

**ANALYSING THE DEMAND FACTORS AFFECTING HOUSING PRICE  
INDEX IN CHINA**

**By**

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**Thesis Submitted to  
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## **ABSTRAK**

Harga rumah di China telah mengalami kenaikan yang ketara melambung tinggi sejak beberapa tahun lalu terutamanya di bandar-bandar besar seperti Shanghai dan Beijing. Ini adalah trend yang membimbangkan kepada pembeli dan pelabur di China. Kajian ini cuba mengenal pasti faktor-faktor yang mempengaruhi harga rumah indeks China, dari tahun 2010 hingga tahun 2014. Kajian ini menggunakan enam pemboleh ubah bebas yang terdiri daripada kadar inflasi, kadar pertumbuhan KDNK, kadar faedah, kadar gadai janji, bekalan wang M1 dan kadar pertukaran wang RMB. Pelbagai kaedah telah digunakan dalam kajian untuk menganalisis data sekunder bulanan dari tahun 2010 hingga tahun 2014. Tiga model telah dibentuk termasuk Asas Makroekonomi Model, Peningkatan Makroekonomi Model dan Penggabungan Makroekonomi Model, dan di analisis dengan teknik Analisis Deskriptif, teknik Pearson Korelasi dan teknik Pelbagai Analisis Regresi untuk meneroka hubungan, kesan dan urutan dari pembolehubah bebas terhadap pembolehubah bersandar. Hasil empirikal menunjukkan bahawa kadar faedah, kadar gadai janji, bekalan wang M1 dan kadar pertukaran RMB mendapati pengaruh yang signifikan kepada Indeks Harga Perumahan di China. Hasil empirikal juga menunjukkan bahawa bekalan wang M1 adalah mempunyai pengaruh yang terbesar kepada Indeks Harga Perumahan China, diikuti dengan kadar pertukaran wang RMB, kadar gadai janji dan akhir sekali adalah kadar faedah. Kajian ini telah membuktikan bahawa Indeks Harga Perumahan China memang dipengaruhi oleh pelbagai Pembolehubah Makroekonomi.

## **ABSTRACT**

House prices in China has experienced significant price soaring over the past few year especially in large cities such as Shanghai and Beijing. This is a worrying trend for buyers and investors in China. This research attempts to identify factors that influence on China's house prices index, from year 2010 until year 2014. The study used six independent variables which comprise of inflation rates, GDP growth rates, interest rates, mortgage rate, and money supply of M1 and RMB exchange rate. Various methods had employed for this study comprising the monthly secondary data which range from year 2010 until year 2014. The models are categorized into three categories like Common Macroeconomics Model, Enhanced Macroeconomics Model and Combine Macroeconomics Model. All of these models are analyzed by using technique of Descriptive Analysis, technique of Pearson Correlation and technique of Multiple Regression Analysis. This is used to explore the relationships and the impact of the independent variables towards the dependent variables. Empirical result shows that only interest rate, mortgage rate, money supply of M1 and RMB exchange rate are having influences on China's Housing Price Index. Empirical result also shows that money supply of M1 is having the greatest impact on China's Housing Price Index, followed by RMB exchange rate, mortgage rate and lastly interest rate. This research has proven that China's Housing Price Index indeed influencing by various Macroeconomics Variables.

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# **CHAPTER 1**

## **INTRODUCTION**

### **1.0 Research Background**

Real estate is defined as a significant role couldn't be neglected in several important macroeconomics considerations due to its function of future creation and also contribution to the economic growth (Bell & Mulligan 2006). This issue is relevant not only to the developing country but also to highly developed country. Fisher (2011) stated that there are two categories of real estate, which can be grouped into real-estate of residential and real estate of non-residential. Residential real estate consists of apartment, properties of single-family and properties of multi-family like blocks of an apartment (Burman & Maya, 2011). Besides, the real estate of non-residential can be classified further into two subsectors which are; 1) commercial real estate which include factories, workplace, store, retail buildings and hotels, land and; 2) commercial real estate which include campus, colleges and hospitals as well as agricultural real estate (Fisher & Wilson, 2011).

