

THE SIGNIFICANCE AND PERFORMANCE OF MALAYSIAN LISTED
PROPERTY COMPANIES IN INTERNATIONAL MIXED ASSET
PORTFOLIO STRATEGIES

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Dedicated to:

My father, my mother, my husband, my siblings and my family.

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ABSTRACT

The Malaysian listed property companies (MLPCs) are now penetrating the global market, thus playing a significant role in the country's economic growth. The property sector in Malaysia is now also able to attract foreign investors which helps to make Malaysia one of the major property investment destinations. Moreover, property investment has proved to be a hedging against inflation as well as financial crises. Consequently, it is important to analyse the significance and performance of MLPCs to identify its added value to mixed asset portfolio. The research aim is to analyse the significance and performance of MLPCs are important to provide strategic investment allocation for investors. This study used the time series data of price indices for all asset classes such as shares, bonds and property. The countries involved in this analysis vary from developed to less emerging property markets. The research methodology has employed several statistical techniques such as risk adjusted performance analysis, correlation analysis and efficient frontiers. In order to assess the level of volatility of MLPCs, advanced statistical techniques have been used; these include: Granger causality test and ARCH family model. This analysis covers a 20 year period from January 1994 to December 2014. The performance of MLPCs has been segmented into three different property markets, namely: Malaysian, Asian and developed countries mixed asset portfolio. The findings have revealed that MLPCs have low performance, less diversification and do not add value within local mixed asset portfolios. However, it shows some hedging benefits during the Global Financial Crisis (GFC) period as they were less affected by the GFC. In addition, MLPCs also have low performance and do not add value to the property portfolio of other Asian countries. However, they provide diversification benefits with several Asian countries. With regards to volatility, it was found that Japan could cause MLPCs to become a risky asset. In the context of an international market, MLPCs have inferior risk adjusted performance except during the GFC period. During the GFC, MLPCs outperformed several developed countries which indicated that they were able to show sustainable performance. With regards to volatility, several developed countries caused MLPCs to become a risky asset. Conclusively, MLPCs are seen to be less significant in mixed asset portfolios especially when compared with local, Asian and developed countries portfolio. MLPCs can bring about improvements in order to gain returns and can reduce risk in a portfolio in a certain situation. Nevertheless, MLPCs need to revolutionize in order to become more competitive compared to other assets. This study provided useful information for LPCs players for making more informed investment decision, while understand the implications.

ABSTRAK

Syarikat-syarikat hartanah tersenarai Malaysia (SSHTM) kini menembusi pasaran global, dengan itu memainkan peranan penting dalam pertumbuhan ekonomi negara. Sektor hartanah di Malaysia kini juga dapat menarik pelabur asing yang membantu menjadikan Malaysia salah satu destinasi pelaburan hartanah utama. Tambahan pula, pelaburan hartanah telah terbukti menjadi pelindung nilai terhadap inflasi serta krisis kewangan. Akibatnya, adalah penting untuk menganalisis kepentingan dan prestasi SSHTM untuk mengenal pasti tambah nilai kepada portfolio aset bercampur. Matlamat kajian adalah untuk menganalisis kepentingan dan prestasi SSHTM adalah penting untuk menyediakan peruntukan pelaburan strategik untuk pelabur. Kajian ini menggunakan data siri masa indeks harga untuk semua kelas aset seperti saham, bon dan hartanah. Negara-negara yang terlibat dalam analisis ini berbeza-beza dari pasaran hartanah maju kepada kurang membangun. Metodologi kajian telah menggunakan beberapa teknik statistik seperti analisis prestasi penyelarasan risiko, analisis kolerasi dan sempadan cekap. Untuk menilai tahap ketidaktentuan SSHTM, teknik statistik lanjutan telah digunakan; ini termasuk: ujian Granger penyebab dan model keluarga ARCH. Analisis ini merangkumi tempoh 20 tahun dari Januari 1994 hingga Disember 2014. Prestasi SSHTM telah dibahagikan kepada tiga pasaran harta yang berlainan, iaitu: portfolio aset campuran Malaysia; Asia; dan Negara-negara maju. Penemuan menunjukkan bahawa SSHTM mempunyai prestasi yang rendah, kurang kepelbagaian dan tidak menambah nilai dalam portfolio aset campuran tempatan. Walau bagaimanapun, ia menunjukkan beberapa manfaat perlindungan nilai semasa tempoh Krisis Kewangan Global (KKG) kerana ia kurang dipengaruhi oleh KKG. Di samping itu, SSHTM juga mempunyai prestasi yang rendah dan tidak menambah nilai kepada portfolio hartanah di Negara-negara Asia yang lain. Walau bagaimanapun, mereka memberi manfaat kepelbagaian dengan beberapa Negara Asia. Berkenaan dengan turun naik, didapati bahawa Jepun boleh menyebabkan SSHTM menjadi aset yang berisiko. Dalam konteks pasaran antarabangsa, SSHTM mempunyai prestasi terlaras risiko lebih rendah kecuali semasa tempoh KKG. Semasa KKG, SSHTM mengatasi beberapa Negara maju yang menunjukkan bahawa mereka dapat menunjukkan prestasi yang mampan. Berkenaan dengan turun naik, beberapa negara maju boleh menyebabkan SSHTM menjadi aset berisiko. Secara keseluruhannya, SSHTM dilihat kurang penting dalam portfolio aset campuran terutamanya jika dibandingkan dengan portfolio tempatan, Asia dan negara maju. SSHTM boleh membawa peningkatan untuk mendapatkan pulangan dan dapat mengurangkan risiko portfolio dalam keadaan yang tertentu. Walau bagaimanapun, SSHTM perlu direvolusikan untuk menjadi lebih kompetitif berbanding asset lain. Kajian ini memberikan maklumat yang berguna kepada para pemain SSHT untuk membuat keputusan pelaburan yang lebih maklum, di samping memahami implikasi tersebut.

