

An investment approach to the emerging housing markets in 2nd tier Chinese cities

Dr. Hao Wu

Faculty of Architecture Building and Planning
The University of Melbourne Australia
haow@unimelb.edu.au

Dr. Chyi Lin Lee

School of Economics and Finance
University of Western Sydney, Australia
Email: chyilin.lee@uws.edu.au

Dr. Nelson Chan

School of Economics and Finance
University of Western Sydney, Australia
Email: n.chan@uws.edu.au

ABSTRACT:

Understanding the economics of grouping and ranking cities and their property markets is proven an important issue from the real estate investment and the urban economics/planning perspectives. It appears that little research attention has been placed on the so-called “second tier city” property investment markets in emerging markets such as China. From the macro strategic investment point of view, it implies a lack of understanding of this “would-be” significant investment sector for both domestic and international investors. And it is also relevant to China’s Macroeconomic Regulation and Control to the country’s booming property sector. This paper critically reviews the concept of 2nd tier cities in China and conducts statistical analysis of the commercially viable investment grade residential property markets of selected Chinese cities, using historical market return data and standard methodology for international real estate investments e.g. (Newell and Webb, 1996). The paper discusses the consistency of the way markets are grouped and the standard way to determine an investment strategy, including defining features (e.g. maturity) of property markets, relative to the context of cities/markets. Performance and diversification benefits of these market groups are examined. The results suggest evidence of the selected housing markets as being effective investment vehicles in terms of risk-adjusted returns and diversification benefits. Note that the conclusion is subject to the condition that certain market/policy specifications are effectively in place. It seems that there is a lack of theory about the correlations among different city ‘groups’ in the urban development and property investment contexts. Equally weak is a lack of ‘theory’ on the sustainable growth in Chinese housing market. This paper hopes to stimulate further research under this path.

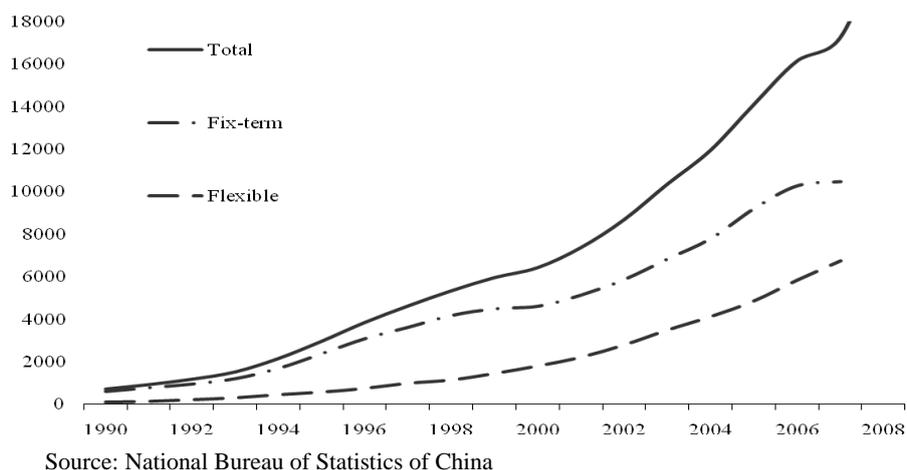
Key words:

Housing markets, second tier cities, investment, China.

INTRODUCTION

The converting of 1% of the rural population per year into urban population in China and the country's strong economic performance have provided the needed support to its rapidly expanding urban residential property markets, which has started to attract the interest of domestic and international investors. According to the National Bureau of statistics China (NBSC), the foreign reserve has reached US \$1.946 trillion by the end of 2008, a 3.2-fold increase of the 2004 level (NBSC, 2009). In addition China is well known for its state-pushed household savings, which is a major force to back the home mortgage sector by supporting the domestic demand for residential property ownership and investment (see Figure 1). Unfortunately physical, demographical and institutional constraints of a city will ultimately slow down the growth of the investment into its property and construction sectors, where new space supply of housing will slowly become insignificant relative to the existing building stock (O'Sullivan, 2009, Jowsey and Harvey, 2003, O'Sullivan and Gibb, 2003, Healey and Nabarro, 1990, Friedman, 1977). As classic theory suggests, it is until this stage that a city's property market is mature which is often featured by high market transparency and stable aggregate price level.

