Real Estate Investment: An Alternative or A Diversifier For Indian Financial Market

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Abstract

The diversity and complexity of Property Market, its linkages with economy and investment sphere has necessitated a closer study on its dynamics and movement. This paper attempts to find out the role of real estate in a multi-asset portfolio and need of its securitization in order to be investible in Indian context. Johansen cointegration test and Granger's Causality Test in the VAR block exogeneity on Quaterly data (Q 1 2009-10 to Q3 2016-2017) for HPI (Real estate index) and NSE 50(Stock market index) shows that there is no long run as well as no short run relationship between these markets. Segmentation exists between the stock market and the real estate market, and so these two assets can be held in a portfolio for diversification purpose. Descriptive statistics prove it as desirable asset class for investment. It further proves that Direct real estate investment is sufficient to be defined as an asset class and does not require standardization through securitization in order to be investible. Findings are relevant for policymakers as well as for market traders. This study contributes to the alternative investment literature for emerging markets.

Keywords: Direct Real Estate Investment, Cointegration, Granger causality, Securitization.

1. Introduction

The diversity and complexity of Property Market, its linkages with economy and investment sphere has necessitated a closer study on its dynamics and movement (RBI, 2008, 2010). There has been explosion of articles regarding its dynamics as far as US and UK is concerned (McDonald, 2002; Barras, 2009 and Brooks & Tsolacos, 2010). The characteristic of real estate market in Emerging economies have not been systematically researched (Ciarlone, 2015).There are very few studies with limited scope in Indian Context eg., Halbert and Rouanet (2014) and Newell and Kamineni (2007). As the benefits from including real estate in a portfolio varies across countries (Hoesli, Lekander, & Witkiewicz, 2004), it is required to know the role of real estate in a multi-asset portfolio in Indian Context.

The aim of this study is to analyse the long run as well as short run relationship between the real estate market and the stock market. The presence of an association between the stock market and the real estate market lies in the field of market integration or segmentation. In this study, cointegration test proposed by Johansen (1988) and Johansen and Juselius (1990) is used to examine the relationship between stock markets and real estate market. If the null hypothesis of no cointegration is rejected, it indicates that these two markets can reach equilibrium in the long run, and implies that the stock market is integrated with the real estate market. Therefore, it can be concluded that these two assets are good substitutes in investment allocation. Conversely, if the null hypothesis of no cointegration is accepted, segmentation between the stock market and the real estate market exists, and these two assets can be held in a portfolio for diversification purpose. Toda and Yamamoto (1995) Granger causality in VAR block erogeneity is used for short-run diagnostic check for long-run equilibrium relationship.

Introduction of the Commercial Real estate asset in the form of REIT (Indirect real estate investment) in India is an important step towards securitization of Indian real estate market So, it becomes important to find out whether direct real estate investment is sufficient to be defined as an asset class and does not require standardization through securitization in order to be investible. Descriptive statistical properties of sample log return series (Brooks & Tsolacos, 2010) are used to find out whether direct real estate in terms of their risk-return characteristics qualify as an alternative asset class.

Identifying such relationship is important both for investors as well as policy makers. It demonstrates

that there are potential gains of long-run diversification when investors hold Direct real estate and stocks at the same time. It can further affect their overall wealth, consumption behaviours, aggregate demand and employment. In response to such a potential chain reaction, local governments seek to propose effective tax and growth strategies(Lin & Fuerst, 2014; Kiohos, Babalos, & Koulakiotis, 2017).

2. Literature Review

Numerous studies have explored the relationship between the stock market and the real estate market but results have been varying perhaps due to differences in sampling, data quality, or economic environments (Ambrose, Ancel, & Griffiths, 1992; Chaudhry, Myer, & Webb, 1999; Liow & Yang, 2005 and Lin & Fuerst, 2014).

The presence of an association between the stock market and the real estate market lies in the field of market integration or segmentation. Studies by Geltner (1990); Wilson and Okunev (1996); Ling and Naranjo (1999); Quan and Titman (1999) and Lu, Chang, and Wei (2007) provide evidence in favour of segmentation of the two markets. On the other hand, Knight, Lizieri, and Satchell (2005);Hoesli and Lizieri (2007) and Adcock, Hua, and Huang (2016) provide evidence in favour of the presence of integration relation between the two asset markets under study.

According to Baum (2009, p. 5) "The direct implication of property being different is its diversification potential, and hence the justification for holding it, within a multi-asset portfolio." Direct real estate investments have been shown to provide significant diversification benefits in a portfolio containing stocks (Hoesli et al., 2004 and MacKinnon & Al Zaman, 2009). Very few studies, however, have examined the role of direct real estate markets in influencing alternative mainstream capital markets.

