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THE LIQUIDITY ANALYSIS OF ASIAN REAL ESTATE INVESTMENT TRUST (REITS)

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Abstract

The emerged of REITs offered the investors an alternative liquid exposure to income-generating real estate investment. This publicly traded REITs liquidity was induced by its ability to be sold off quickly in raising cash compared to sell off a real estate assets. Acknowledging the importance of liquidity, current study evidenced REIT liquidity over the 2010–2016 period across five Asian countries namely Malaysia, Singapore, Japan, Taiwan and Hong Kong. The market-microstructure characteristics of liquidity was used to facilitate this study. The indicators of liquidity are the percentage spread, dollar volume, and turnover used to benchmarks the comparisons across Asian market. The Study documented that Taiwan REITs is more liquid comparing to others Asian REITs based on percentage spread, Hong Kong is more liquid based on turnover value while Japan is more liquid based on dollar volume. The findings of this current study are significant towards a certain aspects of liquidity that still relevant in influencing the investor decisions in shaping the suitability and attractiveness of REITs investment across Asian country.

Keywords: Liquidity, Real Estate Investment Trust, Asian.

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1. Introduction

The uniqueness of Real Estate Investment Trust (henceforth REITs, pronounced "reets") in providing higher liquidity compared to its underlying market of real estate investment had gain considerable attraction among investors. Practically, this publicly traded REITs liquidity was emerged due to its ability to be sold off quickly in raising cash compared to sell off a real estate assets. Consequently , this was develop through its pricing and trading activity in the security exchange that acts as a platforms for investors in buying and selling of REIT stocks likewise investing in a pool of real estates. There are vast literature in defining the terms "liquidity". Preceding with Nelling, Mahoney, Hildebrand, & Goldstein, (1995) that considered REITs liquidity as the eased in selling and buying securities with low transaction cost also by Brunnermeier & Pedersen (2009) that indicates as "*the ease with which it is traded*". Thus, the liquidity used in this current study henceforward a representation of market-microstructure characteristics of liquidity (Below, Kiely, & McIntosh. (1995); Bhasin et al. (1997); Cole (1998).)

Given its establishment for over the last 50 years, REITs plays a significant roles in facilitating investors' particularly institutional investors securing their wealth in indirect real estate investments. Characterised as liquid investment instrument, provide significant advantages to investors in gaining access towards illiquid real estate investment and secured prospects towards global investment diversification. In addition of its distinctive liquidity, REITs also benefited the investors through investments in high quality commercial real estate composed with better tax transparency, strict regulatory structures as well as professional management (Newell, 2012, Lecomte & Ooi, 2013, Mokhtar & Masih, 2014). This liquidity measure of REIT investments relative to its alternatives induced tremendous change in the REIT industry (Cannon & Cole, 2011). Apparently, its play a significant role in investment strategies and asset allocation. (Agarwal & Hu, 2014).

Motivated by the liquidity uniqueness of REITs, this study differentiated by focusing on Asian REITs (henceforth A-REITs). Given A-REITS had grown substantially despite having been existence in Asia capital market for only over a decade; provide valuable option towards existing literature predominantly across Asian region. The contribution of the study is mainly by examining developing REITs markets such as Malaysia relatives to more advanced and large A-REITs such as Japan, and Singapore. Henceforth enhancing A-REITs body of knowledge on a wider sample with to date justification. Given A-REITs have not been thoroughly explore, these areas tend to prompt a considerable impact in the manner of the literature on REITs performance from Asian perspectives is understood. Thus, study focused on the liquidity risk analysis within each country authorities offering among publicly traded A-REITs.