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LIST OF ABBREVIATIONS

ADF	-	Augmented Dickey-Fuller
AEC	-	Asean Economic Co-operation
AFC	-	Asian Financial Crisis
AIC	-	AkaikeInfo Criterion
APREA	-	Asia Pacific Real Estate Association
ARCH	-	Autoregressive Conditional Heteroskedasticity
AR	-	Autoregressive
AUS	-	Australia
BNM	-	Bank Negara Malaysia
CBD	-	Central Business District
CN	-	China
DCC	-	Dynamic Correlation Correlation
EGARCH	-	Exponential-Generalised Autoregressive Conditional Heteroskedasticity
EPRA	-	European Public Real Estate Association
FTAs	-	Free Trade Agreement
GARCH	-	Generalized Autoregressive Conditional Heteroskedasticity
GDP	-	Gross Domestic Product
GFC	-	Global Financial Crisis
HK	-	Hong Kong
ID	-	Indonesia
IFCs	-	International Financial Centres
IN	-	India
JP	-	Japan
KLPI	-	Kuala Lumpur Property Index
LPCs	-	Listed Property Companies

LPSs	-	Listed Property Securities
LPTs	-	Listed Property Trust
MHPI	-	Malaysia House Price Index
MPT	-	Modern Portfolio Theory
MRDADC	-	Multivariate Regime Dependent Asymmetric Dynamic Covariance
M-REITs	-	Malaysia Real Estate Investment Trust
MUI	-	Malayan United Industries
MY	-	Malaysia
MYR	-	Malaysian Ringgit
NZ	-	New Zealand
PH	-	Philippines
PP	-	Philips Perron
REITs	-	Real Estate Investment Trusts
REOCs	-	Real Estate Operating Companies
SDB	-	Selangor Dredging Berhad
SG	-	Singapore
SIC	-	Schwarz criterion
SK	-	South Korea
SL	-	Sri Lanka
TH	-	Thailand
TPPA	-	Trans Pacific Partnership Agreement
TPP	-	Trans Pacific Partnership
TW	-	Taiwan
UK	-	United Kingdom
US	-	United States
USD	-	United States Dollar
VAR	-	Vector Autoregression
VECM	-	Vector Error Correction Model
WEF	-	World Economic Forum
VT	-	Vietnam

CHAPTER 1

INTRODUCTION

1.1. Introduction

This study focuses on the significance and performance of Malaysian listed property companies (MLPCs) in a mixed asset portfolios. In completing this research, Chapter One describes the research background, research gaps, research issues, research questions, research aims and objectives, research methodology, thesis structure, expected outcome, contribution of this research and summary.

1.2 Research Background

This section presents some overview of listed property companies (LPCs) as an asset classes in a portfolio investment. The study covered views from domestic, Asian and selected developed countries as a benchmarking for Malaysia. It starts by highlighting the global listed property companies, Asian listed property companies, MLPCs, theory and previous study behind this research. Most of the previous studies referred to are related to property portfolio management and performance.

Property investment can be classified into two (2) types, which are direct property investment involving unsecuritised physical assets and indirect property investment involving securitised investment backed by property. The form of indirect property investment is divided into two (2), which are listed and unlisted property securities. Listed property securities consist of listed property companies (LPCs), real estate investment trusts (REITs) and property security funds. LPCs are also known as property shares or listed real estate operating companies (REOCs), where those companies are listed on stock exchanges and engage in real estate investment or development activities and property shares (Lee and Ting, 2009). In Malaysia, the securities real estate in Malaysia is mostly dominated by LPCs and REITs.

In the new global economy, LPCs have become central issues for investment. As mentioned by Razali (2015b), the significance of LPCs globally has been widely discussed over the past decade. Substantial development and superior risk adjusted performance of the indirect real estate market has recently found international investors fascinated in real estate allocation in their portfolio. Real estate is crucial asset class for institutional investors by contributing attractive investment features in a diversified portfolio (APREA,2011). The real estate securities' sector is one of the vehicles that will reflect the development and changes in human population, known as demographic trends (Bucchianeri, 2013).

