of the property. Market values can descend sharply, especially during severe economic downturns and at such times the underlying security value of loans in the banking system is threatened with the result that the banking system itself comes under threat.

The aim of this commentary is to highlight the issues in the property market arising from sharply falling property prices and its broad detrimental impact on the economy of a country. Recommendations are then made as to steps necessary to strengthen the system.

In this paper, wherever reference is made to the banking system it means the banking and financial system.

Loans Based on the Value of Property

In most countries, personal, business and project loans are granted with property as the underlying collateral. If property values then fall sharply such as during a severe economic downturn, the underlying collateral value of loans can erode and this can threaten the banking system, which in turn can impinge further upon the health of the economy.

Under normal circumstances, even during mild recessions, the problem is not serious, as property values tend to hold rather than slide. The banks conduct some foreclosures and a cleansing process gets underway but the system keeps intact. It is during severe downturns, and one which follows a period of overbuilding in the industry that the system falls apart, on the back of across-the-board sharp falls in property values.

The problem is even more acute for property projects where the property itself is the collateral. In many countries, including Malaysia, commercial and residential projects are pre-sold from the plan and whilst such a system works well during boom times enabling high project returns with good all round benefits for the industry, the drawback is that, during a severe economic downturn, the incomplete project can grind to a halt

leaving existing purchasers still on progress payments and lenders stranded with the project. To minimise project abandonment (which have in the past littered the property landscape at the tail end of a recession) many countries, including Malaysia, have instituted project accounting controls which check the misuse of funds collected on progress payments by the developer. However, the problem still persists because everything depends on good implementation and sometimes this is not done.

Participating lenders in such projects should adopt a more proactive stance in ensuring the continued viability of the project. They should monitor not only the progress of the project itself but also the state of the market as it changes.

Market Value as the Basis

In most countries, the collateral value of the loan is essentially based on market value (see IVSC[1] Standards) at the point in time before the loan is granted. Independent valuers who are on the panel of banks or who are acceptable as valuers to the banks ascertain market value. In some countries there is positive encouragement for banks to commission valuers directly. In other countries, valuers conduct valuations for clients who then take the valuation reports to one or a number of banks. When called upon to do so, valuers extend professional liability to the lending banks.

A limitation of such a system is that market value is time specific and as one moves away from the date of the last valuation the value of the property may change depending on changing market conditions or changes in material facts upon which the valuation was carried out in the first place.

To overcome this limitation, banks usually conduct periodic updates of the underlying security value of the loan, but generally the guidelines for such updates are guidelines established within each bank. They can vary considerably. Within many countries and in many banks the guidelines on periodic updates can be absent or lax.

Notwithstanding the above it is also not sufficiently appreciated by banks that the system works best when the underlying security values are constantly kept under vigilance. The banks should be obliged to have their own guidelines on updates, keep track of the property market and take some responsibility in actively participating in the formulation of national property policies to ensure an efficient property market. Valuers have alleged that lenders are partly to blame for their own losses leading to the courts finding lenders liable for contributory negligence. Major grounds for successful pleas of contributory negligence by lenders have been failure to adhere to own lending policy or procedures, inadequate checks on the borrower, unquestioning reliance on the valuation and imprudent lending policy.

Rising and Falling Markets

Property markets operate in cycles. The cycles are at times short and at other times extended, depending on the overall state of the economy, fundamental changes such as changing demographics or changing household income levels or business profitability levels, unusual increases or decreases in supply of property space and other macro-economic parameters.

When a property market goes into a deep recession as has happened not only in the developing countries of the world but in the developed countries as well, prices can fall across the board and this impinges upon the stability of the banking system which in turn may affect economic growth.

The underlying collateral values upon which loans were given out diminish and the banks

are faced with a dilemma. To ask for additional security at such a time may not be beneficial. To foreclose would only result in exacerbating the negative conditions in the market and drive prices to even lower levels, into a vicious spiral, and this becomes particularly true when many of the banks institute foreclosure proceedings at the same time.

These unavoidable market gyrations become more acute when banks carry in their loan portfolios, loans whose underlying values are overstated due to the lack of proper valuations in the first place and the lack of proper and periodic updates.