1.1. Overview of Asia REITs

Referring to Atchison and Yeung (2014), REITs was established in the US starting from 1960s trailed to Australia in the early 1970s, nonetheless, its establishment in Asian markets started in the early 2000s. A remarkable transformation after a decades of its establishment in Asia, had marks A-REITs as a choice of investments across investors. The momentum of A- REITs commenced in 2001 lead by Japan, followed afterword by Singapore, South Korea and Taiwan. The attractiveness of REITs in Asian capital market continue to growth with successful REIT's listing in Hong Kong, Malaysia and Thailand in late

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2005. Based on the APREA report, A-REITs generating yield premiums higher than government bonds, with dividend yields ranging between 2.0% and 6.1% (Atchison and Yeung, 2014).

The accomplishment of Japan and Singapore REITs should be highlighted. Japan and Singapore able to beat one year rate of return of U.S REITs which is 15.3% with a record of 17.4% and 21.8% respectively for the year ended 2012 (Ma & Michayluk, 2012). Additionally, with Japan being rank number four globally and closely followed by Singapore in seventh rank and Hong Kong in eighth rank had strengthened the prominence of A-REITs markets across the globe (Newell, 2012).

Consequently, the strong growth in A-REITs markets was expected to increase its markets composition from 25% global market justified investable real estate for US$7 trillion to 35% of the global market pointedly to US$17 trillion by year 2020 (Newell,2012). Injected with the growth and urbanisation of Asian economies in tandem with free up capital for real estate and infrastructure offered by REITs provide attraction to institutional investors into the Asian capital markets; stimulate the number of Asian's REIT initial public offerings in recent years (Kaur, 2017). Table 01 below recapitulated total market capitalisation of 7 A-REITs based on authors own calculation grounded on Bloomberg's data.

Table 01. Market capitalisation of REITs by country (December 2016)

Country	No of listed REITs	Market Capitalisation in millions, USD
Malaysia	17	6510.0513
Singapore	37	45400.1131
Japan	58	103937.887
Taiwan	5	2086.9194
Hong Kong	11	27165.8257
South Korea	3	135.3138
Thailand	13	2104.157

Sources: Authors compilation based on Bloomberg's database

2. Problem Statement

The critical of liquidity features of REITs had been the focus of REITs literature such as Jain, Sunderman & Westby-Gibson, (2017), Niskanena & Falkenbacha (2012), Agarwal & Hu (2014), Ametefe, Devaney& Marcato (2015), and Mohamad (2016) to name few. In addition, there is an extended literature highlighted the evidences of REITs stock performance across different market context. Han & Liang (1995); Ong, Teh, Soh, & Yan (2012). Newell, Adair & Nguyen, (2013) ;Brounen& De Koning (2014); Haslam, Tsitsianis, Andersson,& Gleadle,(2015); and Daniaand, & Dutta (2017), Mohamad& Mohd Saad, (2017)); particularly covering listed REITS in more developed markets, such as U.S., Europe and Australia.

Given a plethora of noteworthy REITs analysis in identifying the affiliation amongst direct and indirect real estate markets for a given countries, there are still limited studies focus on the liquidity features of A-REITs since its inceptions. Commencement with worthy launch of the first A-REITs, Japan, Singapore and Hong Kong marked themselves as renowned A-REITs centres. Moreover, given that this three country was considered as the mainstay of the A-REITs thus dominated the literature on A-REITs (refer in, Ma & Michayluk, (2010); Lim, (2014); Vithessonthi & Kumarasinghe, (2016)). Given REITs attractiveness was

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drawn by their liquidity distinctive, there is still limited REIT liquidity analysis documented by previous researchers. Thus, there is still an existence of literature gaps based on unlimited justifications recommended in the existing literature towards the REITs investment from diverse markets perspective. The exploration of regional REITs market particularly for a given country is yet need to be discovered.

Furthermore, with a decade history of A-REIT, a consistent performance analysis will benefited REITs potential investors. Their investment decision motivated by the believed that its underlying real estate offers high returns and low risk possibilities benefits yet illiquid as compared to equities investment. Consequently REITS provide a platforms towards alternative like real estate investment. Given that shareholders are expected to receive 90% of taxable income, this had stimulated REITs return to be outperformed the market and additionally, REITs standard deviation is marginally higher than the market risk (Fitzpatrick, Ali and Wiegele,2014). Gauging REITs opportunity mostly focus on dividends and returns, yet potential investors also very conscious with respective risk such as liquidity risk in determining their decisions to invest in REITs. Thus by integrating this liquidity analysis from Asian perspective embedded the attractiveness of REITs investment which could provide a meaningful insight.

