

# China Direct Real Estate and the General Stock Market Dynamic

## Introduction

China's real estate market is one of the biggest recipients of foreign direct investment in China (Fung, Huang, Liu and Shen, 2006). In our research period from 2008-2015, the average quarterly return on direct real estate is about 2%. Wang and Wang (2012) report housing price appreciation rates from 1999 – 2010 for 10 Chinese cities located throughout China to range from 161% to 431% with a median of about 265%. They believe that the housing price appreciation rate in China is likely the highest in the world over this period. The rapid appreciation in housing prices caused concerns about a possible real estate bubble. The Wall Street Journal published an extensive article about the bubble in April, 2014 (Davis & Fung, 2014). The Shanghai composite index rose from around 2000 in June, 2014 to close to 5000 by May, 2015. This raised concern about a stock market bubble (Smith, 2014).

China's real estate market has unique characteristics. All real estate in China was owned and managed by the government under the central planning economic regime before 1988 (Fung, Huang, Liu, and Shen 2006). The 1988 Constitutional Amendments separated the land ownership and land use right. One primary difference between the meaning of real estate in China and the meaning in other developed economies is that the term real estate in China refers only to land use rights plus the ownership of the improvements on the land. The state remains the owner of the land itself. The lease terms of the land range from 50 to 70 years. Here we are only referring to mainland China. Hong Kong's real estate ownership system is similar to that of the United Kingdom. The Chinese real estate securities market is still relatively undeveloped. There is no REIT market in China.

The puzzling rise of the Chinese stock market and the decline in the direct real estate market have motivated us to conduct research on this unusual phenomenon.

Stock price should be determined by the net present value of future dividends according to the dividend discount model which incorporates future growth of dividends and an equity risk premium. In addition, many factors can affect stock prices, including money supply (Hamburger & Kochin, 1972; Homa & Jaffee, 1971; Keran, 1971; Rapach 2001), interest rate (Belke & Beckmann 2015; Andries, Ihnatov & Tiwari 2014 ), and risk (Sircar & Sturm 2015). Though many researches have doubted the linkage between these three factors and stock price (Kraft & Kraft, 1977; Cooper, 1974; Pesando, 1974; Rozeff, 1974 ).

This research is not attempting to identify stock price determinants. Our goal is to identify whether the recent China stock market rally is supported by company underlying profitability, or is caused by investors' need for an alternative investment channel other than direct real estate. China has a strong culture of saving. The average Chinese household socks away about 30% of its disposable income (Roberts, 2015). If direct real estate is no longer the place to put money, people need an alternative. This change in investment strategy could have contributed to the

stock market rise. A sluggish direct real estate market and a flourishing general stock market at the same time might suggest this change of momentum in the two markets. Or the stock market rally could simply be attributed to irrational speculation with borrowed money despite increasing evidence of stress in the financial sector and a slowing economy as Smith (2014) pointed out. If this is the case, we could observe stock price increases despite slow or negative profit growth. We hope our research results will help a prudent investor's decision making.

## **Literature Review**

### **Unique Characteristics of China Real Estate Market**

Fung, Huang, Liu and Shen (2006) document that some economists view China as an emerging manufacturing center of the world and Lou (2014) states that, "China has become the world's manufacturing superpower." Fung, Huang, Liu and Shen (2006) find that developers with a specific focus on commercial and industrial real estate are still rare due to traditional policy restrictions. In comparison, China's residential real estate market has been developing rapidly in the last decade. Overall, China's real estate industry has evolved from a minimal presence in 1978 to one of the most important driving forces behind national economic growth. Real estate development is a key factor in economic growth, as real estate is an essential part of the manufacturing process of goods and services, and property rights are the foundation of a well-functioning market economy.

Qu and Liu (2012) look at land lease auctions by studying 531 land lease transactions from 2003 – 2010 in Beijing. They find that bidder type affects auction outcome, so an auction result can be predicted. Wang, Chan and Xu (2012) examine price elasticity of housing supply using 35 cities in China. They find that elasticity varies significantly among cities and that supply elasticity may be a function of geographical constraints in some cities.

### **Integration of Direct Real Estate, and the General Stock Market**

Chen, Chang, Yang & Hsieh (2012) suggest that non-linear movement of housing prices is primarily driven by investment demand. The result shows a downward housing price trend when stock price index rises. Lin and Furst (2014) study the long-term relationship between stock values and direct real estate values in nine Asian countries from 1980 to 2012. They find that the values of stocks and real estate were not related in six of the countries studied including China. They conclude that segmentation of property markets from stock markets does not appear to be linked to the differences in the maturity of national financial markets but that the differing degrees of integration are likely reflective of a range of factors impacting upon the underlying economic structures in each country. For example, the integration between stock and property markets was found in the most densely populated areas. Lin & Lin (2011) find no causality relationship between stock and real estate markets in China from March 1995 to June 2010. They gave several reasons for this and suggested to use the index of different regions or cities for

