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Is There a Housing Bubble in China?

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Is there a Housing Bubble in China?
University of Rhode Island
Honors Program

Grant West
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Abstract: Comparing the U.S. and Chinese Housing Markets, and examining the Housing Bubble in China

Grant West: Chinese and International Business

Sponsor: Arthur Mead, Economics

I chose to study the housing market in China because of the dual-degree program in which I am enrolled at the University of Rhode Island. The Chinese Flagship Program is dedicated to making sure that American students are prepared to work in China once they graduate. Each student is required to have a dual degree, Chinese and a second major of their choice. I chose International Business given my interests in economics and China. I began this research project while I was enrolled in third level Chinese, a course in which students are given an honors research project that must be researched using Chinese sources and written completely in Chinese.

The topic for this research project came to me when I went to China and began to wonder if China was facing a potential housing crisis. There was clearly something “special” about China’s construction boom, and my project was aimed at learning about the Chinese housing market and comparing it to the market in the US. I did this by examining several factors that affect demand for housing including economic, demographic, cultural, and public policies and I looked specifically at housing markets in New York City and Shanghai.

The second phase of the project was to look more closely at the housing market to see if China is experiencing a housing bubble comparable to what we experienced in the US in the housing bubble that burst in 2007. The project discusses how economic and societal factors in China appear to be combining to produce a housing bubble. This discussion is provided in the historical context of other economic bubbles that have occurred, including the American housing bubble of the early 2000s.

The project concludes with some reflections on my experience in conducting the underlying research. The fact that the first phase of the project was undertaken during my sophomore year at URI has given me the ability to look back on my project to see how I could have expanded my initial work. Two extra years of study introduced me to different research strategies that allowed me to look deeper into the issue, as well as developing communications skills that helped me to present my research more clearly and concisely. Accordingly, my reflections at the end of this paper include additional research on this topic completed over the past year, along with thoughts on how I would alter my project if I were to do it again.

Overall, my goal for this paper is to help inform the reader about the housing market in China including a discussion of a housing bubble, as well as compare some aspects of the U.S. housing market to the Chinese housing market. I also hope that my reflections on this project will help illustrate how the Honors Program has assisted me in developing my research skills and can be used to help gauge the effectiveness of their program.
Foreword:

I have been learning Chinese since I was six months old. When I turned four, I traveled to China for the first time, and I have returned many times since. In total, I have spent almost two years of my life studying and traveling in China and seen its great rise in power from the perspective of someone in the country. It has been a period of unprecedented expansion in China’s cities as hundreds of millions of Chinese have migrated to the cities from rural areas. The percent of the population in cities rose from slightly more than 1/3rd to slightly over ½ between 2000 and 2015 (geospacer.edu). This increase in urbanization is almost the same as we saw in the US during its industrial revolution, except then it took twice as long (1890 to 1920) (geospacer.edu).

It is difficult to describe the tremendous pace of real estate development in China’s cities to anyone who has not visited the country throughout several years, as I have. The transformation of the Pudong skyline in Shanghai between 1987 and 2013, as shown in the photos below, gives some idea of the dramatic speed of change that occurred in cities across China over 25 years. The warehouses, wharves, and open space have been transformed into a skyline that includes the 2,000+ foot high Shanghai Tower that is the second tallest building in the world and 60% higher than the Empire State building in New York City.

Pudong (Shanghai) 1987

![Pudong (Shanghai) 1987](image)
On a more personal level, when I first went to China, we stayed with friends in the 3rd circle of Chang-Sha, which is considered a 2nd tier city. At that time, it was extremely rural with farms and mostly concrete single story houses. When I returned in 2018 the 3rd circle was completely unrecognizable. In the past ten years, Changsha’s population has grown by 460% (theguardian.com). This city had turned into complete metropolis completely unlike the small farming community it had been before. There were multi-story hospitals, skyscrapers, and malls. Changsha IFS Tower T1 that you can see on the left side of the photo is the 15th tallest building in the world and is almost 20% taller than the Empire State building. While trying to determine the focus of my project, the memories of this city came to mind. I began to think of the greatest change I had witnessed during my time China -- new real estate development --, and I decided I wanted to give this topic further study.