3. Research Questions

The following research question was formulated to fill the gaps of insufficient literature in A-REITs:

3.1. How significant is the different of liquidity across the selected A-REITs?

3.2. Which Asian country offer better liquidity profile compare to the others?

4. Purpose of the Study

This study was performed to analyse the performance REITs in Asia particularly towards the liquidity analysis in measuring the efficiency of A-REITs market and growth. Based on the existing literature on the development of REITs as alternative investment to real estate investment globally; the following objectives were set towards the achievement of the aim of this study:

4.1. To identify the significant difference in liquidity of A-REITs across country.

4.2. To compare the liquidity performance of the each A-REITs across county

5. Research Methods

This study focuses on liquidity analysis of listed A-REITs from year 2010 to year 2016. To carry out this research, only a final of 74 listed A-REITs based on five country from 131 sample of listed REITs from seven Asian country are chosen based on the list obtained from Bloomberg's database. The selected data are from Malaysia (M), Singapore(S), Taiwan (T), Japan (J) and Hong Kong (H) with full information within 7 years of observation. All listed REITs from South Korea and Thailand was excluded due to lack of data. For each of the country in the sample, data were collected from their own respective board of trading and was change to USD currency for standardization purposes.

In measuring the A-REITs liquidity, based on long standing definition of liquidity by Kyle (1985) constructed liquidity from three components which are tightness, depth, and resiliency using bid-ask spread. Recent study by Jain, Sunderman, & Westby-Gibson, (2017) explained that the differences between

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bid and ask quotes was referred as tightness; depth designates volume supplied by each order denotes the number of shares traded at a specified prices yet not triggering the price change; while, resiliency denotes the market ability to resembles its original state after a large order. Yet this study limited towards liquidity analysis based on depth and tightness indicators. Followed the previous study, the calculation and analogous of liquidity was recapitulated in Table 02.

Table 02. Dependent and Independent Variable Measurement

Variables	Measures	Analogous	Nomenclature
Percentage Bid-Ask Spread Cannon and Cole (2011), Bhasin et al. (1997)	$(Ask_{it} - Bid_{it)} / [(Ask_{it} + Bid_{it} / 2)]$	Unveils the percentage trading cost by linking the spread's size towards share price. Smaller values designate higher liquidity.	PBAS
Turnover Ratio Ametefe, Devaney & Marcato (2015), Amihud and Mendelson (1986), Constantinides (1986)	$TR = Vol_{it} /(S_{it}*P_{it})$ Vol is the transaction volume for ith REIts at time t, Sit is the number of share outstanding and Pit is the average price of for ith REITs	Unveils the capacity of the REITs to be transacted within a specified time period based on outstanding value .The higher the turnover ratio, the more liquid is the asset/market	TR
Dollar Volume Cannon and Cole (2011) ,Benveniste et al. (2001)	$DV = Vol_{it} \times P_{it}$ Vol is the transaction volume for ith REIts at time t, P_{it} is the average price for ith REITs	Unveil REITs capacity to be traded (sell/buy transaction without causing larger price movements). Larger values of DV specify larger market depth with higher liquidity.	DV

5.1. Methodology

The research attempt to look at the comparison of REITs liquidity for each Asian country commencement with the One-Way ANOVA test. One-way ANOVA is suitable to determine the significant differences between the group variables (here, for this case is country). The one-way ANOVA is also referred to as between-subjects ANOVA

A few test was run to confirm the assumptions of one-way ANOVA was hold in obtaining a valid results. The one-way ANOVA assume the presence of the normal distribution for all the variable for each group with no outliers in any group. In identifying outliers the current study used boxplot while Shapiro-Wilk Test for Normality used to identify the normality of data distributed. The alternative hypothesis of Shapiro-Wilk Test indicates non normality in the data's distribution while the null hypothesis indicating otherwise. Referring to the test of normality indicates that PBAS, DV, and TR was not normally distributed for the all the five country as assessed by Shapiro-Wilk's test of normality as depicted in table 03. Results signify rejection of the null hypothesis since the significant level ($p < .05$).