further concise conclusions. Su (2011) concludes that in the long-run, asymmetric price transmissions do exist between real estate and stock markets in Western European countries. These findings support the existence of long-run equilibrium relationships between the real estate market and the stock market, with asymmetric adjustment. The study period was 2000-2008. Gao, Li, & Gu (2012) conclude that the Chinese direct real estate market and stock market are integrated. The study period is 1999-2009. Tsai, Lee, & Chiang (2012) investigate the long-run relationship between the housing and stock markets using quarterly data from the U.S. housing price index from 1970-2009. They find that cointegration exists between the markets, and that adjustments toward long-run equilibrium are asymmetric. Heaney and Srianthakumar (2012) conclude that investment in commercial or residential real estate with investment in the general stock market could provide considerable diversification benefits. However conditional correlations between A-REITs and the general stock market returns are quite high and increased further during both the 1987 Wall Street Crash and the 2008 global financial crisis. They use Australia 1986–2009 data. Hui and Ng (2011) find that the correlation between residential property price and the general stock market index has become weaker over time in Hong Kong between 1990 and 2006. Casni and Vizek (2014) state that the level of codependence between equity price and real estate price movement is relatively high in all examined country groups (30 developed and emerging economies). However the degree of codependencies varies among country groups, with the reaction of both asset prices to economic news being more synchronized in economies with a market-based financial system and developed economies. Data ranges from 1970 to 2012.

### **Integration of Securitized Real Estate, and General Stock Market**

Yang, Zhou, & Leung (2012) examine S&P 500 stocks daily index returns, US corporate bonds, and their real estate counterparts (REITs and CMBS) for the period 1999 to 2008. They find REITs returns have stronger asymmetric volatilities because of high leverage. They also suggest reduced hedging potential of REITs against the stock market during economic downturns. Olaleye & Ekemode (2014) find that rates of return for real estate equity and non-real estate equity in Nigeria for the period 1999 – 2011 were related. Real estate equity had a slightly higher return but with more risk. Liow (2012) examines the change in co-movements over time for eight Asian real estate securities markets and their local stock markets during the period from 1995 – 2009. He studies developed markets in Australia, Japan, Hong Kong, and Singapore and developing markets in China, Malaysia, Taiwan and the Philippines. He finds real estate-stock correlations at the local, regional and global levels that vary over time and are asymmetric in some cases.

### **Integration of Direct and Securitized Real Estate**

Oikarinen, Hoesli, & Serrano (2011) develop evidence of cointegration between securitized and direct real estate total return indices in the U.S. from 1977 to 2008. The correlation between the returns for these indices approaches one as the investment horizon lengthens. The two real estate indices are cointegrated with one another but not with the stock market. Empirical evidence shows that the securitized market leads the direct real estate market (Gyourko & Keim, 1992;

Myer & Webb, 1993; Barkham & Geltner, 1995; Li, Mooradian, & Yang, 2009). Higher liquidity, greater number of market participants, smaller transaction costs, and the existence of a public market place in the securitized market enables the indirect real estate market to be more information efficient than the direct market. The prices of indirect real estate investments should react faster to shocks in the fundamentals than those of direct real estate. Olaleye & Ekemode (2014) results for the country of Nigeria show that real estate stocks returns are not integrated with direct real estate market and are not influenced by the returns of the underlying direct real estate assets. Real estate stocks returns are integrated with general stock market instead.

### **Predictions: Direct Real Estate and the General Stock Market Will Go in Opposite Directions**

Hong (2013) predicted that China's direct real estate price is going to drop and the stock market is going to rise. He points out that 80% of Chinese savings went into the housing market. He believes with the crash of the housing bubble, investors who cannot find a suitable investment channel will enter the stock market. Wang (2015) made the same prediction as Hong (2013). The China securities journal reported on 6/6/15 that first tier cities housing prices have risen, and some investors are leaving the stock market and entering the house market.

None of the above predictions are based on empirical evidence. Our research attempts to fill this gap by using empirical evidence to show whether the above predictions stand.

## **Methodology**

### **Data Collection**

Currently, the most quoted Shanghai Stock Exchange index is the Shanghai composite index. The Shanghai composite index is calculated using all listed stocks and considering total shares outstanding. The biggest drawback of this method is that total shares outstanding includes state owned shares and legal person shares. These shares are not tradable. So using total shares outstanding, instead of tradable shares, distorts the real stock market performance. We recognize its drawbacks, but have chosen to use the Shanghai composite index because it is the most commonly quoted index and the most widely known.

The Shanghai Stock Exchange classifies listed companies into six industries: manufacturing; real estate; utilities; wholesale and retail; financial; and complex. The Shanghai real estate index is calculated using all listed real estate stocks.

Quarterly EPS (earnings per share) growth is collected from China Stock Market & Accounting Research Database (CSMAR) data.

Direct real estate price data is from the National Bureau of Statistics of China. The direct real estate includes both residential and commercial real estate.

The data range is from 2008 to the first quarter of 2015.

### **EPS Growth & Stock Indexes**

De Bondt (2008) states that, “In the short-run, stock prices can and do diverge from ... their long-run fair value.” He argues that this divergence is based on short-term factors, “that do not enter the present value theory, but are supposed to determine stock prices...” at least in the short-run. In our study, we assert that EPS growth is a fundamental factor that should relate to the value of the stock, but that another factor, namely the lack of alternative highly regarded investments since the downturn of the housing market, has caused a short-run divergence from long-run fair value. To examine our assertion, we compare the stock index movement with quarterly EPS growth. Stock prices usually parallel EPS growth in the long term, but as De Bondt (2008) asserts, the link between long-term fair value, which we believe is related to EPS increases, and stock price is not always linear or straightforward in the short term.