For property projects there are usually the lack of proper and detailed market and feasibility studies and again the necessary periodic updates.

Recommendations

It is suggested that for the system to work the following needs to be observed.

The role of national policy makers

National policy planners must recognise the need for an overall property policy.

The overall property policy must promote, as a main objective, an efficient property market. Bureaucratic delays in approvals must be minimised or eliminated, costs of approvals must be kept as low as possible, planning approvals must be based on transparent zoning laws and/or physical plans, a free flow of information in the market must be promoted, efficient supporting industries such as for building materials and skilled labour must be created and maintained and there must not exist undue hurdles for new participants to enter the market which fosters competition with its attendant benefits.

Many countries still labor under inefficient markets as evidenced by distorted prices. In some countries artificial property markets are created and maintained by restricting supply either by tight zoning laws or tightly controlled land release systems. Eventually when the bubble bursts there are disastrous consequences for all.

An efficient market will deliver property space to the market in the most timely manner. It will minimise extreme price swings and bear balanced relationships with long-term sustainable household incomes in the case of residential properties and with sustainable business profits in the case of commercial properties. House prices should bear a balanced relationship to household incomes and commercial rents should not be lopsided in the balance sheet of businesses.

The role of central bank supervisors and managers of lending institutions

Central Bank supervisors and managers of lending institutions should insist that financial institutions in giving out loans must ensure that valuation reports meet the following contents:

- That the valuation reports submitted to the bank or financial institution are current and not outdated.
- That the valuation reports are carried out for the purposes of obtaining credit facilities and not for other purposes that may either render it less useful for financing purposes.
- That the valuation reports are from suitably qualified valuers.
- That the reports are from valuers capable of extending adequate professional liability.
- That the valuation reports are carried out to professional standards as

established by professional organisations and/or regulators.

- That the valuation reports are updated from time to time.

For project loans, the following should be additionally adhered to:

- That a proper and detailed market and feasibility report is conducted.
- That such a report is conducted by properly qualified property professionals who are well versed as to the framework and economic condition of the property market.
- That there are sufficiently trained personnel in the financial institutions to understand, question and accept or approve such reports.
- That the reports are updated from time to time.

The role of valuers, professional valuation associations or institutions and regulatory authorities

Valuers, as well as professional and regulatory bodies should promulgate and uphold high professional standards including the minimum content of valuation reports.

Conclusion

In conclusion it ought to be appreciated that the banking system as it has evolved hinges upon a stable property market functioning in underpinning collateral values. The creation and maintenance of an efficient property market should be high on the policy objectives of national policy planners. Valuers play a central role in the property market, and professional organisations and regulatory authorities overseeing the valuation profession should not only be aware of their heavy responsibility in maintaining high professional standards but also in fact take continuous proactive steps in regulating the profession. ❑

Endnote

[1]International Valuation Standards Commitee

Review of the Property Market 1999

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This year saw cautious optimism in the residential property market. Strong take-up rates for affordable homes were registered but they were mainly confined to select prime locations. Buying interest in the outlying areas, although it has shown some improvement due to lower interest rates and improved market liquidity, was still subdued despite the price differentials. In terms of supply, the recession saw the exit of new and less experienced developers from the market, resulting in a relaxation of supply-side pressure. Overall, a renewed sense of optimism arising out of an improved market sentiment was evident.

Market response to new launches at the end of last year has been mixed and segmented. In response, several home ownership campaigns were launched, offering attractive discounts to house buyers, such as no stamp duties and reduced legal fees, but noticeably, they involved the harder to sell units. More established developers with projects in desirable locations were conspicuously absent from the sales campaigns. Nevertheless, by all accounts, the campaigns did achieve their objective of clearing most of the unsold stock in the housing market.

Several measures were undertaken by the government to stimulate the housing market. They included establishing a number of funds to support the construction of low and medium cost housing where demand remains strong in spite of the recession, import content was low and sectoral linkages were high. Lending for houses costing less than RM250,000 was relaxed, and were exempted from the 20 per cent lending limit to the broad property sector. Ceiling prices of low-cost houses were relaxed to ensure a greater supply of such houses in the market.