Over the past 40 years, there have been rapid developments of LPCs in the Asian region. Dominant economic expansion in Asia has been significant to real estate investment opportunities for listed and unlisted real estate sectors in the developed and emerging real estate markets (Bucchianeri, 2013). Analysis of real estate stocks in Asian markets with US REITs and UK real estate securities has shed some light on the fascination of Asian real estate securities as an alternative investment for foreign investors (Liow and Sim, 2006). Nevertheless, over the 1990 to 2003 period, many Asian real estate stock markets were still developing and failed to produced high levels of returns, compared to the US REIT and UK real estate stock markets (Liow and Sim, 2006).

By the year 2020, Malaysia targeted to be a developed country with high income status. There were 16 development policies outlined by the economic planning unit in Malaysia due to this vision. To achieve Malaysia's Vision 2020, real estate is included under the privatisation policy, which was created to emphasise the private sector in the development of the Malaysian economy (EPU, 2014b). In line with the Eleventh Economic Plan, to achieve developed country and high income status by 2020 is by emphasising economic development to strengthen the resilience of the economy. The sixth pillar of Eleventh Economic Plan mentioned strengthening the economic growth with a focus towards basic economics by promoting knowledge-intensive activities in the service sector and the emphasis on private investment (EPU, 2014a).

Therefore, MLPCs are going abroad and expanding their investment overseas, either in developed or developing countries. MLPCs have 80 companies up to 2014, and have been listed on Bursa Malaysia since 1986. A few of the listed property companies go beyond the domestic market because there is a lack of potential growth in the domestic market. Many construction companies or property developers have ventured to overseas investments because the pace of Malaysian construction activities has slowed down over the last few years (Ali, 2008). There is potential for exploration for overseas investment with the intention to explore new revenue sources outside Malaysia. The investments have been extended to the acquisition of construction companies, particularly in the UK and Hong Kong, and development of property projects in developing Asian and African countries such as India, South Africa, China, Cambodia and Indonesia (BNM, 2006).

For example, *SP SETIA* has specialised in property development in various countries such as Vietnam, Australia and Singapore. Selangor Dredging Bhd (SDB) is a tin mining company and now focuses on property development, leasing and management. The company is operating in Malaysia, however have a total of three projects in Singapore and has acquired some commercial property in the UK. Malayan

United Industries (MUI) is a diversified company that focuses mainly on property as well as retail, hotel, food and financial services. The company has reported to be involved in hotel acquisitions in the UK, Australia and USA (Mavroeidi, 2013). IOI Company was established in 1982 and solely focused on property development and palm oil plantations. The property developments in overseas markets include Tianjing, China (office and factory sites) and three projects in Singapore. Sunway group is a varied company consisting of the construction sector, property development, trading and manufacturing, quarrying, building materials and investment holdings. The company has focused their property development in terms of overseas investment in Singapore (private property development) and China (condominium) (Mavroeidi, 2013).

There is significance of LPCs in economic growth because they are one of the agents to develop the real estate sector. Investing in LPCs as an asset class in a portfolio investment would provide great uncertainty for investors because it requires great commitment (e.g huge capital, time-consuming project) in order to develop the real estate sector. Therefore the study and investigation of the performance of MLPCs and its significance in the mixed asset portfolio is needed. This study expand its view from domestic mixed asset portfolio to Asia and developed countries.

The study of real estate securities' performance is based on the Modern Portfolio Theory (MPT) by Markowitz (1952).The main contributor in this theory is choosing portfolios as part of the investment strategy. MPT was enforced in securities' analysis and then extended to examine the mixed asset portfolios. LPCs also play a major role in a mixed asset portfolio. The primary objective to construct an investment portfolio is to diversify the assets of the portfolio. The risk for the portfolio will decrease when there are more assets in the portfolio and the assets are not perfectly correlated (Razali, 2015a). As supported by Stevenson (2004), real estate can act as a significant role in a well-structured mixed asset portfolio. Bucchianeri (2013) in his research found that adding global real estate formed higher returns with a similar level of risk. There are several studies (Hoesli, Lekander and Witkiewicz, 2004; Razali, 2015b; Rehring, 2012; Lee and Ting (2009) which compare LPCs with mixed asset classes comprising stocks,

bonds, direct real estate, indirect real estate (i.e., real estate security), cash, plantations, finance, industrials and REITs. This includes researchers which focus on Malaysia and Asian countries, Liow and Adair (2009), Nguyen (2010, 2011), Newell (2003), (Pham, 2011) and Razali (2015a).

Investors have positioned Malaysia on the property investment radar which should be acknowledge in investments (Nguyen, 2011). As revealed by Abdullah and Wan zahari (2011) there were several empirical researchers who studied the Malaysian property industry, particularly performance of risk and return, which motivated them to study the performance of Malaysian property stock. The performance and significance of Malaysian property securities has not been analysed because of lack of a data availability relevant to the property industry (Abdullah and Zahari 2011). In addition, a dearth of awareness and proficiency in Malaysia, especially on property investment from an academic perspective, also contributes to the shortage of studies on the performance of MLPCs.