Thus, if underlying profitability is the reason for the stock rally, we should see the EPS growth move in the same pattern as the changes in the stock indexes. We compare stock index movement and EPS growth for all companies listed on the Shanghai Stock Exchange and also for only the real estate companies. We use the quarterly median EPS growth for all listed companies on the Shanghai Stock Exchange and then the quarterly median EPS growth for the real estate industry. If the market is driven by speculation with borrowed money, as Smith (2014) pointed out, with no rational underlying economic factors, stock price can go up with low to negative company growth. The linkage between EPS growth and the stock index will be disrupted. We calculate EPS growth as:  $(EPS_t - EPS_{(t-1)})/EPS_{(t-1)}$ . We calculate stock index growth as:  $(StockIndex_t - StockIndex_{(t-1)})/StockIndex_{(t-1)}$ . We calculate direct real estate growth as:  $(DirectRealEstatePrice_t - DirectRealEstatePrice_{(t-1)})/DirectRealEstatePrice_{(t-1)}$ .

### **Direct Real Estate Return & Stock Indexes**

Chen, Chang, Yang and Hsieh (2012) find that, “linear models... are capable of explaining long-run housing price movement based on service demand of housing, but excess housing demand often causes considerable short-run non-linear volatility.” They believe that, “non-linear movement of housing prices is primarily driven by investment demand.”

Thus, if housing prices are largely determined by investment demand and changes in investment demand produce a change of momentum in the housing market and stock markets, we should see direct real estate return being sluggish compared with stock market return. We use the quarterly median EPS growth for the real estate industry.

## **Real Estate Industry Performance & Real estate Stock Index**

Stock prices usually parallel EPS growth in the long term. If the market is driven by speculation with borrowed money as Smith (2014) pointed out with no rational underlying economic factors, stock price can go up with low to negative company growth. The linkage between EPS growth and the stock index will be disrupted. We further investigate this issue by using one industry, the real estate industry. We compare direct real estate return, real estate industry performance (EPS growth), and real estate stock indexes (Shanghai real estate index). We use the median quarterly EPS growth for the real estate industry. We single out the real estate industry because of all the attention it is getting from investors and analysts. The media seems to be filled with negative news about Chinese property developers according to Law (2015), Udland (2015), and Barboza (2015) to list a few. Many media stories draw a bleak picture of the Chinese real estate industry.

### **Results**

The Shanghai composite index and the Shanghai listed real estate index show startling similarity. This is illustrated in Figure 1. Figure 2 illustrates that the EPS growth of all listed companies and the real estate industry only of the Shanghai Stock Exchange seem to parallel each other. Real estate industry stock performance and EPS growth do not deviate from the general market.

Figure 1: Shanghai Composite Index Growth vs. Shanghai Listed Real Estate Stock Index Growth