In the second half of the year, an increasing number of new residential launches in the primary market were evident. This happened as developers moved to capitalise on the current low interest rate environment and the market expectation of a recovery in the underlying economy. There is also growing evidence of market stability, particularly for landed residential properties in both the primary and secondary markets. The lower BLR rates by about 4.85 per cent from its peak level led to more affordable houses being built and purchased, as developers enjoy lower borrowing costs and buyers lower monthly interest payments.

The strong take-up in established locations was due to two main factors. First, there was a mismatch between effective demand and physical supply due to a scarcity of units available for sale in prime residential areas.

Second, developers adopted marketing strategies that offered more affordable units in prime neighbourhoods.

Prices showed a slow but steady recovery. By the end of 1999, residential property prices are expected to gain around 20 per cent over last year's prices, quite an achievement considering the sentiments in the property market barely two years ago. Prime property prices are, however, still lower than their levels in 1996, just before the economic crisis hit the region. However, these increases are not across the board, but segmented according to locations and price ranges, with the affordable units in major development areas enjoying the greatest price hikes.

Banks, which are under government pressure to achieve a loan growth of 8.0 per cent for

1999, are becoming receptive to end financing. Foreign banks in particular are aggressively offering competitive mortgage rates in a move to increase their market shares in mortgage lending. Spreads over the base lending rate for the foreign banks are reduced to 0.5 to 1.0 per cent for the first two years, from 1 to 1.5 per cent previously.

Expectations for 2000

Positive macro-economic developments in 1999 include the improved sentiments, a pick-up in vehicular and manufacturing sales, an improvement in the Industrial Production Index, progress on the banking sector restructuring and upgrades by most of the major international rating agencies. At the same time, Danaharta has acquired nearly RM29 billion worth of non-performing loans from banking institutions, of which land forms approximately half, mostly from small, inexperienced developers. It reflects the bank's continued reliance on property as collateral for loan approvals.

The mass residential property market should benefit from the shifts in household allocation, given the lack of investment alternatives in Malaysia after the onset of capital controls. Additionally, the low yields on fixed deposit rates, an undeveloped bond market and an increasingly overvalued equity market after the recent liquidity rally will further boost the residential property market. Stock prices looked like they have reached their highs, which may channel excess domestic liquidity from equity into property. The impact of such flows will be segmented, with the strongest concentrations on selected prime locations. The main concern remains supply saturation in newly-established townships that have yet to attain critical residential mass.

Domestic interest rates should not be affected too much by movements in the US or regional interest rates since international liquidity flows are curbed with the imposition of capital controls. The intervention rate, which sets the benchmark base lending rate, is now at a huge 275 bps premium to the three month KLIBOR (3.25 per cent) when compared to the historical spread of about 70 to 80 bps. Coupled with recent evidence of weak inflation numbers, this suggests there is room for further cuts in the future. With interest rates expected to remain low, consumer sentiments improving and developers still cautious with their pricing, a revival in the housing market is foreseeable.

A significant 25 per cent increase in office space, or about 12.8 million square feet, is expected to come onstream in the next year, creating a total supply of 63 million square feet by the end of this year. Of this amount, about 89 per cent would be located in the areas outside of the Golden Triangle. However, the actual physical supply may be less than projected as developers are likely to phase out the completion of these new buildings. On the demand side, corporate downsizing and merges of banking institutions are likely to result in negative office space absorption. This may be moderated by the expected slight pick-up in the national economy.

In terms of office rentals, the divergence between gross and effective rental rates should widen in the year ahead as landlords of established buildings compete to retain tenants. The rate differential is expected to be widest in buildings located in less established areas outside of the Golden Triangle, where supply saturation is most acute. Capital value expectations of the implied residual land value for commercial property may fall to near zero. The average rental rates in the Golden Triangle, have fallen by a further 10 per cent in the second quarter of 1999, to around RM3.00 to RM3.50 psf. In the suburban areas, the rental rates have plunged by as much as 60 per cent, to as low as RM1.00 psf, which just meet the service/ maintenance costs of the building.❑

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Lim, K. K. (1990), *Valuation Methods*, Pelandok, Kuala Lumpur.

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Zahuruddin A. (1994), "The New Economic Policy and the Integrated Housing Model", *Ilmu Alam*, Vol. 2 No. 7, pp 23-35.

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