Previously in Malaysia, Ting (2002) analysed MLPCs for nine years from 1991 to 2000, and compared them with shares and direct residential property. Ting (2002) found that MLPCs do not perform better compared to shares on a risk adjusted analysis. Meanwhile several individual property development companies overperformed shares. Listed property shares might not offer diversification portfolios according to a high correlation with shares. Abdullah and Wan Zahari (2011) found average returns usually showed negative for all performance measurements. Lee and Ting (2009) elaborated in their previous studies, that property shares showed low portfolio return enhancement due to little diversification potential. Particularly with regards to the Nguyen (2010) study, Malaysia is one of the highly emerging markets. Further research on the country market needs to be conducted in a broader and deeper perspective to assess low transparency markets. Recent evidence conducted by Razali (2015b) explored the dynamics of return and dynamics of volatility across the Malaysian and 12 pan Asian countries over the period from 1998 to 2012. The study described the performance of LPCs from the Malaysian context and found that it is still under explored. It was also revealed that the

property market in Malaysia, compared to other countries, is still limited. Razali (2015a) also acknowledged that there is a great opportunity to study the Malaysian property market with developed countries, due to no research having been done before.

As developed countries, the UK, US and Australia are important countries in the field of property investment, and play a key role in LPCs' investment. Liow and Adair (2009) stated in their study the best performing real estate securities markets are: the US, UK, Japan, Australia and New Zealand. The US market is the world's biggest, most matured, most transparent and well established securitised real estate market. Meanwhile the UK is a dominant country in the world economy and is Europe's biggest property market, whilst Australian securitised real estate is a primary player in global real estate (Liow, 2007; Liow, Chen and Liu, 2011; Liow, Ho, Ibrahim and Chen, 2009). Nguyen's (2010, 2011) research focuses on the significance and performance of LPCs in Vietnam and the Philippines with the US, UK and Australia. This has shown that there have been no previous studies analysed in Malaysia in comparison with developed countries.

Other than that, the changes in volatility of the property securities' market has a great effect on investors in risk and return (Razali, 2015a). Volatility is related with unpredictability, uncertainty and has a significant impact on performance and variance risk. People recognise volatility as a signal of market symptom distraction and capital markets not performing well. Transitions in the volatility property securities' market are able to have a negative effect on risk unfavourable with investors and the economy. As mentioned by Razali (2015a), an extensive study on time varying volatilities in property with a relationship to mixed assets has captured the interest of several researchers. Moreover, the current academic real estate literature has not closely examined the Malaysian property securities' market on dynamics of volatility. Besides that, an empirical analysis using advanced statistical methods has also been less explored; consequently it creates a research gap especially for portfolio management analysis. There are a few examples of previous studies discussing volatility, such as: Liow (2014), Pham (2012) and Razali (2015b). The findings reveal that Malaysia has a moderately high risk level in the context of investment in LPCs (Razali, 2015b).

As such, this study include 17 countries, comprising of developed, emerging and less emerging markets. The involvement of developed countries such as the UK, US, Australia and New Zealand provide significant results particularly from the international performance context. As Malaysia is also major trading partners with these developed countries, the comparison of the performance provide exceptional indicators of Malaysia's performance in the international property market. Asian listed real estate and property companies are able to offer larger diversification benefits when combined with the UK, US, Australian and New Zealand investors. In addition, investing in portfolios of Asian real estate stock is possibly more efficient than investing in portfolios of common stock in Asia (Liow and Sim 2006; Nguyen, 2011). The inclusion of developed markets such as the UK, US, New Zealand and Australia is aimed to provide a benchmark for Malaysia and all Asian property markets. Therefore, the study of significance and performance of investment is very important in providing investors with a picture of the performance of the LPCs.

1.3 Research Gap

A few studies have demonstrated the compelling case for real estate securities in investment portfolios based on their performance behaviour of returns, yield, volatility and diversification. Most of these studies focus on the analysis of behaviour at a national level (Chin, Topintzi, Hobbs, Mansour and Keng, 2007). Furthermore, much work has been undertaken in the US stock market and REITs, along with the markets of developed Asian countries such as Japan, Singapore and Hong Kong. Meanwhile for emerging property markets such as China, Taiwan, South Korea, Malaysia and Indonesia, the research is currently limited (Nguyen, 2011a). Based on the limited literature as well as empirical studies, the research gap regarding the LPCs' performance are as follows:

1. Number of countries

Most studies in assessing the performance of LPCs have only been carried out in a small number of countries such as the studies by Nguyen (2010, 2011a, 2011) which only covered 13 countries, Vietnam and Philippines respectively. While Liow and Adair (2009) studied 15 countries; including Australia, the US, UK and New Zealand. Liow et al. (2011) studied five (5) countries, Liow and Sim (2006) studied twelve (12) countries, whilst Liow (2008) studied ten (10) countries. Meanwhile research completed by Ting (2002) analysed MLPCs compare with shares and direct residential property. Recently, Razali (2015a) studied 12 Pan-Asian countries. Therefore, this research cover 17 countries including Asia and developed countries, to identify the performance of LPCs in domestic mixed asset portfolio, 12 Asian countries and 4 developed countries. The point to emphasise is that a large variety of real estate returns exist in other markets and other periods while the conditional correlation structure between countries are changing over time (Liow and Adair 2009; Liow et al., 2009). Therefore, the analysis with more countries provide more substantial results in terms of significance and performance.