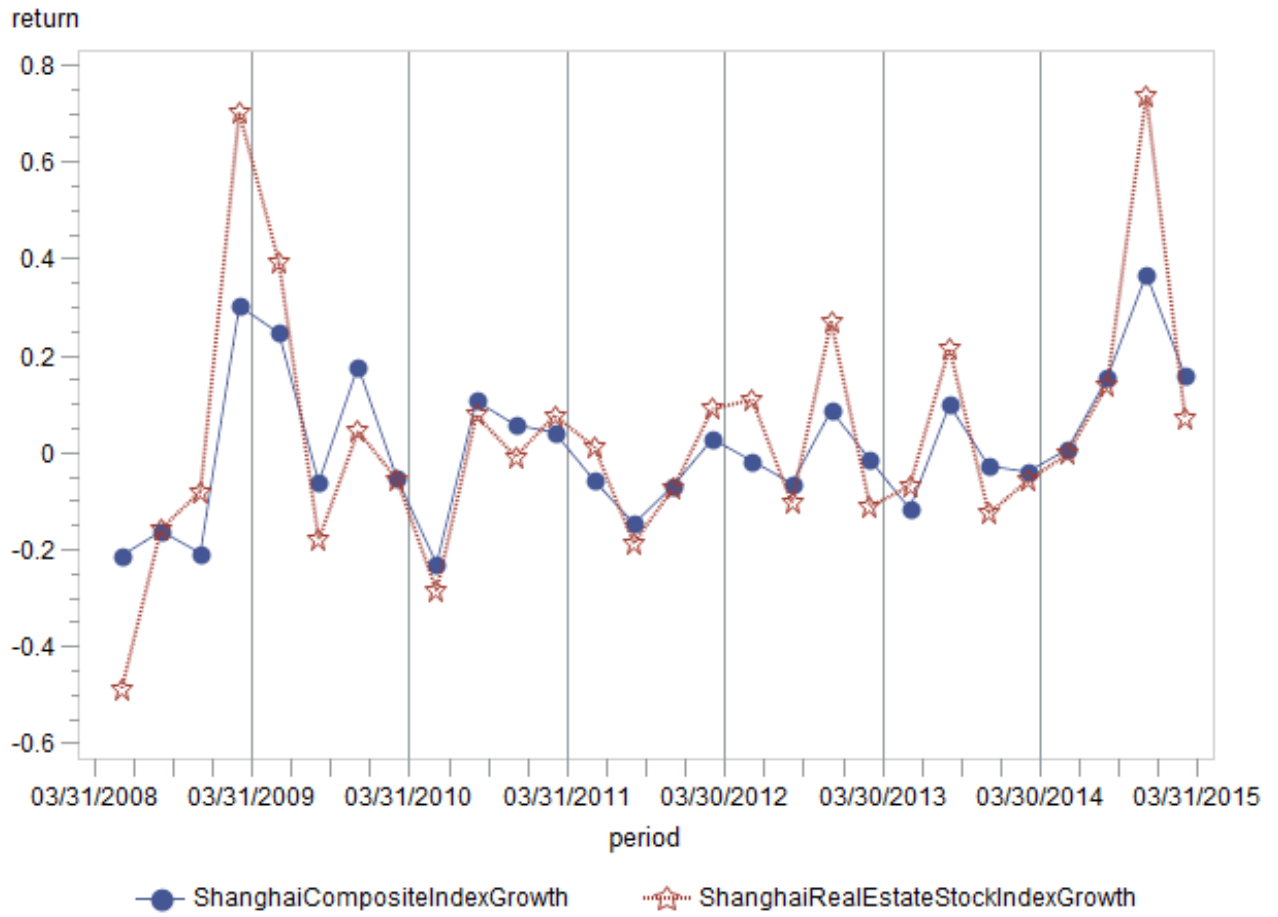


Figure 2: EPS Growth, All Listed Companies vs. Real Estate Stocks only-Shanghai Stock Exchange

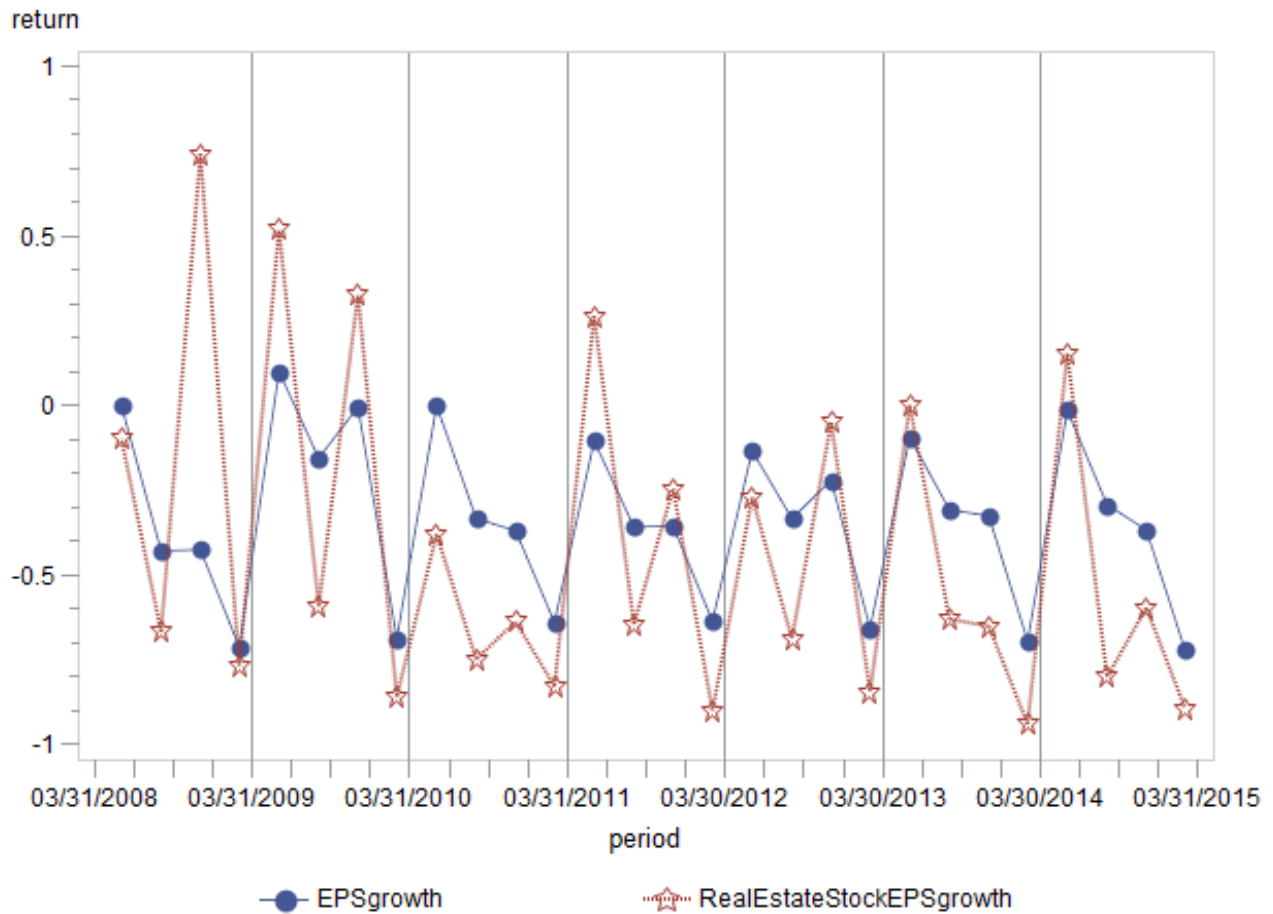


Figure 3 shows that listed firms EPS growth and Shanghai composite index growth do not parallel each other. We seem to be seeing an irrational speculation without EPS growth backing up the stock market rally. This also seems to be true for the real estate sector as illustrated by real estate industry EPS growth and Shanghai listed real estate stock index growth in Figure 4. We are seeing EPS growth to be much lower than stock index growth. In Table 1, we provide descriptive statistics to confirm the results.

