DOES CHINA REALLY HAVE A SERIOUS REAL ESTATE BUBBLE?--A FINANCIAL HEALTH AND RETURN ANALYSIS

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ABSTRACT

This research used 2002-2013 Chinese data to analyze the Chinese real estate industry health. We look at the returns on direct real estate, securitized real estate, and the general stock market. We compare real estate industry financial pictures with other industries. We do not document an overheating real estate industry, even though real estate industry do have higher debt to asset ratio compared with other industries. The monthly return is above 1% for all three types of investments (direct real estate, securitized real estate, and the general stock market). The Chinese economy does grow at a shocking pace. This is not limited to one industry. If there is overheating, we believe it is applied to the Chinese economy as a whole. This research is the first to look at real estate with an accounting angle.

INTRODUCTION

China's real estate market is one of the biggest recipients of foreign direct investment in China[6]. In our research period from 2002-2013, the average monthly return on direct real estate is over 1%. No other large area in the modern era has exhibited a similarly high property appreciation rate over such a long period [27]. The rapid appreciation caused concerns about real estate bubble. Wall street journal published an extensive article about the bubble in April, 2014[5]. Despite all the speculations and concerns, the world is yet to see China's real estate bubble burst.

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 [6]. The 1988 Constitutional Amendments separated the land ownership and land use right. One primary difference of real estate in China from other developed economies is that real estate refers to only land use rights plus the ownership of the improvements on the land. The state is the owner of the land. 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.

This study is the first to look at China's possible real estate bubble from an accounting perspective. We first look at the interrelationship of direct real estate, securitized real estate and the general stock market to determine whether the real estate return is much higher than the general stock market return, which would indicate a possible real estate bubble. We then look at the financial health of the listed real estate firms. We look at current ratio and debt to asset ratio to evaluate the industry's solvency and flexibility. We look at sales, net income, and return on equity to evaluate the industry's profitability. We should see a troubling financial picture if there is a possible real estate bubble.

To investigate industry growth, we look at income growth and capital growth. For income growth, we use sales and net income growth rate. For capital growth, we look at total liability and total equity growth rate.

LITERATURE REVIEW

Unique Characteristics of China Real Estate Market

Fung et al.[6] document that some economists view China as an emerging manufacturing center of the world. 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. The recent changes in the Constitution and real estate policies are positive steps taken to protect the interests of real estate investors.

Wang & Wang [27] is a digest of 5 papers. Two are discussed here and one [15] is summarized separately in a different section. The other two are not related to Chinese market. Qu and Liu [22] 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.

Integration of Direct Real Estate, and General Stock Market

Lin and Fuerst [12] studied the long-term relationship between stock values and direct real estate values in nine Asian countries from 1980 to 2012. They found that the values of stocks and real estate were not related in six of the countries studied including China. They concluded 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 [13] found 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 [23] concluded 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 [7] concludes that Chinese direct real estate market and stock market are integrated. Study period is 1999-2009.

Tsai, Lee, & Chiang [24] investigated the long-run relationship between the housing and stock markets using quarterly data from the U.S. housing price index from 1970-2009. They found that cointegration exists between the markets, and that adjustments toward long-run equilibrium are asymmetric. That is, when stock prices rise rapidly, there will be a delayed but proportionate rise in housing prices. However, when stock prices fall, housing prices do not tend to fall proportionately or may not fall at all.

Heaney and Sriananthakumar [9] 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 [10] 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 [3] state that the results suggest 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 [28] 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 found 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 [19] 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 [14] 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 [18] 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 long-term similarity seems due to the adjustment of the direct market over time. The two real estate indices are cointegrated with one another but not with the stock market.
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. Empirical evidence shows that the securitized market leads the direct real estate market [1] [8] [11] [17].

Other

Liow & Newell [15] study the relationship of the securitized real estate markets in Mainland China, Hong Kong, and Taiwan and their links with the securitized real estate markets in the United States for the period 1995-2009. They find that the real estate securities markets in these three areas are integrated with each other because of their geographical proximity, close economic relationships, and political similarities. They also are linked with the real estate securities market of the U.S. but not as strongly as they are related to each other.
Piazzesi & Schneider [21] find that a relatively small group of optimists can drive up housing prices assuming selling prices are negotiated between buyer and seller, optimists account for a large percentage of transactions, and transaction costs are sufficiently high to keep satisfied homeowners from flooding the market so available supply does not increase substantially.