2. Period of study

There has been little discussion regarding a longer time period. Previous research only cover a short time series as tabulated in Table 1.1. These researches employed time series analysis with a longer time series that produce accurate results and better interpretation. Therefore, this research expanded the period to 20 years (January 1994 to December 2014) to avoid inaccurate findings because any investigation should cover sufficiently long intervals (Morawski, Rehkugler and Füss, 2008). Longer time period is need to represent property market cycle. As revealed by Han and Liang (1995) in their research, the problem appears because the sample period may include a boom or bust period in REIT history, therefore, the results only reflect the performance of REIT stocks during that specific period. As such, sufficient long intervals are needed as the variety of real estate returns are different over time (Liow et al., 2009).

Table 1.1: Previous Research

Nguyen (2011)	10 years from 1999 to 2009
Nguyen (2010)	6 years from 2003 to 2009
Liow and Adair (2009)	9 years from 1996 to 2005
Liow et al. (2011)	19 years from 1990 to 2009
Liow et al. (2009)	22 years from 1984 to 2006
Liow and Sim (2006)	13 years from 1990 to 2003
Liow (2008)	Asian Financial Crisis (AFC) period from 1997 to 1998
Ting (2002)	9 years from 1991 to 2000
Razali (2015a)	12 years from 1998 to 2012

3. Study of significance LPCs in mixed asset portfolios

Although there are many previous researches focused on LPCs, there are also studies on property securities that are compared with mixed assets because they are a major asset class. The inclusion of shares and bonds are major assets class to the investment world. Therefore, this research use mixed asset portfolios in Malaysia as well as Pan-Asian countries and developed countries, as a benchmark for the purpose of performance comparison. The inclusion of local portfolios such as shares, bonds, industrials, finance, plantations and REITs to enrich the information and build up a local profile of the mixed asset portfolio market in terms of significance and performance of the study. As acknowledged by SDB (2016), plantations and industrials are the major division of the investment in Malaysia. Furthermore, the property stakeholders be better informed of the potential of the investment in a property portfolio compared with global portfolios. This will provide a better insight for the property portfolio market in Malaysia at the global level.

Therefore, this research introduce wide variables in studying the Malaysian markets which are property, shares, bonds, industrials, finance, plantations and Malaysian REIT (MREITs). Meanwhile for the global markets, property, shares, bonds and cash used. These variables are considered as major asset classes in portfolio investments.

4. Study on LPCs in Malaysia

Far too little attention has been paid study on LPCs in mixed assets from the Malaysian perspective. There is evidence of three studies of LPCs in Malaysia. Ting (2002) analysed MLPCs compared with shares and direct residential property. Abdullah and Wan Zahari (2011) studied MLPCs in individual companies' context for three (3) sub periods, from 1996 to 2007 using performance measurement methods. The latest study by Razali (2015a) examined dynamic of return and dynamic volatility of Malaysian and Pan-Asian countries' LPCs for 12 years from 1998 to 2012. The study of MLPCs is lacking in terms of the local investor perspective. For this motivation it is essential to use Malaysia as a primary case study for local property investors to inform them of the performance of the real estate sector, especially LPCs. More importantly, the examination of the significance and performance of LPCs will enhance the viewpoint by including developed countries such as the US, UK, Australia and New Zealand. Involvement of these countries will result in significance in particular from a global performance viewpoint (Razali, 2015a).

Overall, these research gaps are crucial to study the performance of MLPCs within mixed asset portfolios. For this study, the analysis is from the local and global investors' perspective. The period and number of analyses of Asian countries is extended to examine the significance and performance of MLPCs. This research contributes significantly to the Malaysian property investment area.

1.4 Research Issues

Discussions on the significance and performance analysis of property portfolio listed companies are important for economic growth as well as for strategic investment allocation for investors. It is significant to study the performance of LPCs because by identifying the past performance and volatility (risk) it can be beneficial in the future.

Nature of MLPCs are now penetrating the global market make it very important in shaping the future of the real estate sector. This research is aimed to examine the significance and performance of MLPCs in domestic mixed asset portfolios, Asian mixed asset portfolios and developed countries' mixed asset portfolio which included with other asset classes in the analysis. In domestic portfolios, other asset classes included such as shares, bonds, finance, industrials, plantations and REITs. According to the gap found from previous research, this research cover a broader scope than previous studies in terms of period and number of countries. Thus this research also expands the view into the global level (Asia and developed countries), expands the number of countries and extends the period of time series in the analysis. As such, this study cover a 20 years period from 1994 to 2014, consisting of 17 countries namely: Japan (JP), Hong Kong (HK), Singapore (SG), South Korea (SK), Taiwan (TW), Malaysia (MY), the Philippines (PH), Thailand (TH), Indonesia (ID), China (CN), India (IN), Vietnam (VT) and Sri Lanka (SL).It also includes four developed markets such as the United Kingdom (UK), United States (US), Australia (AU) and New Zealand (NZ) as a benchmark with the property market. Thus, this research deliver a profile of a Malaysian property market from the local and international investors' point of view. Previously, less precise strategy was discussed particularly from Malaysia's point of view. There is a shortage if the study is not completed, investors have a vague knowledge in investing property portfolio that makes problems in deciding to invest in property portfolio. Therefore, this study provide strategy that can help investors in making decision for investment portfolio. Hence this empirical research is conducted through the Malaysian, Asian and developed countries' point of view. Furthermore, this research measure risk and return by using risk a return ratio to assess coefficient variations. The Sharpe ratio also be employed to examine risk adjusted performances of LPCs. In addition, correlation coefficient used to assess the diversification benefits and measure portfolio risk and return to assess efficient frontier. In order to measure the dynamic of volatility, several econometrics such as the Granger causality analysis and Autoregressive Conditional Heteroskedasticity (ARCH) family model used.