Figure 1: Household savings (billion RMB, end-of-year)



The emerging Chinese property markets seem to be apart from the mature market conception. The rapid increase of housing prices in major Chinese cities such as Beijing and Shanghai has raised serious concern about speculative housing bubbles (Shen et al., 2005, Jones Lang LaSalle, 2003, Xie and Liu, 2004) and potential housing affordability crisis (Liu et al., 2008, Niu, 2008, Mak et al., 2007). The solution to the joint challenge of the limit of the growth and the pressure from rising property prices with speculative behaviour cannot be sought only from within each of the cities. What is clearly observed in China is also the rapid growth of its secondary cities, a group of so-called second tier cities and their property markets. For investment purpose, international leading property consultancies such as Jones Lang LaSalle have attempted to group and to rank these cities, aiming to evaluate and project future demands and investment destinations. The JLL Top 30 Cities (Jones Lang LaSalle, 2007) and the more recent JLL Top 40 Cities (Jones Lang LaSalle, 2009) are also grouped commonly referred to as Tier I, II and III cities. The position of cities and the position of their property markets are linked by this approach, which seems to start creating a dynamic picture of China's property investment universe, relative to the first two decades of urban development and market emergence under the Chinese economic transition.

The approach to ranking and grouping cities under tiers has the advantage of differentiating cities (markets) based on existing and potential economic conditions. However the level of understanding from the investment perspective treating different cities and markets as investment choices to guide macro-investment strategy remains low. Equally, it remains unclear that the use of tiers to group/rank cities/markets is consistent with and adequate for effective macro investment strategies. This paper examines the concept of tiers and its typical measure in the context of residential property investment markets in China, followed by an analysis of the investment performance and risks of selected “first tier” and “second tier” city housing markets. The paper incorporates market structural characteristics along with market returns adjusted for risk at city level and by asset class. The result shows that the selected second tier cities are generally consistent in terms of investment potential; yet the lack of market data among other “second tier” cities has made it more challenging for the correlation between markets grouping and macro-investment strategy to be firmly established.

HOUSING MARKETS, INVESTMENT AND SECOND TIER CITIES

Property investment and strategy for residential markets

Standard property investment analysis contains the analysis of historical returns, taken into account market volatility (risk) of the same duration. Investment analysis also involves diversification strategy as suggested by the Modern Portfolio Theory (Brown and Matysiak, 2000, Newell and Webb, 1996). The neoclassical property investment theory (model), e.g. (O'Sullivan and Gibb, 2003, Jud and Winkler, 2003, Wheaton, 1985), is built for mature market systems, but could face difficulties to explain contemporary issues in emerging markets under substantial structural changes (Wu, 2009). This calls for improvements of existing theories to include formation and immaturity as defining characteristics of emerging markets. The physical character of a city is largely shaped/reshaped by the socio-political and socio-economic conditions (Evans, 2004), and the economic transition in China has reshaped the its property sector (Zhu, 1999, Wu, 2009).

Investment decisions in housing markets are normally linked to factors such as rental markets, the availability and condition of credit e.g. home loan mortgage and finance options, the option of owning a second house, personal or household investment portfolio, expectation of future capital growth and so on (Waxman and Ng, 2004). The notion of housing as an effective investment vehicle to be included in an investment portfolio has led to extensive studies in mature markets (Flavin and Yamashita, 2002, Goodman, 2003, Jud et al., 2006, Goetzmann, 1993, Bruckner, 1997, Englund et al., 2002, Cocco, 2004, Lee, 2008, Quigley, 2006). Government policy and planning provisions are also critical factors affecting the behaviour and the performances of national and local housing investment markets. Adding to the current supply equation is the government-subsidized new supply which aims to improve affordability. Properties under affordable housing program are normally sold below dominant market prices – this is not the focus of this paper but will be briefly discussed in the last section of this paper.

Recently the emergence of housing markets in China has attracted considerable interests from investors. The existing housing sector in China has been referred to as being a “two-tier system” (Lu et al., 2001), noted that the so-called ‘tiers’ here refers to the market-driven property activity from those driven by the previous planned economic system, which differs from the same term used in the title of this paper. The housing market in China is a mixture of the competitive housing market and the government subsidized sector. Although subsidy by the government has shrunk substantially in recent years, it still plays a key role as it

remains to be strongly supported by the government. Given the role that urbanization plays in defining the residential market based on the rapid build-up of the social wealth in Chinese cities, the level of home-ownership was suggested exceeding 80% (Niu, 2008). This highlights the domestic capital on housing in China, speculative or not, is substantial by any measure. Clearly property owners and investors will be the key drivers to sustain the growth and the stability of the emerging Chinese residential property market.