International diversification has been shown to be more effective in the Asian real estate markets than in the European real estate markets (Bond, Karolyi, & Sanders, 2003), as well as there being long-term diversification opportunities by investing in real estate in several Asian countries (Garvey, Santry, & Stevenson, 2001).The characteristic of real estate market in Emerging economies have not been systematically researched (Ciarlone, 2015).There are very few studies with limited scope in Indian Context eg., Halbert and Rouanet (2014) and Newell and Kamineni (2007).

Introduction of the Commercial Real estate asset in the form of REIT(Indirect real estate investment) in India is an important step towards securitization of Indian real estate market (Das & Thomas Jr, 2016). Pai and Geltner (2007) showed that Indirect real estate with less systematic risk tend to offer higher returns. Endowment Model (Swenson, 2000) describes the immaturity and non-transparency as the beneficial characteristics of an asset class. According to Hoesli and Oikarinen (2012), Indirect real estate offers liquidity and information transparency but is also highly correlated to the wider equity market. In that case it cannot act as a diversifier in the portfolio mix. So, it becomes important to find out whether Direct real estate investment is sufficient to be defined as an asset class and does not require standardization through securitization in order to be investible.

3. Data and Methodology

3.1. Research Objectives

I. To find out whether direct real estate investment in terms of their risk-return characteristics qualify as an alternative asset class.

II. To examine the relationship (long run as well as short run) between equities and real estate in India.

a) To test whether there is cointegration relationship between stock and real estate markets.

b) To examine whether a causality relationship exists between the stock and real estate markets.

3.2. Research Approach

According to Brooks and Tsolacos (2010) there are four stylised facts about the returns to an asset that an investor would like to know about when considering investing in an asset, they are expected return (sample mean), risk (Standard deviation), whether or not the extreme returns are above the expected value (positive skewness), the relative likelihood of occurrence of extreme returns(kurtosis). These descriptive statistical properties of sample log return series are used to find out whether direct real estate in terms of its risk-return characteristics qualify as an alternative asset class.

The stationarity of data is checked by ADF (Augmented Dickey Fuller) Test. Johansen Cointegration Techniques were used to examine long-run relationship between

stock markets and real estate market. Whereas Toda and Yamamoto (1995) Granger causality in VAR block erogeneity was used for short-run diagnostic check for long-run equilibrium relationship.

3.3. Sources of information:

Traditionally in India, rent data of CPI(UNME) & CPI(IW) was only the source of housing price data[1]. At present, there are three different approaches for tracking housing prices, viz., RESIDEX by NHB, Housing Price Index (HPI) by Reserve Bank of India and Residential Property Price Index (RPPI). This study uses HPI data, as the coverage of property registration data is more robust as compared to property loan data collected from banks/HFCs (in case of RESIDEX and RPPI), as all house transactions are not financed by banks/HFCs.

The secondary data is collected from indices of the stock (NSE 50 Index) and real estate market (HPI). Quarterly data is taken for both the indices from Q 1 2009-10 to Q3 2016-2017, So as a whole there are 31 data points. Although, HPI series is available from Q 4. 2008-09 to Q 3. 2016 - 17, but data is available with two base years viz., 2008-09 and 2010-11. The time series constructed with Laspeyres formula with 2008-09 as the base year will be inconsistent with the time series constructed with base year 2010-11. So, the present study uses Splicing (Hill & Fox, 1997) to combine these two overlapping time series. Eviews has been used for analysis.

4. Results and Discussion

For the analysis, continuously compounded returns (log returns) are used. Log returns of the NSE series and HPI series are denoted by LNRNSE/lnrnse and LNRHPI/lnrhpi respectively. For the model formulation, Initial lag four has been used as data is quarterly and according to Brooks and Tsolacos (2010, P. 380) frequency of data can be used to decide the lag.

Table 1 shows that the mean which is the measure of expected return is higher for real estate return, the standard deviation which is the measure for risk is lower for real estate return, Kurtosis (relative likelihood of occurrence of extreme returns) is low for real estate return which is desirable as investors prefer returns closer to expected returns. Skewness is negative for both the asset classes which is not desirable. So apart from skewness other measures are favourable for real estate, which prove it as desirable asset class for investment. It further proves that Direct real estate investment is sufficient to be defined as an asset class and does not require standardization through securitization in order to be investible. This goes in accordance with the Endowment Model (Swenson, 2000),which describes the immaturity and non-transparency as the beneficial characteristics of an asset class. Here, the desirability of direct real estate investment stems from its illiquidity premium and inherent inefficiency. The illiquidity premium and the real component of real estate as a contributor to the efficiency of the portfolio (Ang, Nabar, & Wald, 2013).Indirect real estate investment offers liquidity and information transparency but is also highly correlated to the wider equity market (Hoesli & Oikarinen, 2012).