1.5 Research Questions

Research questions are formulated in order to guide the research and achieve the research objectives. Therefore, the following research questions have been outlined:

Main research question

How was the significance and performance of Malaysian listed property companies in the international mixed asset portfolios?

Research Questions

1. How was the significance and performance of Malaysian listed property companies in mixed asset portfolio?
2. How was the significance and performance of Malaysian listed property companies in Asian mixed asset portfolios?
3. How was the significance and performance of Malaysian listed property companies in developed countries' mixed asset portfolios?
4. What are the strategies of the property investment in the context of the Malaysian property securitised market?

1.6 Research Aim and Objectives

The research aim is to examine the significance and performance of Malaysian listed property companies in international mixed asset portfolios.

The objectives of this research are as follows:

- 1) To assess the significance and performance of Malaysian listed property companies in mixed asset portfolio.
- 2) To analyse the significance and performance of Malaysian listed property companies in Asian mixed assets portfolios.

- 3) To analyse the significance and performance of Malaysian listed property companies in developed countries' mixed asset portfolios.
- 4) To evaluate strategies of the property investment in the context of the Malaysian property securitised market.

1.7 Research Scope

Research scope (Figure 1.1) cover according to the objective one to objective three. First objective involve Malaysian in a mixed asset portfolio which consist seven mixed asset in Malaysia such as Property, Shares, Bonds, Finance, Industrials, Plantations and REITs. Meanwhile objective two involve MLPCs in Asian mixed asset portfolio which involve major asset classes (Shares, Bonds and Property) for twelve Asian countries such as Singapore, Japan, Hong Kong, China, Vietnam, Philippines, Indonesia, Sri Lanka, India, South Korea, Thailand and Taiwan. Simultaneously, objective three cover MLPCs in developed countries mixed asset portfolio that involve major asset classes (Shares, Bonds and Property) for four developed countries such as United Kingdom, United States, Australia and New Zealand.