Housing has played a significant character in generating the business cycles of some advance countries such as USA, Britain, Australia, New Zealand, Canada and China (Hale & Anne, 2012). For example, the change in house's price will influence the home buyer fortune and spending. This is due to housing is the major component in real estate market. Zhu (2011) observed that as the performance of properties prices

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## REFERENCES

- Adam, T. (2010). Are house prices rising too fast in China? *IMF Working Paper*, 2010 (274).
- AiJian. (2007). China's Land Market Auctions: Evidence of Corruption. *NBER Working Paper*, pp. 15-67.
- Arrau. (1995). Chinese Property: A Lofty Ceiling. Retrieved from <http://www.ft.com/intl/cms/s/0/6b521d4e-2196-11e1-a1d8-00144feabdc0.html>
- Altman. (1968). A regression method for real estate price index construction. *Journal of the American Statistical Association*, 58(304), pp. 933–942.
- Asiah,J. (1999). Land-use rights in mainland China: Problems and recommendations for Improvement. *Journal of Real Estate Literature*, 7 (1), pp. 53-63.
- Andrew,R. (2011). *Chinese Property: A Lofty Ceiling*. Retrieved from FT.com website: <http://www.ft.com/intl/cms/s/0/6b521d4e-2196-11e1-a1d8-00144feabdc0.html>
- Barnett and Brooks. (2006). A Regression Method for Real Estate Price Index Construction', *Journal of the American Statistical Association*, 58(304), pp. 933–942.
- Barakova. (2003). *Who Benefits from State and Local Economic Development Policies?* W.E. Upjohn Institute for Employment Research, Kalamazoo.



- Bond, Y. & Seiler, R. (2008). Housing Wealth, Financial Wealth and Consumption. *New Evidence from Micro Data*. Retrieved from the website: [http://www.usc.edu/schools/price/lusk/research/pdf/wp 2008-1006.pdf](http://www.usc.edu/schools/price/lusk/research/pdf/wp%2008-1006.pdf)
- Beaver. (1996). Land-Use Rights in Mainland China: Problems and Recommendations for Improvement. *Journal of Real Estate Literature*, 7 (1), pp. 53-63.
- Burman, C., & Maya, M. F. (2011). China's Economic Transformation. *Journal of Economic Transformation*, 33, pp. 377-381.
- Bell, S., & Mulligan, G. F. (2006). Incorporating spatial variation in housing attribute prices: A comparison of geographically weighted regression and the spatial expansion method. *Journal of Geographical Systems*, (1), pp. 7-27.
- Chan. (2003). The relationship between housing investment and economic growth in China: A Panel Analysis using Quarterly Provincial Data. *Uppsala Universitet Working Paper*, 2008 (17).
- Chau. (2005). The Efficiency of the Market for Single-Family Homes. *The American Economic Review*, 79(1), pp. 125-137.
- Chinyue, H. & Yan, Y. (2010). Modeling spatial variation in housing prices: A variable interaction approach. *Real Estate Economics* 31(4), pp. 423-464.
- Chen. (2011). Measuring housing quality in China: an evaluation of the service scale. *The Journal of real estate*, 19, pp. 421-435.
- Crowe. (2011). Prices of single family homes since 1970: new indexes for four cities. *New England Economic Review*, September/October, pp. 45-56.

- Clarida. (2010). Political turnover and economic performance: The incentive role of personnel control in China. *Journal of Public Economics*, pp. 1743–1762.
- Dally. (2011). Tweaking the DiPasquale-Wheaton model. *Journal of housing economics* (vol. 11), pp. 24-39.
- Davis,P.J., & Heathcote, R.C., (2003). The investment environment: Business cycles of country. Washington, DC: Cato Institute.
- Deng. (2012). Tweaking the DiPasquale-Wheaton model. *Journal of housing economics*, vol. 11, pp. 24-39.
- Duang, C. (2007). M3 money demand and excess liquidity in the Euro area. *Public choice*, Vol. 144, No. 3, pp. 459–472.
- Ehomeday,P. (2014). Games on the Greek economy: A small macroeconometric model. *Economic Modeling*, pp. 139-146.
- Ellen, T. (2014). Estimation in survey sampling: business and optimality. *Journal of the American Statistical Association*, pp. 393-403.
- Fama,T,. & Schwert,J,. (2007). A., Gyntelberg, J., Kjeldsen, K. & Perrson, M. 2004, The Danish mortgage market, *BIS quarterly Review*, pp. 95-107.
- Fisher, G.M. & Wilson,J.R. (2011). Regression by leaps and bounds. *Technometrics* 16(4), pp. 499–511.
- Fushan,P,. (2011). *Microeconomics and behavior*, 5th ed, McGraw-Hill Higher

Education, New York.

Fubing. (2011). The effect of demographics on the Japanese housing market. *Regional Science and Urban Economics* 26, pp. 189-201.

Goodhart & Hofmann. (2003). Contestability of the urban land market: An event study of Hong Kong land auctions. *Regional Science and Urban Economics*, 33(6), pp. 695–720.

Gaobo. (2009). An alternative approach to examining the ripple effect in UK house prices. *Applied Economics Letters*, 10 (13), pp. 849 - 851.