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Table 03. Shapiro-Wilk's test of Normality

Variable	Country	Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
PBAS	Malaysia	.254	84	.000	.792	84	.000
	Singapore	.121	147	.000	.783	147	.000
	Japan	.070	210	.014	.975	210	.001
	Taiwan	.202	35	.001	.770	35	.000
	Hong Kong	.215	56	.000	.569	56	.000
TR	Malaysia	.078	84	.200*	.967	84	.032
	Singapore	.164	147	.000	.805	147	.000
	Japan	.210	210	.000	.686	210	.000
	Taiwan	.138	35	.089	.853	35	.000
	Hong Kong	.112	56	.079	.890	56	.000
DV	Malaysia	.244	84	.000	.704	84	.000
	Singapore	.256	147	.000	.704	147	.000
	Japan	.174	210	.000	.815	210	.000
	Taiwan	.292	35	.000	.762	35	.000
	Hong Kong	.404	56	.000	.511	56	.000

Instead, the stochastic equality for non-parametric Kruskal-Wallis H test (henceforth KWt) which is not affected by outliers was run for analysis. The KWt was considered as the nonparametric alternative to the one-way ANOVA, which can be used if data fail the assumptions of the one-way ANOVA. The null and alternative hypotheses was revised for assumption four of KWt to be hold:

H0: the distribution of liquidity for A-REITs are equal.

HA: the distribution of liquidity for A-REITs are not equal

6. Findings

Thus, the outcome for the KWt in defining the presence of significant differences in liquidity between the A-REITs was presented in table table 05 and table 06 between each country: M(n=84),S (n=126), J (n=210), T (n=35), H (n=56). Distributions of PBAS, TR and DVA were different for all groups, as depicted on the Table 05. Hypothesis HA for this study was supported by the significant results of KWt. The results indicates that the distribution of KWt for PBAS, DV and TR were statistically significantly different between groups, $\chi 2$ (4) = 171.905, p = 0.000; $\chi 2$ (4) = 288.515, p = 0.000; $\chi 2$ (4) = 404.446, p = 0.000 respectively. Consequently, designates inequality of the liquidity distributions across Malaysia (M), Singapore(S), Taiwan (T), Japan (J) and Hong Kong (H).

Table 04. Results Summary

Null Hypothesis		Test	Sig	Decision	Test Statistic	Degree of Freedom
1	The distribution of PBAS is the same across categories of A-REITs	Independent Sample Kruskal-Wallis Test	0.000***	Reject the null hypothesis	171.905	4

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2	The distribution of DV is the same across categories of A-REITs	Independent Sample Kruskal-Wallis Test	0.000***	Reject the null hypothesis	288.515	4
3	The distribution of TR is the same across categories of A-REITs	Independent Sample Kruskal-Wallis Test	0.000***	Reject the null hypothesis	404.446	4

Table 04. Hypothesis Test Summary

*** Significant at 1%, ** significant at 5% and * significant at 10%.

Considering the KWt's mean rank of PBAS (Mμ=430.50; Sμ=311.26; Jμ=196.97; Tμ=155.60; and Hμ=233.05). The mean rank value indicating that Malaysia REITs generally has higher mean rank value with highest median value of 0.892102 while Taiwan REITs has the lowest rank value with a media of 0.225070. Thus its shows that Taiwan is more liquid than the others country while Malaysia is less liquid among all in term of percentage spread analysis. The PBAS values indicates the percentage trading cost by linking the spread's size towards share price. The smaller value of spread indicates a better security liquidity (Agarwal & Hu, (2014); Cannon and Cole (2011), and Bhasin et al. (1997))