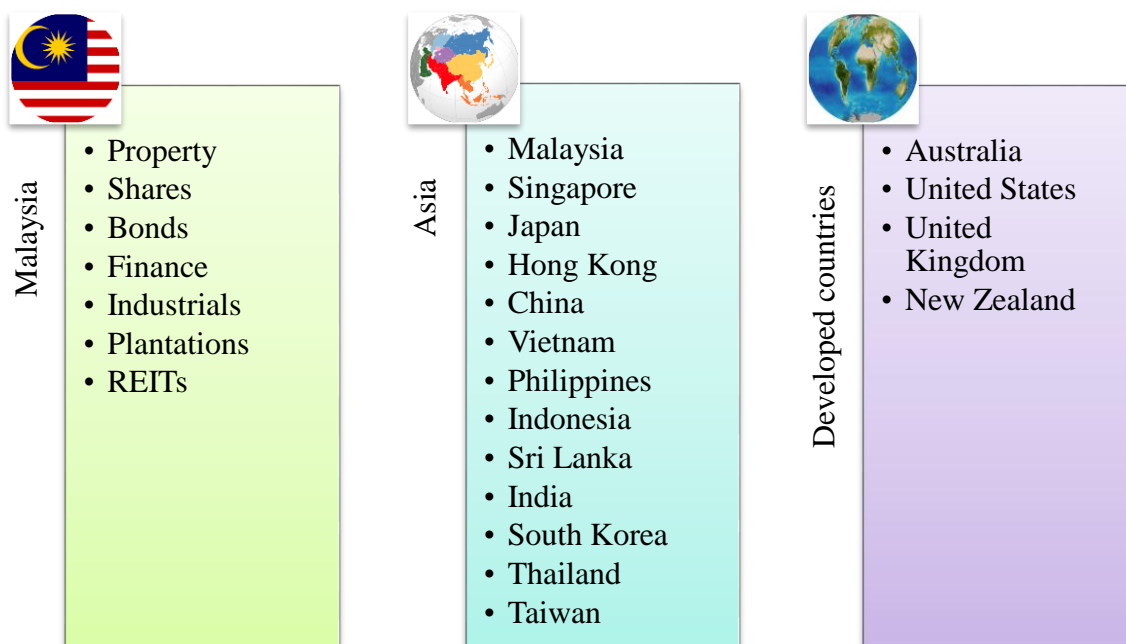


Figure 1.1: Research Scope

Objective number one consists of several types of analysis such as risk adjusted performance using the Sharpe ratio analysis. This is aimed to achieve a performance analysis of MLPCs in mixed asset portfolios, namely shares, bonds, industrials, finance, plantations and REITs. Performance analysis also include a diversification analysis by using a correlation technique. Furthermore efficient frontier analysis present the performance of LPCs from the highest expected return viewpoint. Vector Auto Regressions (VAR) or Vector Error Correction Model (VECM) Granger causality and family model provide dynamic perspectives of LPCs in Malaysia. Dynamic perspectives employ several econometrics techniques such as VAR or VECM granger causality and Autoregressive Conditional Heteroskedasticity (ARCH) family model. This analysis analyse the volatility of MLPCs within domestic mixed asset portfolios.

Objective number two focus on the analysis of MLPCs' performance in context of Asia mixed asset portfolios. Meanwhile objective number three focus on the analysis

of MLPCs' performance in the context of developed countries' mixed asset portfolio. Similar with objective number one, objective number two and three used similar methods which are the Sharpe ratio analysis, diversification analysis, efficient frontier, Granger causality and ARCH family model. However the aim is to achieve a broad overview of the MLPCs in the context of Asian and developed countries.

To provide the whole perspective of this research, objective number four highlight the overall analysis to evaluate the strategies of property investment. It summarise the philosophy of the study to the research topic, impact of the study to Malaysian property portfolios to industry and the contribution of this research to the body of knowledge. ¹In objective four, the evaluation of strategies of property investment based on property implications is displayed (Krippendorff 2004).

Research Workflow

The research framework as depicted in Figure 1.2 was constructed to figure out overall the research process, starting from fulfilling the gap from previous research up until the last process. Regarding the previous research there are four gaps and this research aims to fill those gaps. First it is covers international countries with an expanded time period of study and number of countries; then compares the LPCs with the mixed asset portfolio, focusing on the Malaysian viewpoint particularly instead of international viewpoint. The target of this research is to examine the significance and performance of MLPCs within international property portfolios. In achieving this aim, there are four objectives that should be evident throughout. The first objective is to assess the significance and performance of MLPCs in mixed asset portfolio. Second is to analyse the significance and performance of MLPCs within Asian mixed asset portfolios followed by objective number three which is to analyse the significance and

¹ Can refer to this book - Content Analysis: An Introduction to Its Methodology by Krippendorff (2004) for detail methodology.

performance of MLPCs in developed countries' mixed asset portfolios. The last objective is to evaluate the strategies of property investment in the context of Malaysian securitized market. To identify the performance, it is starts with a risk adjusted performance. It then proceeds with diversification benefits, optimal asset allocation and efficient frontier. Finally, the volatility spillover analysis is evaluated through Granger causality and ARCH family model.