Gaetz, P. R. (2010). Affordable housing in various countries. *Housing* 59(2), pp. 5-7.

Gichrist & Leahy. (2002). Housing dynamics. *Real estate* 56(1), pp. 4-8.

Goodhart & Hofman. (2000). How changes in residential and non-residential investment predict changes in GDP. *Real Estate Economics* 25, pp. 253–270.

Gregory, Y., (2002). Housing supply and housing bubbles. *Journal of Urban Economics* 64, pp. 198–217.

Guangyu. (2010). A likelihood ratio statistics for autoregressive time series with a unit root. *Econometrica*, 2008, (49), pp. 1057-1072.

Guang. (2011). Subhanij, Tientip, Szeto, Jessica, and Haibin Zhu, 2008. Determinants of House Prices in Nine Asia-Pacific Economies. *BIS Working Paper*, 2008 (263).

- Guang. (2012). Real Estate Booms and Banking Busts: An International Perspective, *Center for Financial Institutions Working Papers*, pp. 99-107.
- Giovannelli, A. and Proietti, T. (2014). Common Factors for Macroeconomic Forecasting. *CREATES Research Paper*, pp. 34-56.
- Hale, C., & Anne, J. (2012). Why is Shanghai Building a Giant Speculative Property Bubble? *Journal of Urban and Regional Research*, 23 (3), pp. 583-588.
- Hao. (2011). The determinants of urban price fluctuations in Sweden 1968-1994. *Journal of housing economics*, vol. 7, pp. 93-120.
- Haocheng,H. (2011). *The Relationship between Home Mortgage Loan and Real Estate Market in China: Evidences and Insights from a Regional Perspective*. Retrieved from the website: <http://about-equity-loan.com/mortgage-home-loan-market>
- Hengli,K.,(2012). Assessing High House Prices: Bubbles, Fundamentals and Misperceptions. *Federal Reserve Bank of New York Report*, 20(5), pp. 218-224.
- Hongli. (2010). Urban Housing Markets in China. *Royal Institute of Technology Stockholm*, 2009, pp. 88-98.
- Hongchen. (2010). The rise in house prices in China: bubbles or fundamentals. *Economics Bulletin*, 3 (7), pp. 1-8.
- Huan. (2004). S.A. 1977, *Ekonomic in Denmark*, Akademisk Forlag.
- Joseph, J, (2015). Price Formation under Small Numbers Competition: Evidence from Land Auctions in Singapore. *Real Estate Economics*, 34(1), pp. 51–76.

- Jingwu,K. (2012). Political Turnover and Economic Performance: The Incentive Role of Personnel Control in China. *Journal of Public Economics*, 89(9–10), pp. 1743–1762.
- Jianxiao. (2010) .The empirical study of influencing factors of our country's real estate prices. *The Journal of Hebei University (Philosophy and Social Sciences)*, Vol.35, No.1, pp. 62-65.
- Jingfei. (2011). The political cost of the Beijing Olympics. China elections org. *Assessing the impact of the 2004 Olympic*, vol12, No2, pp. 34-35.
- Jianbang. (2011). The effects study of the fluctuations of estate price and local fiscal revenue –based on Panel Data Analysis of Beijing, Tianjin, Shanghai, Chongqing and four municipalities. *The journals of real estate prices*, pp. 56-68.
- JuJian. (2010). The general properties in China. *Journal. Financial and Economic Issues*, 45(10), pp. 89 -94.
- Kearl. (2009). Political turnover and economic performance: The incentive role of personnel control in China. *Journal of Public Economics*, 89(9–10), pp. 1743–1762.
- Kenny,J,. (1999). The general theory of employment, interest and money: empirical analysis on causes of real estate price fluctuation in China management world. *Journal Financial Issues*, (8), pp. 76-82.
- Liu. (2009). What location attributes are the most important for market value. *Property Management* 25(3).

- Li & Ge. (2008). En model for de danske bolig-ejere. *Working paper økonomi og Erhvervsministeriet*, vol. 1.
- Li-Gang. (2013). *China property boom continues relentlessly*. Retrieved from the website: <http://www.globalpropertyguide.com/Asia/china/Price-History>.
- Liu. (2009). *The demand for money: Theories and evidence*. New York: Harper and Row, 2nd Ed.
- Low. (2001). Phoniness of China's export surplus in recent years and its impact on China's monetary policy. *International Economic Review*, 4, pp. 21-28.
- McMilen. (2012). Residential appraisal and the lending process: A survey of issues. *Journal of Real Estate Research*, pp. 15-18.
- Norris. J. (2004). The 2008 Olympics' Impact on China. *China Business Review*, July-August 2008.
- Peng, W., & Cheung, L. (2009). The property market and the macro-economy. *HKMA Quarterly Bulletin, Hong Kong*, 49(2), pp. 8-17.
- Qingwu. C. (2013). Effect of the rising prices in real estate. *Journal of Housing Prices*. 31, pp. 337-351.
- Ralph, G. (2013). Income Distribution and Housing Prices: An Assignment Model Approach. *Journal of Property*. 10 (2), pp. 1-34.