Second tier cities and their property markets

The idea of ranking cities is not new. China has developed official city taxonomy or ranks to assist its administration such as resource allocation. However the concept of first, second and third tier city property markets is relative new in China which deserves discussion here. The concept of second tier city is rarely addressed in research works with a few exceptions such as Markusen et al. (1999) where second tier city is defined as: "... spatially distinct areas of economic activity where a specialized set of trade-oriented industries takes root and flourishes, establishing employment and population growth trajectories that are the envy of many other places." Although China's second tier cities are generally large and complex, based on the US definition, but the definition does capture some key features of second tier cities such as the cities are in the process of becoming more competitive. Therefore, it is suggested that the concept of city tiers need to be further refined to take property markets and the Chinese economic system into consideration.

Under the former system, the central/local governments did not group and rank cities basing on their investment capacities. However until more recently size, growth speed and the increasing complexity of the property markets have made it difficult for the government to predict and to maintain its planner's role in terms of defining, classifying or ranking housing markets by cities. In other words, the housing market and the city it represents may commit different levels of ranking. For property market ranking/grouping, it seems the government has leaved it to the market to define. Therefore the concept of 'tiers' among housing markets in Chinese cities is an initiative of the market, driven by the concern of investment. For example, the concept may be based on evaluation and opinion of key stakeholders; or it may be regarded as a score of property market maturity in terms of certain investment attributes (RREEF, 2007). For example, market transparency is a typical measure to indicate property markets' evolutional conditions. Overall, existing concepts of the city tiering system tend to perceive cities' property markets based on the level of economic activity (a variety of factors) and property activities in major sectors (Jones Lang LaSalle, 2009, Jones Lang LaSalle, 2007). Currently the most comprehensive study on this topic is by Jones Lang LaSalle (2007) who suggests that second tier cities "correspond to cities in the 'growth' stage and third tier cities "correspond to cities in the 'early adopter' and 'dormant' stages'. This way of defining allows cities to move from one tier to another, which implies a dynamic relationship affecting our investment strategies.

Table 1: City comparisons (2007 statistics)

	Population (million)	Nominal GDP (bn US\$)	Disposable Income US\$	FDI (bn US\$)
Shanghai	18.6	172.9	3404	7.9
Beijing	16.3	129.8	3168	5.1
Guangzhou	10.0	101.6	3238	3.3
Shenzhen	8.6	88.8	3584	3.7
Tianjin	11.2	72.3	2357	5.3
Dalian	6.1	45.1	2177	3.2

Source: Jones Lang LaSalle and CNBS

Hence, the way cities are ranked is a subjective exercise. It is subject to the purpose of ranking e.g. investment, city management/administration and so on. Though a good theory is lacking to guide the ranking of urban property markets in China, current the second tier property markets are mainly derived from the secondary city groups which play various functions in the national economy. The designated tiers are typically defined basing on scale, function of city, economy size, population, household wealth, market transparency, and competitiveness to attract sustained investments and so on . Based on available information, this paper chooses high-end second tier cities, namely Dalian and Tianjin to compare with first tier cities such as Beijing, Shanghai, Guangzhou and Shenzhen. Table 1 shows key indicators of these cities.

Investment strategy and market tiers: are they consistent?

The supply of high-end residential space in second tier cities in China is generally market driven. Although classic housing market model such as Charles (1977, p9) is useful, it may not fully explain the emerging Chinese housing markets due to the transition nature of it. In this regard, general market evidence and second tier city market evidence are both used to investigate the key advantages and barriers / risks of investing in emerging housing markets. For example, residential property is mainly supplied by the private sector but is subject to strong policy control which often distorts urban land prices, planned density and land use. It is the high-end residential market that is more purely market-driven. In recent years, due to the substantial rise of marginal cost for property development in first tier cities, it has been more attractive for projects in second tier cities where housing demand is solid and land is relatively cheap. However the actual investment conditions and performance in these cities remains relatively unclear.