Chang-Sha today
Chapter 1: Approach

This project began in my second year of attending the University of Rhode Island. As a student in the Chinese Language Flagship program, I have had the unique opportunity to expand my newfound interest in economics with a longstanding passion for the Chinese language, culture, and economy. Using this dual lens, I thought the Chinese housing market was a perfect case study.

The project began with a simple research question. Is it truly more expensive to live in a major Chinese city than in a major American city? According to the International Monetary Fund, the answer is yes. When measuring affordability in a home, one metric that can be used is the house price to wage ratio. The graph below depicts the house price to wage ratio in several major cities in China and the United States. When examining the figure 1 for Tier 1 cities in China such as Shanghai and Beijing the house price to wage ratio is 15.9 and 22.3 respectively (NYTimes.com). This is a comparison of the average house and the average cost of a home. This graph shows that the average cost of a home in Beijing is 22.3 times the average annual salary and in Shanghai, the cost of the average home is 15.9 times the average annual salary. In the United States, we see there is a large difference. New York, the United States city with the highest house price to wage ratio is only 6.2. Looking at these prices from an affordability standpoint we see that Shanghai is more than 2 times less affordable than New York and Beijing is almost 4 times less affordable (NYTimes.com).

Figure 1

![Figure 2.51. Ratio of House Price to Annual Household Income for Selected Cities, 2011](NYTimes.com)
Once the first question - why is it more expensive to live in a Chinese city - is answered, there was a logical follow-up question. Why is it so much more expensive to live in a major Chinese city than a major American city? The following sections provide an answer to this much more intricate question.

In the United States, when looking at the market for homes, one must examine the past home buying practices of the country. After World War II home ownership began to rise steadily. In 1950 the average homeownership rate was 55% for the entire United States, which was a dramatic increase from the 43% homeownership rate before the war (Census.gov). This rise in home ownership was because as soldiers returned home from war, the United States government passed the G.I. Bill that gave mortgage assistance to veterans looking to buy homes. Since then the homeownership rate continued to increase to almost 70% by 2006, just before the housing bubble burst. The homeownership rate then fell sharply as the bubble burst and continued to fall until 2016 when it reached 62% (fred.stlouisfed.org). Since 2016 the housing market has begun to rise again, but very slowly. At years end 2018 the homeownership rate in the U.S. is still below 65% the lowest it has been since the late 1980s (Fred.stlouisfed.org).

In addition to the slow growth of the economy since the bubble burst that has kept the homeownership rate low in the United States is due to demographics. Millennials, one of the main buying demographics for new homes, are choosing to rent instead of buy. The choice to rent longer has several reasons behind it. The current need for millennials to move around is extremely important. The “gig economy” has caused many millennials to have a mobile lifestyle (forbes.com). This new generation of potential home buyers sees buying houses as fiscally irresponsible because they may need to move somewhere else for their job at any time. This has caused the general practice to change from buying a home when they get a job to renting a home until they need a permanent residence for their family (forbes.com). Currently, in the United States, the average age of a first-time homebuyer is 32 years old (housingwire.com). This need for mobility is reflected in the rental prices in the United States. There is also the dramatic growth in student loan debt that now tops $1.3 trillion meaning that millennials, in order to pay off their student loans must go to whatever work they find rather than staying in one place and working to a higher position in any one company.