**Figure 3:** Shanghai Stock Exchange listed firms EPS growth vs. Shanghai composite index growth



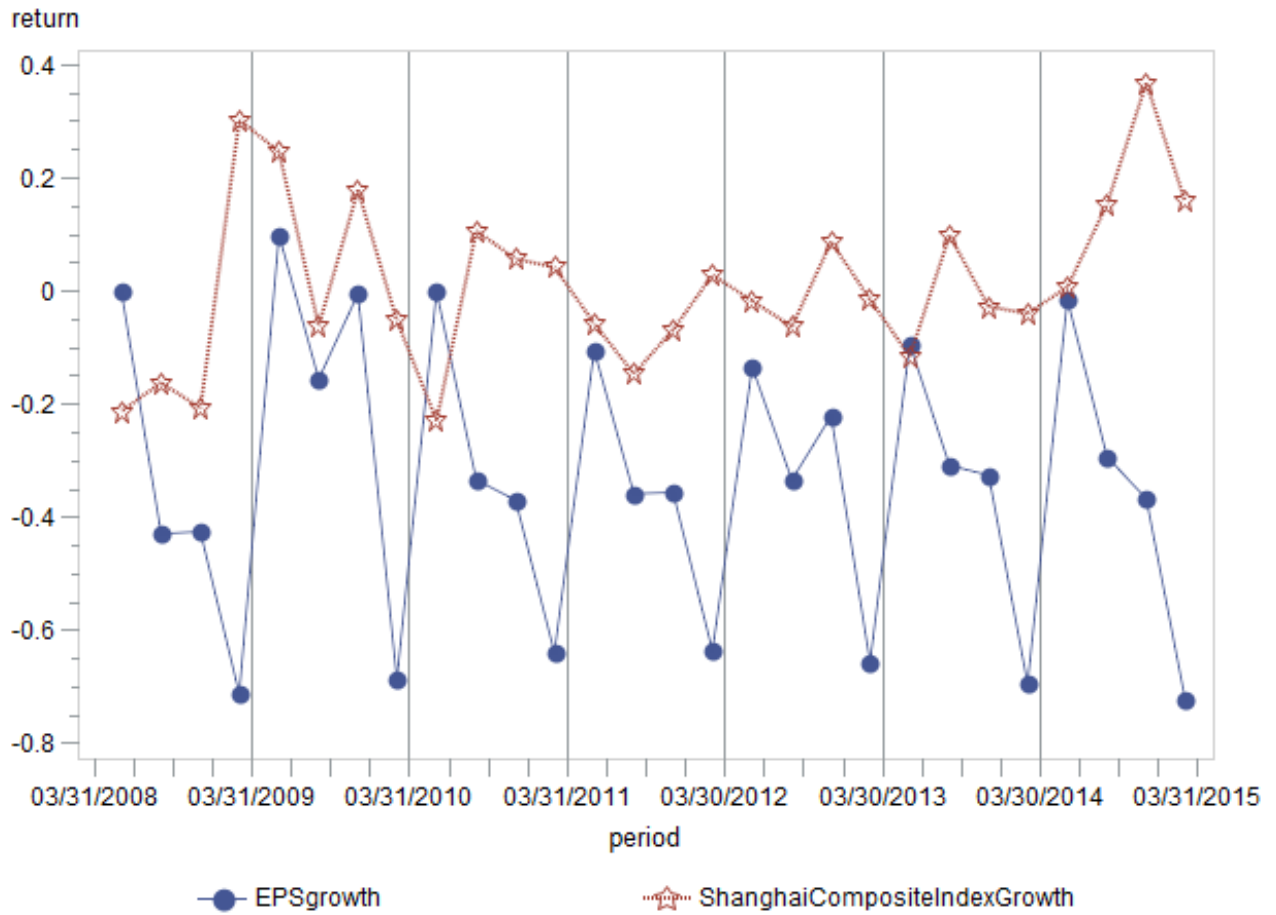
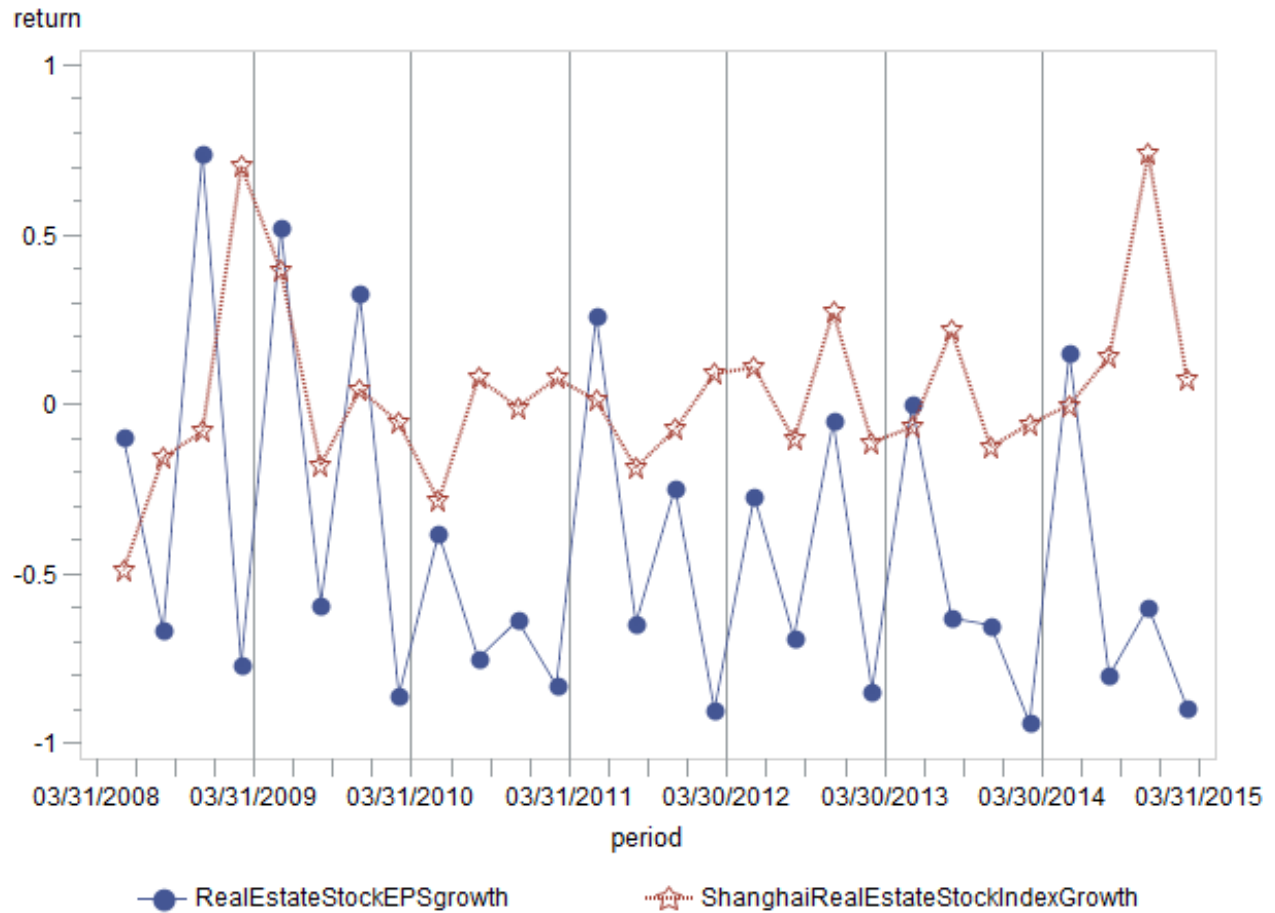