From the market institution's perspective, there is a lack of integration in the positioning of China's housing market system. Compared to mature markets, the private investment market structure in China is not yet well understood. Consequently, the risk vs. return approach is also linked to particular patterns, namely: individual investment vs. institutional investment, including government-backed investment; and direct investment vs. indirect investment or securitized housing development or investment firms. This is in addition to typical measures of investment potentials by volume, by demand and by risk. The significance of the housing market also needs to be measured by prices and supply of housing in specific markets; together are demand fundamentals: historical or forecasting models of housing markets are both derived from data of these sorts (Wheaton, 1985, Ball et al., 1998). Domestic housing investment potential can be evaluated based on savings level, household wealth and disposable income level. The authors found that many of these analytical tools are not yet comfortably fit into the system of city and market evaluation and ranking system.

The review and discussion so far seem to suggest that city tiering system may not necessarily be consistent with our typical property investment strategy – for example how do we measure performance and compare in a market system that keeps changing? The previous sections also suggest that the concept of China's city tier system may not be well consistent with China's residential property investment markets for macro investment strategy making. This draws the authors' attention to examine the system of defining markets as well as conducting empirical analysis hoping to unveil key market defining characteristics to assist further improvements. The following sections present our analysis of the performance, risk and diversification benefit in selected first tier and second tier city housing markets.

METHODOLOGY

Investment performance analysis

The measure of risk and return using housing market data does have some differences from those collected or adopted from listed property company share prices and returns, e.g., see (Newell et al., 2009). The performance of selected assets for this paper was analysed using Sharpe ratio and Sortino ratio. Sharpe ratio is risk-adjusted return of an asset in a mean variance framework and is a typical tool in standard investment analysis. Sharpe ratio can be computed by the following formula:

$$\text{Sharpe} = (R_{it} - R_{if}) / \sigma_{it} \quad (1)$$

Where R_{it} is the return of asset i during period t , R_{if} is the risk-free rate of return of asset i , and σ_{it} is the standard deviation (SD) of asset i during period t .

On the other hand, we also use Sortino ratio as a second measure of investment performance. Different from Sharpe ratio, Sortino ratio employs downside risk as the risk measure which is estimated by the following formula:

$$\text{Sortino} = (R_{it} - R_{if}) / DD_{it} \quad (2)$$

In equation (2) the variable DD_{it} is the downside deviation of asset i during period t , which can be estimated using the following formula (Equation 3), where n is the degree of the LPM and T is the number of returns. For consistency purpose with the variance framework, in this study n is equal to 2 and τ is equal to the mean of the returns. For details of the downside risk analysis, please refer to earlier studies such as Lee et al (2008) and Lee (2008).

$$DD_{it} = \sqrt[n]{\frac{1}{T-1} \sum_{t=1}^T [\text{Max}(0, (\tau - R_{it}))]^n} \quad (3)$$

A correlation analysis was performed to study the diversification benefits of first, second tier housing markets with selected assets. This method is consistent with earlier studies such as Newell et al. (2009) and Lee (2008). In essence, a strong and positive correlation coefficient between two assets indicates that there is little diversification potential for distributing fund into the two assets. However diversification benefits could be identified and achieved through including assets with negative correlation coefficient in an investment portfolio.

The empirical analysis involves the analysis of (1) first-tier city property markets; (2) among second-tier city markets; (3) between first and second tier markets over time; and (4) property and other asset classes. These will help understand and hope to help clarify the consistency of key concepts such as city and market tiers, return, diversification, maturity and correlations, which will help achieve a clear picture of the Chinese residential investment markets.

Data and limitations

In this study, the analysis of investment performance is mainly based on four first tier cities i.e. Beijing, Shanghai, Guangzhou and Shenzhen and two second tier cities i.e. Tianjin and Dalian. The inclusion of only two “second tier” cities is due to data constraints caused by much shorter market history and poorer data availability. Asset performance data, major

economic indicators and housing prices indices over 2001:Q1 -2009:Q1 published by major private consultant firms and the statistical department are used for this study, they include:

- National Real Estate Price Index (NREP) published by the China National Bureau of Statistics (CNBS);
- DTZ property indices (high-end residential) are quarterly rental and price indices of residential markets of 6 Chinese cities: Beijing, Shanghai, Guangzhou, Shenzhen, Dalian and Tianjin
- Share/stocks (Shenzhen A and Shanghai A),
- Bonds (CGBI ESBI China Bond Index)
- Listed property shares (Shanghai property company shares),
- Risk-free rate (China Interbank 1 month rate)

These data were collected from DataStream and DTZ website. In this study, the DTZ data was utilised for risk adjusted performance analysis. It should be noted that the DTZ indices are focused primarily on high-end residential and office market sales and rental data. In contrast, the CNBS NREP Indices are built on more comprehensive market elements, although it is issued on an annual basis and there has been concerns about accuracy and reliability (Yin, 2005). The CNBS data may also include transactions that are not market driven, which could distort the expected information converted. Therefore, data from DTZ is considered more appropriate for the purpose in this study and is used for the performance and portfolio analyses hereafter. For those who are interested in the NREP Index, some brief information is included in the Appendix.