In China, meanwhile, ownership of a home is a symbol of wealth and status in China to a far greater extent than it is in the United States. China has a shortage of women. As of 2005, the imbalance peaked at a ratio of 130 males to every 100 females, and because of this home ownership has had a tremendous impact on the ability of single men to marry. A 2017 study from The Shanghai Daily revealed that 80% of Chinese mothers would be averse to their daughters marrying non-homeowners (VoxDEV.org). Looking at the concept of marriage as a transaction of wealth between families is common practice in China, and with such a shortage of females, women’s preferences for their mates are given more weight now than ever before. The result is that many young men have to rush to purchase a home before marriage, often at a relatively young age. Currently, in Beijing and Shanghai the average age for first time home buyers is 27 years old (globaltimes.cn). A joint study conducted between economists at Columbia University and Peking University found that cities in China with more skewed sex ratios had higher housing prices.
Interestingly, rental prices in these same cities showed no correlation with the imbalance. This comparison between the two modes of owning and renting provides further evidence that societal standards and the pressure to find a suitable match for marriage uniquely affects the housing market (VoxDEV.org). This societal standard becomes a driving factor forcing an increase in the demand for houses and the subsequent rise in prices.

The sheer magnitude of Chinese cities and their populations made it clear I had to control for the economic differences in my cities of study. The scope of this study has thus been narrowed down to a comparison of two of the world’s largest economic hubs, New York and Shanghai. Although New York City and Shanghai have similar levels of financial prowess, there is a stark difference between the two cities in the cultural implications of purchasing a home.

Table 2 below illustrates the difference in rental prices and buying prices. In Shanghai, where the male to female imbalance is 114 men to every 100 females, monthly mortgage payments are higher than monthly rental payments (shanghai.gov). In New York, however, rental prices are much higher than in Shanghai because in New York there is not as much social stigma attached to renting a home while being married.

<table>
<thead>
<tr>
<th></th>
<th>Shanghai</th>
<th>New York</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renting: Monthly Rent for 1-bedroom Apartment in City Centre</td>
<td>$982.22</td>
<td>$3,106.13</td>
<td>+216.24 %</td>
</tr>
<tr>
<td>Buying: Monthly mortgage for 1-bedroom Condo in City Centre</td>
<td>$1,335.56</td>
<td>$1,313.32</td>
<td>-1.66 %</td>
</tr>
</tbody>
</table>

(Furmancenter.org)