Whelan [25] documents that the U.S. stock market indexes had a total return of 32.4% in 2013, while real-estate investment trusts had average returns of just 2.7%. Some economists and analysts believe that the lower return for REITs is the result of rising interest rates. Yields on 10-year Treasury notes increased from about 1.8% in spring, 2013 to about 3% as of the end of 2013.
Chan et al. [4] observe the existence of two distinct regimes, "tranquil" (economic expansion) and "crisis (economic decline). The studied assets are financial assets (US Stocks and Treasury bonds), commodities (oil and gold) and real estate (US housing) from 1987 to 2008. They document a contagion between stocks and other assets during economic decline. Investors seeking to hedge the risk of financial crisis should seek to hold a component of Treasury bonds in their investment portfolio. Other assets provide few diversification benefits in crisis periods.
Carlson, Wright and Walle [2] Provide information about performance of the 78 stocks in the U.S. Real Estate Index, which has an annualized return of 9.7% from the period 2001 – 2010 versus a 1.4% return for the S&P 500. Factors helping the real estate market in 2010 included increased profit margin, higher occupancy rates and more stable rents partly due to higher demand for apartments due to sluggish house sales.
Pagliari, Scherer, & Monopoli [20] compare public and private real estate equities. They find that the means and volatility of these two types of equities are not statistically different from one another. They also find that the average difference between the two (restated) return series has narrowed substantially in the more recent (1993–2001) period which suggests a more seamless real estate market in which public- and private-market vehicles display a long-run synchronicity.

METHODOLOGY

Data Collection

Securitized real estate monthly average return is calculated using China Stock Market & Accounting Research Database (CSMAR) data. Since China does not have a formal REITs market, we use real estate industry stock returns to proxy securitized real estate return. General stock market return comes from the CSMAR database. We use monthly average stock return, considering the annual cash dividend reinvestment and including both Shanghai and Shenzhen stock markets.
China has two major stock market indexes. Shanghai composite index and Shenzhen component index. The stock market index data is available through sohu.com. 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.The Shenzhen stock market created a different index in 1995, the Shenzhen component index, which uses 40 listed companies and tradable stocks. It gained popularity compared with the old Shenzhen composite index, which is calculated the same as the Shanghai composite index. Currently, the most quoted indexes are the Shanghai composite index and the Shenzhen component index.
We plotted returns from the general stock market (using data from CSMAR), the Shanghai composite index, and the Shenzhen component index. It is clear that the three stock return indicators coincide. For later comparison of the returns from direct real estate, securitized real estate, and the general stock market, we choose to use general stock market return from CSMAR since it includes all stocks from both the Shanghai and Shenzhen stock markets and considers cash dividend reinvestment.
Monthly direct real estate price data is from National Bureau of Statistics of China. The data range from 2002-2013. The direct real estate includes both residential and commercial real estate.

Johansen Trace Test, Regression Model, and Granger-Causality Test

We will first test whether time series data is stationery. If time series data is non stationary, Johansen trace test will be used to test for cointegration. If time series data is stationary, we can properly use regression model. Granger-causality test will be applied to identify lead/lag relationship between different time series. Granger-causality test will be applied to first or higher differences if time-series data is non-stationary.

Financial Health

We look at current ratio and debt to asset ratio to evaluate the industry's solvency and flexibility. We look at sales, net income, and return on equity to evaluate the industry's profitability.
To investigate industry growth, we look at income growth and capital growth. For income growth, we use sales and net income growth rate. For capital growth, we look at total liability and total equity growth rate.

CONCLUSION

The Chinese real estate industry through 2013 shows excellent profitability. Its net income, return on equity, and net income growth are significantly higher than other industries. However, the real estate industry has a 65% debt to asset ratio, compared with 47% for other industries. The real estate industry's high leverage can pose potential risk to investors, especially when facing economic downturns.
Although securitized real estate appears to be closely related to the general stock market, direct real estate has its own pattern. Investors, especially short term investors, may be able to benefit by investing in direct real estate to add diversity to their investment portfolios. In the long run, we find that direct real estate leads the general stock market.
Overall, contrary to general belief, we do not believe China's direct real estate or securitized real estate are overheating compared with other industries. The average monthly returns are very high for China investment, either in direct real estate, securitized real estate, or the general stock market. Securitized real estate does have higher return compared with direct real estate and the general stock market. However, all three types of investments have a higher than 1% monthly return. The Chinese economy, with such astonishing investment returns, does face the threat of overheating. We believe this threat is not limited just to the real estate industry, but rather relates to the whole economy.

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