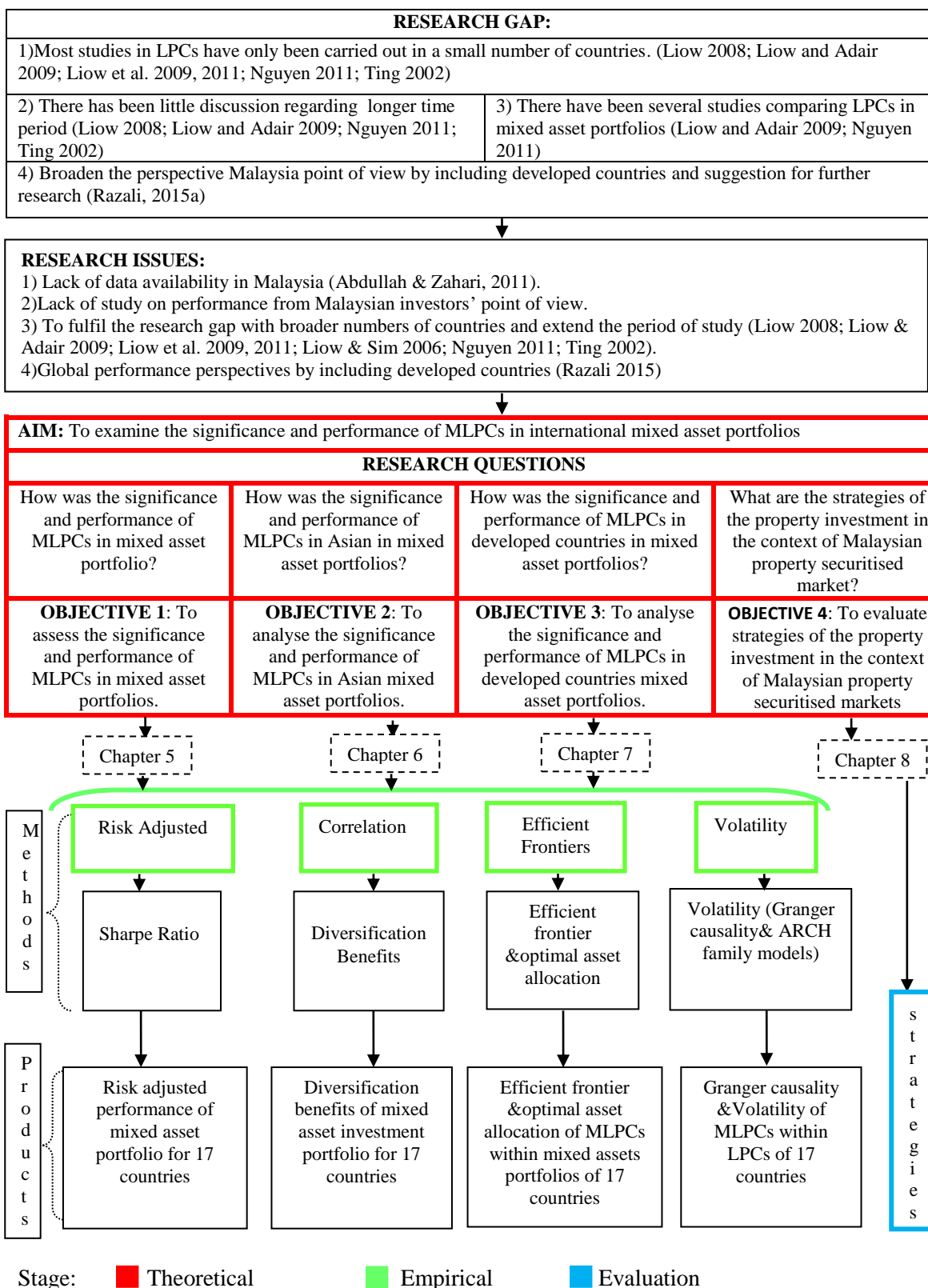


Figure 1.2: Research Framework

1.8 Thesis Structure

The organisation of this thesis is as follows:

Chapter 1: Introduction

This chapter provides background of the research, research gaps, research issues, research questions, aim and objectives of the research, research methodology, thesis structure, expected outcomes and contribution of the research. It is important to describe in general on how the researcher aims to achieve and plan for the preparation of this research.

Chapter 2: Literature Review

Chapter 2 review the topic of the study regarding the theory of property investment, property investment at the global level, listed property companies, overview of asset classes, discussion on previous research of LPCs and dynamics of volatility.

Chapter 3: Significance of LPCs

Chapter 3 provide discussion on overview of the property investment market globally, significance of property investment in Asia, significance of property investment in Malaysia and background of the economic indicator of the 13 observed Asian countries and four developed countries (UK, US, New Zealand and Australia) are briefly explained.

Chapter 4: Research Methodology

This chapter illustrates the research design and methodology of the research. Relevant methodologies used in this research discussed. This chapter contains research philosophy or research paradigm; research design; research methodologies; research methods; theory and concept; data sources; sampling; statistical methods and formulas; validity and reliability.

Chapter 5: The Significance and Performance of MLPCs in Mixed Asset Portfolios

Chapter 5 discusses the analyses and findings of objective number one and indicates results of the performance analysis in Malaysian mixed asset portfolios. The analysis includes risk adjusted analysis, diversification benefit analysis, optimal asset allocation, efficient frontier and volatility analysis such as Granger causality and ARCH modelling between MLPCs, shares, bonds, finance, industrials, plantations and REITs.

Chapter 6: The Significance and Performance of MLPCs in Asian Mixed Asset Portfolios

Chapter 6 discuss the analyses and findings from objective number two. It contains findings from the significance and performance of MLPCs in Asian mixed asset portfolios. This comprises risk adjusted analysis, diversification benefit analysis, optimal asset allocation, efficient frontier and volatility analysis (Granger causality and ARCH family model) between MLPCs and Asian mixed asset portfolios.

Chapter 7: The Significance and Performance of MLPCS in Developed Countries' Mixed Asset Portfolios

This chapter discuss analyses and findings from Chapter 3 about significance and performance of Malaysian LPCs and developed countries' mixed asset portfolios. The developed countries are grouped by United Kingdom, United States, Australia and New Zealand. The analysis uses same method as Chapters 5 and 6.

Chapter 8: Implications and Strategies for Property Investment

This chapter evaluate the property investment strategies in the context of MLPCs towards domestic, Asia and developed countries' mixed asset portfolios. This chapter describe the position of MLPCs in domestic markets, Asian markets and developed countries' markets. The discussion contain strategies for investment portfolio to overcome the low performance of the return either in investors, decision makers or property player viewpoints. Besides this, this chapter summarise the main results and

findings of the study. It summarise the significance and performance of 12 countries in Asia and 4 developed countries.

Chapter 9: Conclusion

This chapter conclude the whole perspective of the research, theoretical and practical contributions, limitations of the study and recommendation for future research.

1.9 Summary

In conclusion, this chapter provides an overview of this research. It started with the background of the research and the research problems that have led to this study. The research aims and research objectives are listed. The methodology of this research is explained briefly. Hence the next chapter discuss the literature review related to this research.

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