ANALYSIS AND RESULTS

Performance analysis results

The results from the performance analysis (data period Q1, 2001-Q1, 2009) are reported in Table 2. Despite earlier suggestion (Cotter and Stevenson, 2006) that higher frequency data would provide more intuitive findings, quarterly data was employed in this analysis due to data limitations. So far the DTZ index is one of the more frequently issued property indices in China, covering a relatively long time period. The results show that among property markets Tianjin (1.91% per quarter) and Dalian (1.48% per quarter), two of the second tier cities, had achieved higher rates of return than most the other markets, only exceeded by Shanghai (2.25% per quarter). The Shares market (Shenzhen A) had offered the highest average return of 3.78% per quarter, followed by Shanghai property companies (3.37% per quarter). It is also noted that although the returns in second tier cities are generally higher than the first tier cities, their housing markets had experienced lower return relative to shares and other asset types during the study period.

Turning our analytical focus to the volatility front, our results suggest that bonds had recorded the lowest volatility among all. The selected share markets and Shanghai property companies had recorded the highest level volatility (i.e. standard deviation) ranging from about 17.5% to 24.7% per quarter, which implies that these assets did not perform as impressive on the risk-adjusted basis. This justifies the attraction of investing in property sectors in China. Among the housing markets, the second tier cities had relatively lower volatilities (Dalian: 3.9% and Tianjin: 3.1% per quarter) than most first tier cities, ranging between 3.6% per quarter in Beijing and 6.6% per quarter in Shanghai). Comparable results are also documented by downside derivations. The Sharpe ratios scored for Tianjin and Dalian residential returns are relatively higher than the first tier cities as well as stocks and bonds. The Sortino ratios provide similar results, suggesting that our results are robust to

different risk measures. Based on the results, an overall ranking is presented in the bottom section in Table 2. These results are encouraging to investors who are seeking alternative investment opportunities especially in the second tier city housing markets in China. The results show that the second tier cities are attractive property investment vehicles. The results also suggest that recently some of the first tier cities have stopped to offer impressive risk-adjusted returns, for example, Shenzhen was ranked the worst performed market measured by risk-adjusted returns, suggesting that housing investment in this market is unfavourable based on quantitative historical market evidence.

Table 2: Performance analysis: Quarterly data

	Dalian	Tianjin	Beijing	Shanghai	Guangzhou	Shenzhen	Shanghai A	Shenzhen A	Shanghai Property Companies	Bonds
Mean (%)	1.484	1.910	1.307	2.251	1.346	0.694	1.592	3.781	3.369	0.596
Median (%)	0.704	1.744	0.938	2.200	2.465	0.672	-0.485	-0.869	-1.875	-0.022
Maximum (%)	14.837	9.389	8.135	26.713	24.862	13.122	51.609	63.468	65.695	7.442
Minimum (%)	-5.952	-6.197	-10.123	-8.563	-8.500	-19.300	-37.619	-16.395	-39.244	-3.768
Std. Dev. (%)	3.935	3.113	3.583	6.575	6.281	5.840	18.320	17.457	24.657	2.519
Downside Dev.(%)	2.194	2.156	2.612	3.926	3.883	4.382	11.706	9.435	14.574	1.492
Skewness	1.37956	-0.05768	-0.60194	1.38257	1.31569	-0.88378	0.53366	1.60177	0.90656	0.85108
Kurtosis	5.93180	3.48212	4.68594	7.06536	7.07845	5.76033	3.71567	5.99061	3.51045	3.33005
Observations	33	33	33	33	33	33	33	33	33	33
Sharpe Ratio	0.608	1.042	0.569	0.597	0.337	0.139	0.142	0.400	0.250	0.245
Sortino Ratio	1.091	1.505	0.780	1.000	0.545	0.185	0.223	0.741	0.423	0.413
Rank	2	1	4	3	6	10	9	5	7	8