Chapter 2: A Bubble

The second portion of my project had to deal with whether or not the Chinese housing market is currently experiencing a bubble. An economic bubble occurs when there is a rapid escalation in asset prices caused by a dramatic rise in demand that is driven by expectations. In the boom period, individuals begin to see the price of the asset rise and they decide that the asset is a good place to invest their money and this drives up demand and the price. At some point, the rising price slows or reverses, and investors are not willing to buy an asset and then there is a large sell-off of the asset (Investopedia.com). The first bubble is said to have happened in the early 1600s in the Dutch Republic. This bubble was caused by speculation on tulip bulbs that have been given the name Tulipomania, and in Figure 3 you can see the dramatic swing in prices that characterize bubbles. In mid-November 1636, the price of tulip bulbs, the asset, rose dramatically until mid-December. When the prices finally began to level off, and people were no longer willing to spend that amount on tulip bulbs, there was a massive sell-off at the beginning of February, and prices fell sharply after that point.
A much more recent economic bubble was the “Dot-Com” bubble or “Dot-Com” Tech bubble that burst in 2000. The magnitude of the rise and fall can be seen below in Figure 4. The Tech bubble was caused by investors’ overvaluing stocks, especially internet-based stocks. At the time this bubble first emerged, the internet had just become accessible to the average person. Home computing was becoming a part of average people’s lives, and new internet sites were popping up every single day (times.com). Technology stocks became extremely overvalued as people thought just because they were using this new technology meant that they were worth more. In the early 2000s, however, investors realized that these stocks had been overvalued and the massive sell-off of shares began.
In the early 2000s, the United States suffered a housing bubble that triggered the financial crisis around the world that became known as the Great Recession - the second worst recession in American History. This bubble and the resulting recession caused almost 4 million Americans to lose their homes, and 8.7 million Americans lost their jobs (CBPP.org). In Figure 5 below we can see that beginning in 1999 housing prices, as measured by the LPS Index, began to rise substantially faster than overall prices (CPI) after rising at about the same rate between 1994 and 1999. By June 2006 housing prices had more than doubled (125% increase), which was nearly three times as fast as the overall level of prices. By mid-2007, however, the bubble burst. Home prices had become too high, and people were no longer willing to pay the exorbitant prices on these houses. This caused a huge sell-off in real-estate causing the market to crash (CBPP.org).
This housing bubble in America was created by housing speculation. In the early 2000s in the United States, it became increasingly easy to get a mortgage as banks began to issue larger and larger numbers of sub-prime loans to people in the United States. Figure 6 below illustrates the percentage of total sub-prime mortgages that were issued as a percentage of total mortgage loans. From the graph, we can see that sub-prime mortgages began to grow drastically in 2003. They did not slow until 2006, where sub-prime lending began to drop significantly from over 23% to just over 1% in 2008 (Financial Crisis Inquiry Report). A sub-prime mortgage is a mortgage with an extremely high risk of default because the loan is typically issued to someone with a poor credit score. As buyers with poor credit scores present more risk to the lending institution, they charge higher interest rates for these sub-prime loans (Investopedia.com). Easy access to loans caused many people began to buy more homes than they needed or could afford.
In the United States, this was not the only reason that real-estate was overvalued. Banking institutions created a way to invest in the housing market without buying a house. They did this by creating a financial tool called a Collateralized Debt Obligation. A collateralized debt obligation is a bundle of thousands of flow-generating assets such as bonds, mortgages, and other loans (Investopedia.com). These CDO’s are divided into tranches each tranche is divided by risk, with the least risky being at the top and having priority payout options. The lower tranches are filled with riskier loans and get paid out last. However, they come with a bigger return for the risk (Investopedia.com). CDO’s are made up of thousands of mortgages, and thus, if one person were to default on their loan, the CDO bond would still be safe because there are thousands of others that did not default. In 2008, however, there were so many sub-prime mortgages that the default rate on the loans rose to 13%, more than double the average from 2006 (fred.stlouisfed.org). Figure 7 below shows how the delinquency rates around 2008 changed from past years. Because of the high delinquency rates, the CDOs that these mortgages were in also failed. These CDO bonds had been viewed as extremely safe investments and were owned in many slow-growth funds across the country such as retirement funds. This is what caused the recession to be so monumental. People did not only lose their homes and their jobs, but also their retirement and their savings.
The housing bubble that has been growing in China has shown many similarities to the one that happened in the United States in 2008. Currently, in China just as in the United States, housing prices are soaring to astronomical prices. Figure 8 shows that in tier 1 cities in China the price per square meter since 2010 has risen 107%. A tier 1 city in China is classified as being developed. The tier 1 cities in China include Beijing, Tianjin, Guangzhou, Chongqing, and Shanghai.

Examining the housing bubble in China was somewhat difficult because the Chinese government may withhold or change some of the data they release to the public (CFR.org). I attempted to use graphs and sources from U.S. institutions when looking into areas that I believed may have been censored by the Chinese government. I also had the opportunity to interview a Chinese master’s level student whose field is in Economics: Li Feng. He had researched this topic before and had much insight into what the current state of the Chinese housing market.
As shown in the graph above the rocketing prices of the Chinese housing market immediately prompts the question of whether a bubble exists. Soaring prices alone, however, do not constitute a bubble. One could look at that graph and assume that these rising prices are caused by a mass population move into these cities and that the real estate is in short supply making prices rise. This, however, is not the reason for this dramatic rise. Below I go into detail about why there is this unprecedented rise in the Chinese housing market.