- Robert, D., & Pryce, G. (2012). Global Economic Change, Labour Market Adjustment and the Challenges for European Housing Policies. *Journal of Urban Studies*, Vol. 33, No. 10, pp. 1849-1865.
- Shuqing, H. (2012). The relationship of real estate prices and inflation of our country and its influencing factors. *Journal Financial Theory and Practice*. Vol.33, pp .107-113.
- Sing. (2012). *Introduction to econometrics*, John Wiley & Sons Ltd, Glasgow.
- Stock,H. & Watson,. (2001). Real estate prices and economic cycles. *International Real Estate Review*, 2 (1), pp. 1-20.
- Tsai,S., & Chunyu Jin,H. (2011). The influencing factors of our country's real estate prices and econometric tests of its effect. *Journal Taxation and Economy*, No.6, pp.33-38.
- Tze,T. (2013). The influencing factors of real estate price: Based on the Empirical Study of the Panel Data of Chinese provinces and cities. *The Journal of China Geosciences University (Social Sciences)*, Vol.10, No.2, 2010, pp. 98-103.
- Martin & Morrison. (2008). Phoniness of China's Export Surplus in Recent Years and Its Impact on China's Monetary Policy. *International Economic Review*, 4, pp. 21-28.
- Nihon-Mika. (2006). Bank ownership reform and bank performance in China. *Journal of Banking and Finance*, Vol. 33, Issue 1, pp. 20–29.

- Pollock. (2010). Food, flats and the party - framework for understanding China. *CLSA – China Macro Strategy Working Paper*, Vol.23, Issue 3, pp.15-25.
- Rothman. (2011). The baby boom, the baby bust, and the housing market, regional science and urban economics 19, pp., 235-258.
- Shen. (2005). *Understanding Recent Trends in House Prices and Homeownership*. Yale University - International Center for Finance, Cowles Foundation Discussion Paper, 2007 (1630).
- Shiratsuka. M. (1999). An analysis of state-owned enterprises and state capitalism in China. *U.S.-China Economic and Security Review Commission Report*, 2011 (10).
- Smets. (2007). Property valuations and the structure of urban housing markets. *Journal of business*, No7, pp. 23-26.
- Stevenson. (2000). Dynamic Speculative Behaviors and Mortgage Bubbles in the Real Estate Market of Mainland China. *Journal of Finance and Investment Analysis*, pp. 1-54.
- Sun. (2004). *Is there a bubble in the housing market?* Yale University - Research in Economics, Cowles Foundation Discussion Paper, 2007, pp. 37-42.
- Sun. (2011). A procedure for predicting recessions with leading indicators: Econometric issues and recent experience. *NBER Working Paper*, 1993, pp. 40-45.
- Shun. (2011). Local Tax System, Intergovernmental Transfers and China's Local Fiscal Disparities. *Journal of Comparative Economics*, 33(1), pp. 173–196.



- Tao. (2010). Evaluating conditions in major Chinese housing markets. *Regional Science and Urban Economics*, 42(3), pp. 531–543.
- Tsai. (2011). The empirical study of influencing factors of our country's real estate prices - based on 2003 - 2008 data. *Journal Jiangxi Social Sciences*, no.12, pp. 54-57.
- Tingting & Jingwu, (2012). The empirical study of influencing factors of our country's real estate prices. *Journal of accounting*, No.27, pp. 94-95.
- Wang. (2008). *Journal Financial and Economic Issues*, No.10, pp. 89 -94.
- Wengao. (2012). The influencing factors of real estate prices: the Data Test of Foshan in Guangdong. *Journal Southern Finance*, No.3, pp. 43-45.
- Webb & Tse. (2000). Price Formation under Small Numbers Competition: Evidence from Land Auctions in Singapore. *Real Estate Economics*, 34(1), pp. 51–76.
- Wilgren, L. (2009, August). How economic development in China affects the pricing? *Global*, 35(5), pp. 44-55.
- Wong, Y. (2010). Managing hedonic housing price indexes: the French experience. *Journal of Housing Economics*, 21(3), pp. 23-34.
- Wong, Y. (2011). Managing hedonic housing price indexes: the French experience. *Journal of Housing Economics*, 18(3), pp. 206-213.