Portfolio Diversification Benefits

Portfolio diversification benefit was analysed using correlation analysis technique. Table 3 shows the results of the analysis that covers the sample period from 2001 Q1 to 2009 Q1 with 33 observations in each selected city. Among the selected property markets, typically found are positive correlations, suggesting that there is little geographic diversification benefit. This could be attributed to common factors such as government policies that strongly affect the residential markets across the nation. The macroeconomic regulation and control of housing markets has been a top down process effective to most major cities. To investors, policies and restrictions also set similar entry barriers across both first and second tier cities. It is observed relatively more developed markets such as Shenzhen, Guangzhou and Shanghai experience relatively lower positive correlation, possibly suggesting each of these markets are relatively less dependent to each others, although overall they all behave similarly.

Comparing to other assets, the Shanghai property shares have relatively low correlation with housing markets in both first and second tier cities. This indicates that diversification benefit may be obtained by investing in housing markets and property firms in different cities. It should be noted that major property firms in China have conducted their business such as property development projects unrestricted by city/market boundaries, therefore it is likely that Shanghai property shares represent different set of risk/return fundamentals compared to each of the selected city's residential property market. Similar results were also found in the Australian housing sector (Lee, 2008), suggesting this is a phenomenon across mature and emerging markets. Bonds are negatively correlated with other major asset classes, confirming its defensive characteristic. This suggests the diversification benefits of bond asset class. Interestingly, the result also suggests little link between Shenzhen A and Shanghai A stock

markets, however, the search for the possible reasons for this observation is beyond the scope of this study.

Table 3: Correlation statistics

Asset	Dalian	Tianjin	Beijing	Shanghai	Guangzhou	Shenzhen	Shanghai A	Shenzhen A	Shanghai Property	Bond
Dalian	1									
Tianjin	0.540019**	1								
Beijing	0.327576	0.466535**	1							
Shanghai	0.407696*	0.405405*	0.291756	1						
Guangzhou	0.417708*	0.333347	0.590859**	0.043788	1					
Shenzhen	0.324766	0.139692	0.144322	-0.141423	0.434379*	1				
Shanghai A	0.434002*	0.148823	0.09256	0.258239	0.183024	0.415173*	1			
Shenzhen A	0.275826	0.297496	0.287416	0.629507**	0.037203	-0.271125	0.098026	1		
Shanghai property	0.332427	0.086912	0.062629	0.079909	0.314671	0.408206*	0.881444**	0.055493	1	
Bond	-0.317899	-0.334401	-0.267286	-0.254712	-0.419246*	-0.281433	-0.117529	-0.320656	-0.115346	1

Notes: *indicates significance at 5%; ** suggests significance at 1%;

Surprisingly, the results show insignificant correlation coefficients between the housing markets and listed property companies. This is peculiar as many Chinese listed property companies are heavily involved in property development activities. The possible reason is either that such features are not properly reflected in the prices of the company shares, an evidence for the immaturity of China's stock markets; or development firms are holding land bank to wait for more suitable time to start their projects. Although it has been reported that major Chinese developers e.g. R&F Properties based in Guangzhou have held large land bank in major cities for residential or commercial property development projects at a time that could maximise company profits, there is a lack of study, from the developer behaviour's perspective, to examine their motivation and strategy under the current market conditions so that it could support our second proposition. Also, government policy is often cited as being significantly affecting property firms' development decisions in urban China (Wu, 2009).

DISCUSSION AND CONCLUSIONS

The empirical results, although not absolute, have shown that the Chinese second tier city residential markets are becoming realistic investment options due to their relatively high risk-adjusted returns. The markets are also likely to provide higher diversification benefits in a mixed asset portfolio. It is also clear that second tier cities such as Tianjin and Dalian are strongly correlated to first tier cities' housing markets. This again reminds us the problem of the concept of 'tiers' to be applied as an investment concept to guide diversification decision. It appears that the rank of a city changes as its economic base and property market dynamics change, therefore the diversification evaluation result changes accordingly. Nonetheless, each of the selected cities had offered sound risk-adjusted returns compared to more mature markets. This provides investment opportunities for single asset investors. The investment potential is evident.