Table 1: Descriptive statistics of log return series of real estate market and stock market

	LNRHPI	LNRNSE
Mean	0.037280	0.017662
Median	0.040711	0.022772
Maximum	0.077338	0.350972
Minimum	-0.011797	-0.281496
Std. Dev.	0.021689	0.116715
Skewness	-0.224946	-0.220334
Kurtosis	2.489109	5.358695

Before conducting statistical tests unit root of variables are studied using ADF (Augmented Dickey Fuller) Test reported in the Table 2. The results indicated both the variables at their corresponding level are nonstationary and they are stationary at their first difference.

1 Compilation of CPI (UNME) has since been discontinued since April 2008.

Table 2: Augmented Dickey-Fuller test statistic

	CNX NIFTY		RESIDEX	
	t-Statistic	Prob.*	t-Statistic	Prob.*
Unit root estimation at level	2.70533	0.0867	1.41763	0.5581
Unit root estimation at first difference I	4.45191	0.0018	5.24906	0.0002

Table 3: Result of Johansen Cointegration Test

Series: LNRHPI LNRNSE
Lags interval (in first differences): 1 to 4

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.274799	12.07211	15.49471	0.1535
At most 1	0.133251	3.718161	3.841466	0.0538

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.274799	8.353950	14.26460	0.3439
At most 1	0.133251	3.718161	3.841466	0.0538

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Error! Not a valid link.Again, Johansen Cointegration Technique was used to check the long-run relationship. The results pertaining to the Johansen Cointegration Test are presented in Table 3. In order to determine the maximum number of cointegrating vectors, was conducted the trace and max test. Both the probability value of trace test as well as Maximum Eigenvalue test are higher than the critical value at 5 percent level of statistical significance, which shows that there is no cointegration between HPI and CNX NIFTY. So, there is no long run relationship between real estate market and stock market which further validates that both can be used as diversifiers.

There is no long run relationship but there are chances for short run dynamic relationship which is tested by using the Toda Yamamoto Granger's Causality Test in the VAR block exogeneity. The result is reported in table 4.

Table 4: VAR Granger Causality/ Block Exogeneity Wald Tests

Dependent variable: LNRHPI			
Excluded	**Chi-sq**	**Df**	**Prob.**
LNRNSE	4.033758	4	0.4015
All	4.033758	4	0.4015
Dependent variable: LNRNSE			
Excluded	**Chi-sq**	**Df**	**Prob.**
LNRHPI	4.420597	4	0.3521
All	4.420597	4	0.3521

As the p value is more than 5%, it is concluded that there is no causal relationship between Real Estate Market and Stock Market.

5. Conclusion

This paper attempts to find out the role of real estate in a multi-asset portfolio and need of its securitization in order to be investible in Indian context. Direct real estate investment is sufficient to be defined as an asset class and does not require standardization through securitization in order to be investible. This goes in accordance with the Endowment Model (Swenson, 2000). Here, the desirability of direct real estate investment stems from its illiquidity premium and inherent inefficiency. The illiquidity premium and the real component of real estate as a contributor to the efficiency of the portfolio (Ang et al., 2013).Although, the introduction of REITs in India paves the way for further comparative research between Direct and Indirect real estate investment.

The empirical findings suggest that there is no short run as well as long run relationship between the stock market and the real estate market. Segmentation exists between the stock market and the real estate market, and these two assets can be held in a portfolio for diversification purpose. The reason for this segmentation is the systematic risk associated with real estate market is governed by laws which are different from those of stock market. It provides real diversification benefit by acting as inflation hedge.

Findings are relevant for policymakers as well as for market traders. Identifying such relationship is important both for investors as well as policy makers. It demonstrates that there are potential gains of long-run diversification when investors hold Direct real estate and stocks at the same time. It can further affect their overall wealth, consumption behaviours, aggregate demand and employment. In response to such a potential chain reaction, local governments seek to propose effective tax and growth strategies. Although exploring relationship is important, finding the factors that drive that is enduringly significant. So, further research can be done in that area.

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