- Wu. E. (2010). The grey research of the influencing factors of Lanzhou City's real estate prices grey factors research. *Journal Gansu Science and Technology*, Vol.26, No.9, pp. 37-40.
- Wu, J. (2015). House price index construction in the nascent housing market: The Case of China. *The Journal of Real Estate Finance and Economics*.
- Xia. (2010). Evaluating conditions in major Chinese housing markets. *NBER Working Paper*, pp. 34-45.
- Xiaochi. (2009). Rent Vouchers and the Price of Low-income Housing. *Journal of Public Economics*. 83, pp. 109-152.
- Xin-na. (2010). Food, flats and the party - Framework for understanding China. *CLSA – China Macro Strategy Working Paper*, pp. 12-18.
- Xu. (2010). Price level convergence, relative prices and inflation in Europe. *International Finance Discussion Papers*, pp. 69-75.
- Xu. (2011). Regional market variations: The Northeast versus the South. *Journal of the American Real Estate and Urban Economics Association*, pp. 44-68.
- Xiaoxi. (2011). The Composition of Hedonic Pricing Models. *Journal of Real Estate Literature*.
- Xu,J., & Yeh, A. (2014). *Urban Development in Post-Reform China: State, Market, and Space*. London: Routledge.

- Yan Zang. (2010). Is there a bubble in the housing market? Yale University – Research in Economics. *Cowles Foundation Discussion Paper*, 2007 (1089).
- YanMing. (2010). The influencing factors of real estate prices: the Data Test of Foshan in Guangdong. *Journal Southern Finance*, No.3, pp. 43-45.
- Yao. (2011). Local tax system, intergovernmental transfers and China's local fiscal disparities. *Journal of comparative economics*, 33(1), pp. 173–196.
- Yonghe. (2011). Can recent policy campaign against property speculation cause a hard landing? *Morgan Stanley, Global Economic Forum*.
- Yongheng. (2012). Local property development in China. *Journal of Comparative Economics*, 36(1), pp. 13–16.
- Yongqi. (2002). The housing market, macroeconomic activity and financial innovation: an empirical analysis of US data. *Journal of Applied Economics*, Vol.25, no 3, pp. 385-392
- Yongqi. (2002). The housing market, macroeconomic activity and financial innovation: an empirical analysis of US data. . *Journal of Property investment and Finance* 17(3), pp. 157-175.
- Yuemin. (2011). Conception on Monitoring and Early-Warning System for Real Estate. China Real Estate. *Journal urban property in China*, pp. 33-45.
- Yali. (2011). S.: Hedonic analysis of housing markets. *Journal of Regional and Urban Economics*, pp. 1595–1635.

- Yee. (2013). Some observation on low inflation and household finances. *RBA Bulletin*, pp. 38-47.
- Yizhang. (2009). Property valuations and the structure of urban housing markets. *Journal of Economics*, pp. 88-101.
- Yujian. (2011). Dynamics relationship between house prices and macroeconomic aggregates. *Journal of Regional and Urban Economics*, pp. 15-22.
- Y.P Wang. (2010). The empirical study of influencing factors of our country's real estate prices - -based on 2003 - 2008 data. *Journal Jiangxi Social Sciences*, no 12, pp.54-57.
- Zhang, G. (2007). The regional economic effect in the country: Taking action in China. *Economics*, 78(2), pp. 7-10.
- Zhang,R. (2009). The influencing factors of our country's real estate prices and econometric tests of its effect. *J. Taxation and Economy*, No.6, pp. 33-38.
- Zhiyong. (2010). Empirical research on real estate price interaction in regional market of China. *Research on Financial and Economic Issues*, (6), pp. 122-129.
- Zietz. (2009). Market transition and the commodity of housing in urban China. *International Journal of Urban and Regional Research*, 20 (3), pp. 400-421.
- Zhu. (2004). Heterogeneous responses of Chinese cities. *Housing Prices to Monetary Policies*, 56 (4), pp. 791-796.

- Zhu,T. (2011). *Introductory econometrics a modern approach*. Thomson South-Western, Mason, Ohio.
- Zenou. (2010). The analysis of China's housing price based on the demand. *Agricultural University of Hebei - Orient Academic Forum, Hebei*.
- Zhang and Fung. (2006). Evaluating Conditions in Major Chinese Housing Markets. *NBER Working Paper*, pp. 34- 46.
- Zhang-shuai. (2012). Heterogeneous responses of Chinese cities. *Housing prices to monetary policy*. 56 (4), pp. 791-796.