The first section of this paper suggests that insights about the concept of tiers in the property market context are important for investment decision and strategy makings. The process of making the strategy of housing market investment is a portfolio allocation issue and the basis of that theory is how we can perceive the way different cities' property markets are co-related. This insight is especially relevant to institutional investors willing to invest in emerging housing markets. Also important is the ability of housing markets to sustain their risk-

adjusted returns. So the basic concept of “tier” and its dynamic meanings in cities’ housing markets in China is becoming important and essential to private investors and government policy makers. This study shows some empirical analytical results. But what is not yet seen and well understood is the changing dynamics of the cities, relative to the property markets that they contain. This will demand following studies given better quality market data being available. Given the critical review and empirical results, it appears that what is lacking to provide a full picture of the mentioned research issue include: (1) the key characteristics or defining features of different markets in the city tiering system, which may include maturity levels; (2) all features are relative to cities and markets; (3) there is a lack of theory of the correlations among each tiering group as well as with other tiering groups; (4) the current concern lack a consideration of the sustained growth of the property market in the longer run.

Housing is an alternative investment asset because of its relatively stable nature in terms of risk-adjusted return. This idea is tested in the residential property markets of selected first and second tier cities. The study has provided preliminary yet encouraging results about the investment potential of housing markets in selected second tier cities. It shows that both Tianjin and Dalian, to a certain degree, offer higher risk-adjusted return than first tier cities such as Beijing, Shanghai, Shenzhen and Guangzhou. The performance of the housing market seems to be more promising than other asset types such as stocks, bonds, and listed property companies. The Chinese housing markets especially those in second tier cities appears to be an effective property investment vehicle. The analysis seems to support the hypothesis that the Chinese housing markets in second tier cities are effective investment vehicle. The findings show the importance of integrating residential property in an investment portfolio in emerging housing markets. Although focusing on the analysis of local demand, the result will help international investors to determine future investment direction.

The findings of this study are to be extended by further research. They need to be tested with better quality market data. This research provides one of the earliest attempts in testing and evaluating the investment potential of China’s second tier cities. As pointed out by Jones Lang LaSalle (2009), the significance of China’s second and third tier cities are increasing in the near future, just like “rising stars”.

Appendix

National Real Estate Price Index

The China National Bureau of Statistics started to construct and publish real estate indices in 1998 (1999 is the benchmark year). Although the index methodology remains unchanged, as market matures, some detail classifications have been altered to reflect the market structural changes and characteristics. The CNBS surveys of property market prices mainly address the volatility and trend of property markets, which include the following categories:

- (1) Transaction prices of property, which are classified into commodity property prices, publicly-owned property prices and privately-owned prices (this has been changed to commodity and 2nd-hand property prices since 2006);
- (2) Property rental prices including residential, office, commerce (incl. entertainment), factory or warehouse and others;
- (3) Land prices including residential, industrial, business, commercial and others;
- (4) Property management prices index is created recently, which includes residential, office, commerce and industrial.