Figure 4: Shanghai Stock Exchange listed real estate industry EPS growth vs. Shanghai listed real estate stock index growth



The stock market spike of 2014 seems to have been caused by a change of momentum from direct real estate investment to the stock market. Figure 5 shows a spike of the overall stock market in the last quarter of 2014 and a flat direct real estate market during the same time frame. This is further illustrated in Figure 6, which shows a huge spike in the Shanghai Stock Exchange real estate stock index in the last quarter of 2014 while the direct real estate market remained flat.

**Figure 5: Direct Real Estate Return Vs. Shanghai Composite Index Growth**

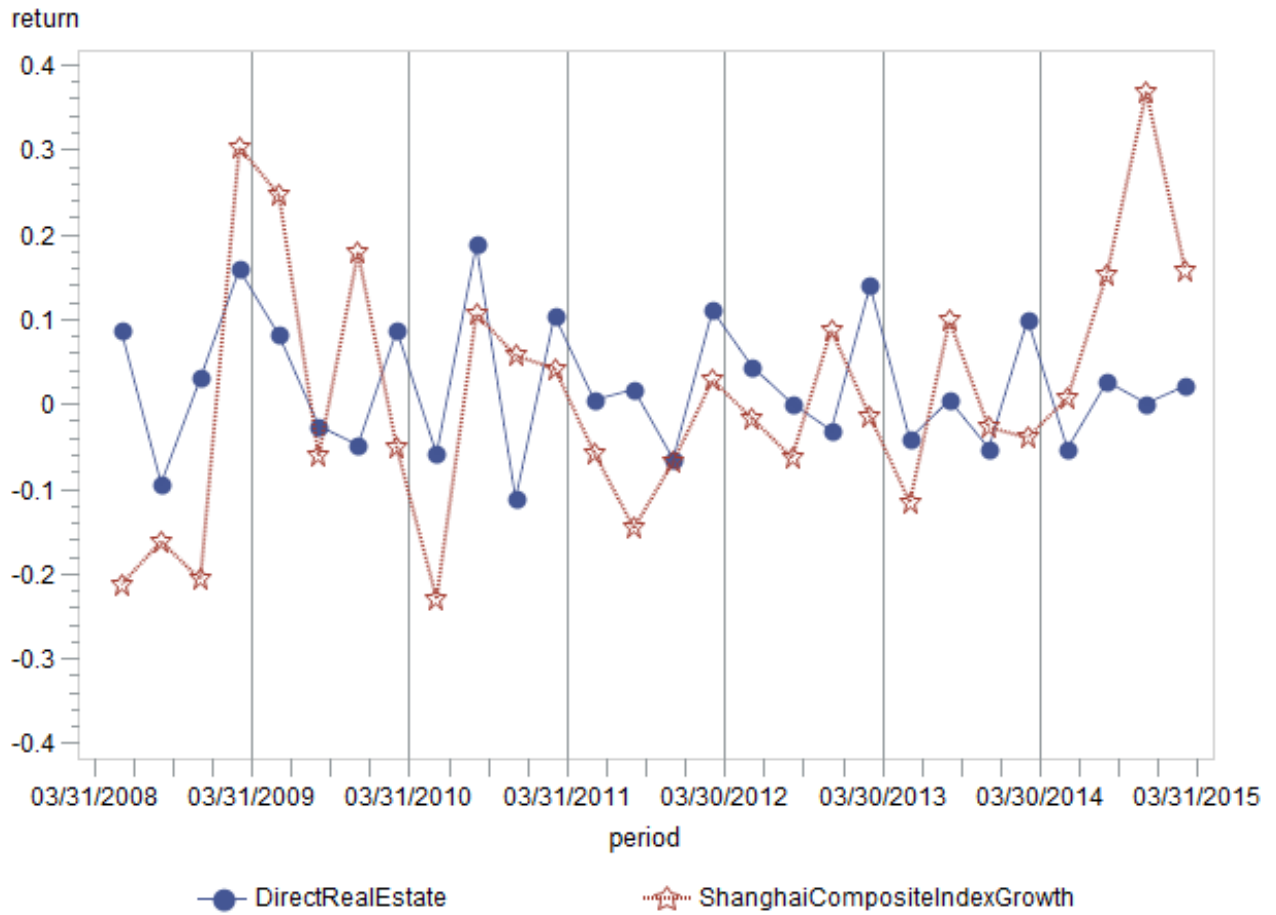


Figure 6: Direct Real Estate Return vs. Shanghai Listed Real Estate Stock Index Growth