The mean rank analysis for TR indicates (Mμ=328.56; Sμ=402.20; Jμ=105.50; Tμ=293.80; and Hμ=.423110) that Hong Kong REITs is more liquid with a media of 0.423110 while Japan is the least with median of 0.000231 compared to the others. Illuminated by Ametefe, Devaney & Marcato (2015) the liquidity was indicates by the larger value of turnover ratio and also a better measure of information asymmetry (Jones, Kaul and Lipson, 1994).The turnover value indicates the capacity of the REITs to be transacted within a specified time period based on outstanding value. Thus, in term of turnover Japan is considered less liquid given very small number of share outstanding and volume traded across listed REITs due to the higher prices traded by Japan REITs when convert into USD currency. In addition the number of listed REITs in Japan is the highest among others thus provided wider alternative of investment choices for Japan investors' compare to others Asian markets.

The mean rank analysis for DV indicates (Mμ=57.89; Sμ=283.99; Jμ=365.36; Tμ=92.20; and Hμ=271.71) Japan is more liquid and Malaysia is the least among others country. The DV reveals the ability of REITs to be traded based on the sell and buy transaction without causing larger price movement. Larger values of DV specify larger market depth with higher liquidity (Cannon and Cole (2011) and Benveniste et al. (2001))

Table 05. Statistic for A-REITs Across Country

Variables	**Country**	**N**	**Mean Rank**	**Median**
PBAS	Malaysia	84	430.50	.892102
	Singapore	147	311.26	.575691
	Japan	210	196.97	.385948
	Taiwan	35	155.60	.225070
	Hong Kong	56	233.05	.451026
	Total	532		

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TR	Malaysia	84	328.56	.244514
	Singapore	147	402.20	.379075
	Japan	210	105.50	.000231
	Taiwan	35	293.80	.189310
	Hong Kong	56	403.88	.423110
	Total	532		
DV	Malaysia	84	57.89	13,187,897.81
	Singapore	147	283.99	301,953,424.10
	Japan	210	365.36	887,784,645.45
	Taiwan	35	92.20	31,374,695.04
	Hong Kong	56	271.71	308,886,359.85
	Total	532		

7. Conclusion

This paper uncovers the A-REITs liquidity analysis from market perspective. The empirical results is based on five different Asian market which are Malaysia, Singapore, Japan, Taiwan and Hong Kong for seven years observation from 2010 to 2016. Overall results shown a comparable liquidity with persistent difference in the magnitude across markets. Study indicates Malaysia is least liquid as compared to Japan, Singapore Hong Kong and Taiwan. This findings is consistent and supported by Marcato and Brounen, (2015) in analysing international REITs indicates that Japan is one of the most liquid REITs in the world while Hong Kong and Singapore is at par in Asia. Therefore, this findings validate that the attractiveness of Japan REITs across Asian markets parallel with the highest market capitalisation with highest number of listed REITs. As for Malaysia, it is considered as a less liquid among others Asian market. The major currency hurt dominates Malaysia currently thus influence REITs prices in Malaysia given all analysis was converted to USD currency for comparison. Hitherto, the findings of this current study are significant towards a certain aspects of liquidity that still relevant in influencing the investor decisions in shaping the suitability and attractiveness of REITs investment across Asian country. Given the investors' concern towards liquidity might influence their substitution of investment across Asian markets. This current study thus contribute towards the literature on liquidity analysis but enhancement towards the issue by analysing other relevant liquidity variables might provide supplementary evidence. Besides, given that liquidity is one of the important features in REITs investment, the factors determinant is also crucial. Since, the liquidity study of REITs structure across Asian is still unexplored, more in-depth analysis is required. The liquidity analysis of REITs is still can lead to undiscovered areas in which left for future research to be further explore.

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