References

- BALL, M., LIZIERI, C. & MACGREGOR, B. D. (1998) *The economics of commercial property markets*, London, Routledge.
- BROWN, G. R. & MATYSIAK, G. A. (2000) *Real estate investment: a capital market approach*, Harlow, Financial Times Prentice Hall.
- BRUCKNER, J. J. (1997) Consumption and investment motives and the portfolio choices of homeowners. *Journal of Real Estate Finance and Economics*, 15, 159-80.
- CHARLES, S. (1977) *Housing economics*, London, the MacMillan Press Ltd.
- COCCO, J. F. (2004) Portfolio choice in the presence of housing. *The Review of Financial Studies*, 18, 535-65.
- COTTER, J. & STEVENSON, S. (2006) Multivariate Modeling of Daily REIT Volatility. *Journal of Real Estate Finance and Economics*, 32, 305-325.
- ENGLUND, P., HWANG, M. & QUIGLEY, J. M. (2002) Hedging housing risk. *Journal of Real Estate Finance and Economics*, 24, 167-200.
- EVANS, A. W. (2004) *Economics and land use planning*, London, Blackwell Publishing.
- FLAVIN, M. & YAMASHITA, T. (2002) Owner-occupied housing and the composition of the household portfolio. *American Economic Review*, 92, 345-62.
- FRIEDMAN, D. (1977) A theory of the size and shape of nations. *Journal of Political Economy*, 85.
- GOETZMANN, W. N. (1993) the single family home in the investment portfolio. *Journal of Real Estate Finance and Economics*, 6, 201-22.
- GOODMAN, J. (2003) Homeownership and investment in real estate stocks. *Journal of Real Estate Portfolio Management*, 9, 93-105.
- HEALEY, P. & NABARRO, R. (Eds.) (1990) *Land and property development in a changing context* Aldershot, Gower.
- JONES LANG LASALLE (2003) Beijing economic insight: is Beijing heading towards a property bubble? Beijing, Jones Lang LaSalle.
- JONES LANG LASALLE (2007) China 30: China's rising urban stars. IN LASALLE, J. L. (Ed.) *World winning cities series, emerging city winners*. Hong Kong, Jones Lang LaSalle.
- JONES LANG LASALLE (2009) China 40 - the rising urban stars. *Global Foresight Series*. London, Jones Lang LaSalle IP, INC.
- JOWSEY, E. & HARVEY, J. (2003) *Urban Land Economics*, London, Palgrave Macmillan.
- JUD, G. D., WINGLER, T. R. & WINKLER, D. T. (2006) Single family housing and wealth portfolios. *Journal of Real Estate Portfolio Management*, 12, 13-22.
- JUD, G. D. & WINKLER, D. T. (2003) The Q theory of housing investment. *Journal of Real Estate Finance and Economics*, 27, 379-392.
- LEE, C. L. (2008) Housing in Australia as a portfolio investment. *International Journal of Housing Markets and Analysis*, 1, 352-361.
- LEE, C. L., ROBINSON, J. & REED, R. (2008) Listed property trusts and downside systematic risk sensitivity. *Journal of Property Investment and Finance*, 26, 304-328.
- LIU, M., REED, R. & WU, H. (2008) Challenges facing housing affordability in Beijing in the twenty-first century. *international Journal of Housing Markets and Analysis*, 1, 275-287.
- LU, J., PETER, R. & ZHANG, J. (Eds.) (2001) *Modern Urban Housing in CHINA 1840-2000*, New York, Prestel.
- MAK, S. W. K., CHOY, L. H. T. & HO, W. K. O. (2007) Privatisation, housing conditions and affordability in the People's Republic of China. *Habitat International*, 31, 177-192.

- MARKUSEN, A. R., LEE, Y.-S. & DIGIOVANNA, S. (Eds.) (1999) *Second tier cities: rapid growth beyond the metropolis*, London, University of Minnesota Press.
- NBSC (2009) 2008 China national economic and social development statistic brief. Beijing, National Bureau of Statistics of China.
- NEWELL, G., CHAU, K. W. & WONG, S. K. (2009) the significance of Chinese commercial property in an Asian property portfolio. *Journal of Property Investment and Finance*, 27, 102-119.
- NEWELL, G. & WEBB, J. R. (1996) Assessing risk for international real estate investments. *Journal of Real Estate Research*, 11, 103-115.
- NIU, Y. (2008) the performance and problems of affordable housing policy in China. *International Journal of Housing Markets and Analysis*, 1, 125-146.
- O'SULLIVAN, A. (2009) *Urban economics (7th edition)*, Boston, McGraw-Hill.
- O'SULLIVAN, T. & GIBB, K. (Eds.) (2003) *Housing economics and public policy*, Oxford, Blackwell Science.
- QUIQLEY, J. M. (2006) Real estate portfolio allocation: the European consumers' perspective. *Journal of Housing Economics*, 15, 169-88.
- RREEF (2007) The maturing of the Chinese real estate market. IN TAN, Y. K., HOBBS, P. & CHIN, H. W. (Eds.) *RREEF Research reports*. London, RREEF.
- SHEN, Y., HUI, E. C.-M. & LIU, H. (2005) Housing price bubbles in Beijing and Shanghai. *Management Decision*, 43, 611-27.
- WAXMAN, P. & NG, K. (2004) *Investing in residential property: understanding the Australian market*, Camberwell, Vic, John Wiley & Sons.
- WHEATON, W. C. (1985) Life-cycle theory, inflation, and the demand for housing. *Journal of Urban Economics*, 18, 161-79.
- WU, H. (2009) *Emerging Commercial Property Cycle - China's Property Markets in the Economic Transition*, Saarbrücken, VDM Verlag
- XIE, Y. & LIU, H. (2004) Price-rent ratio in China's housing market: proper interval, measurement and an empirical study. *International journal of Strategic Property Management*, 8, 73-86.
- YIN, Z. L. (2005) Systematic error in real estate statistical data collection process in China. centre for real estate finance, research institute of finance, the Chinese academy of social sciences.
- ZHU, J. (1999) *The Transition of China's urban development: from plan-controlled to market-led*, Praeger Publishers.