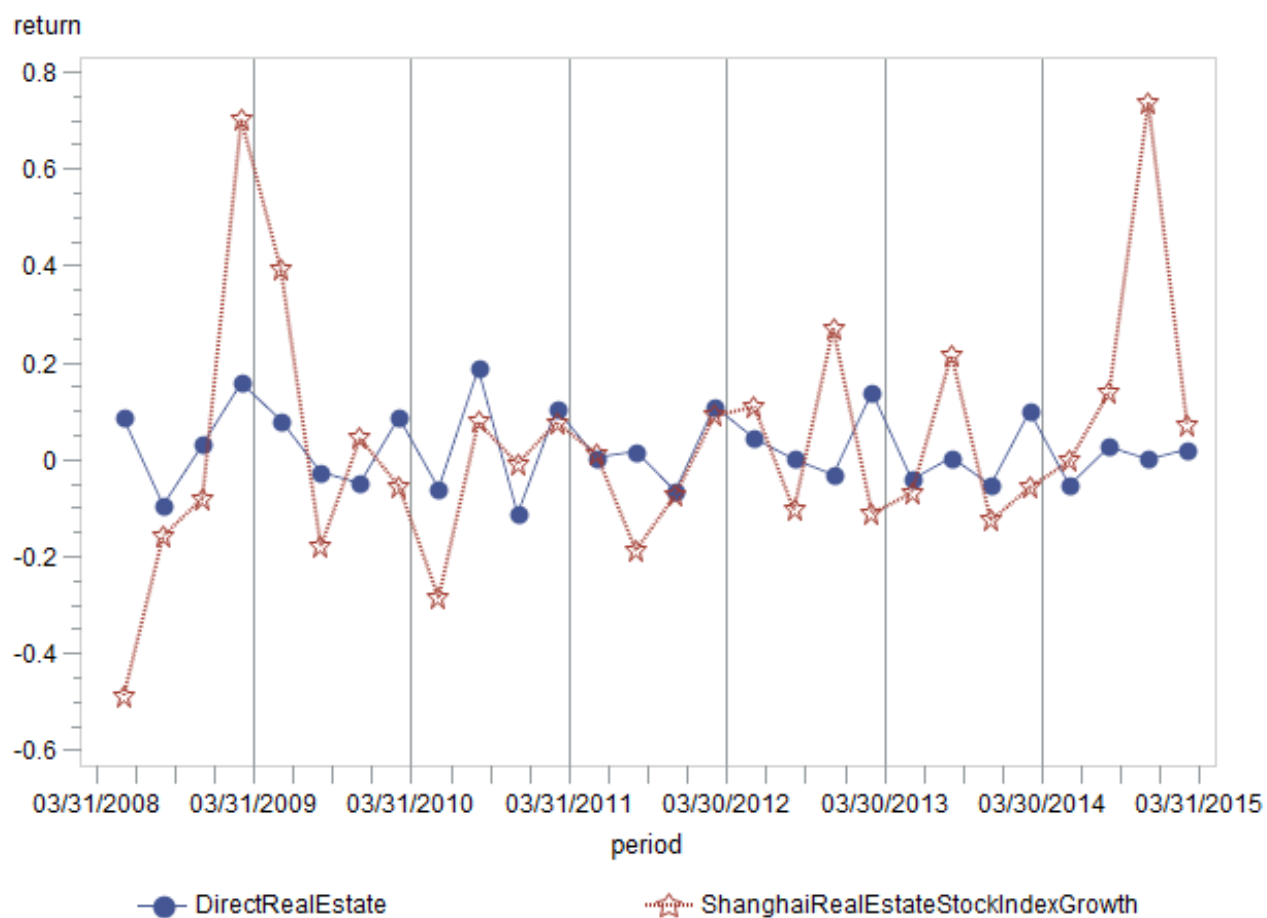


Table 1 provides descriptive statistics. The median quarterly EPS growth for all firms is about negative 33% over our study period. The Chinese economy is clearly slowing down. The median real estate industry quarterly EPS growth is about negative 64%. The median Shanghai Composite Index quarterly growth (-2%) is much higher than the median EPS growth (-33%) in the same period. The median real estate stock index quarterly growth (-1%) are much higher than real estate stock EPS growth (-64%).

Real estate industry EPS growth is negative while the real estate stock index is soaring in the last quarter of 2014 and the first quarter of 2015. This is true for EPS growth of all companies listed and Shanghai Composite Index growth as well. The general stock market rally is not backed up by EPS growth. Direct real estate return is sluggish while Shanghai stock index growth had a spike in the last quarter of 2014. The stock spike of 2014 could be partially due to a change of momentum. We caution investors who are betting heavily on stocks.

It is worth noting that the average direct real estate quarterly return for the whole research period is about 2% while it is about zero for Shanghai Composite Index.

Table 1: Descriptive Statistics

	Mean	Std Dev	Median
Direct real estate price	0.0237	0.0769	0.0177
EPS Growth for All Firms	-0.3374	0.2472	-0.3333
Real Estate Stock EPS Growth	-0.4299	0.4698	-0.6364
Shanghai Composite Index Growth	0.0012	0.1627	-0.0165
Shanghai Real Estate Stock Index	0.0297	0.2555	-0.0079

Pearson correlation confirms that EPS growth and Shanghai composite index growth are not related to each other. Real estate stock EPS growth and Shanghai real estate stock index growth are not related to each other as well. Thus, stock price seems to deviate from the underlying fundamentals of the companies. The real estate stock index is highly correlated with the Shanghai Composite Index (85%). Real estate stocks EPS growth is highly correlated with EPS growth of all listed firms (70%). What is surprising is that direct real estate price seems to be negatively related to stock EPS growth. Hong (2013) points out that 80% of Chinese savings went into the housing market. We suspect that China real estate took so much capital out of the economy that all other industries suffered.

Table 2: Pearson Correlation

Pearson Correlation Coefficients, N = 29					
Prob >  r  under H0: Rho=0					
	Direct real estate price	Shanghai composite index	Shanghai real estate stock index	Shanghai real estate stocks EPS growth	Shanghai listed stocks EPS growth
Direct real estate price	1	0.2039	0.2355	-0.2879	-0.4441*
Shanghai composite index	0.2039	1	0.8520**	-0.0714	-0.0768
Shanghai real estate stock index	0.2355	0.8520**	1	-0.0206	-0.1675
Shanghai real estate stocks EPS growth	-0.2879	-0.0714	-0.0206	1	0.7041**
Shanghai listed stocks EPS growth	-0.4441*	-0.0768	-0.1675	0.7041**	1
* significant at p<0.05					
**significant at p<0.01					

The findings are comparable to Olaleye & Ekemode (2014) using Nigerian data.

**Robust test:**

We use net income and net income growth to substitute EPS and EPS growth. The results are consistent. We use EPS, real estate stock EPS, Shanghai composite index, Shanghai real estate stock index instead of their growth, the results confirm our conclusion.

**Conclusion**

The research shows that investors could diversify investment by investing in both direct real estate and general stock market. Direct real estate and the general stock market are not significantly correlated to each other. However, real estate equity brings little if any diversification. Our research shows that stock prices were not supported by the underlying fundamentals of the companies. Thus, investors should be extremely cautious when investing in stock market. The recent stock spike is not supported by EPS growth. It may have been caused by investors switching their investments from direct real estate to the stock market and also by pure speculation. This situation supports predictions by Hong (2013) and Wang (2015) that direct real estate prices would fall and the stock market would rise. However, since the rise in the stock market was not supported by underlying fundamentals the increase was short-lived. Since the last date of data used in this study, the Chinese Shanghai stock index has dropped from 4441 on 4/30/2015 to 2737 by the end of January 2016. In the same time, the direct real estate market shows signs of recovery since the last date of the data used in this study.

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