The reason that there is a bubble growing in China is that these prices are becoming artificially high. In major cities such as in Shanghai, residents have begun buying more houses than they need. People in China are no longer purchasing a single home for themselves and then purchasing one later for their son when he gets married; they are purchasing multiple homes and using them as investments (Li Feng). This has led to many houses in Shanghai being vacant. Figure 9 illustrates how many vacant houses there are in the city of Shanghai. The graph shows that currently there are over 450 million square meters of vacant real-estate in Shanghai with another 50 million square meters being built at the beginning of 2016 (Rabobank.com). This means that there are vacant, unused homes that are either priced too high for the market or they are being saved as an investment and not being sold or a combination of the two. Chinese people are waiting to sell them until the market offers a price that they are willing to sell for (Li Feng). The reason that housing is so popular an investment in China is that it is one of the only long-term investments that Chinese citizens can engage in. Government regulation states that Chinese Citizens cannot trade international shares. This means that legal investments must be kept in the country; one of the only long-term investments that Chinese citizens can engage in is housing (forbes.com). Just like in the United States Chinese people currently see housing as an extremely safe investment. It has been rising steadily for the past decade, and many believe that it will continue to rise at this rate.
To fuel this bubble home prices must continue to rise. As mentioned before the fuel for this is the fact that people are buying more homes than they are using. The money for this comes from the fact that Chinese people are now taking out loans to buy houses (Li Feng). In China, government housing was provided to its citizens until the mid-1990s. When this ended the typical way that Chinese families bought homes was to save up their money until they could afford a house. If they gave birth to a son, then they would begin a second savings account to help him buy a house when he got married — this buying culture of using one’s own money to purchase a house completely changed in the mid-2000s. Instead of using one lump sum with a no loan or a very small loan, families began to split their savings to use as minimum down-payments on multiple houses (Li Feng). Figure 10 below illustrates how in the past 10 years mortgage loans have more than quadrupled. This means that Chinese citizens are taking on more risk than they can handle. If the market crashes and home prices fall Chinese citizens will be left with debts, they will not be able to pay off. The banks, when they foreclose on these properties, would also lose a substantial amount of money. These extreme losses to the Chinese bank could cause them to fail just as some banks did in the United States when the housing market collapsed. Disclosure: (This graph uses information sourced from the People’s Bank of China. The information sourced from the People’s Bank of China, I believe, would not be information that would be censored.)
This bubble in China is a long-term problem that the Chinese government has begun to address. In recent years they have implemented many new rules and regulations for the real-estate market. In an attempt to try and regulate buying second homes the Chinese government now raises interest rates on mortgages from 5% on the first home to 20% on the second. In larger cities such as Beijing and Shanghai, these interest rates on mortgages can go as high as 70% to discourage secondary home buying (reuters.com) The problem is that many people in China still want a long-term investment that they can use to build their savings. The stringent rules placed on other aspects of the Chinese economy, such as the fact that they cannot trade in offshore markets, makes the housing market one of the only long-term investment opportunities that the average Chinese citizen has. If the trend of housing in China continues the bubble will have to pop and just like in the United States, the Chinese economy will fall into a great recession.

Chapter 3: Reflection

Unlike other honors projects, I have had the rare opportunity in which I was able to do the beginning portion of my project in my second year and then finalize it for the honors program in my final year. This was extremely helpful because it allowed me to shape and form my project into something that I believe is truly worth handing into the honors program. In those two years, I took courses in economics and business at the University as well as learning more about Chinese culture through classes at URI and by going abroad to study in China. This project, which was originally just a comparison of the two countries housing markets, evolved into a real economic question about economic bubbles. I believe that going back reviewing and refining one’s work is an extremely important part in any academic work. Most honors students who do this project have some time to reflect and refine their works, but few have the opportunity to take more classes in the subject they are writing about. Since I had this opportunity and when I look at the original paper that I wrote in Chinese for the Chinese honors class, I can see that my research abilities, my knowledge of business and economics, and my knowledge of the Chinese marketplace have expanded by leaps and bounds

I have also had the opportunity to watch this bubble in China grow for two more years. When I began working on this project the Chinese housing bubble was just beginning to be hinted at by the media in the United States. In China, people would grumble about housing prices, but there was no real thought as to why they were so high. In two years, however, that all changed. This bubble has begun to gain notoriety. Forbes and Time magazine have both done multiple articles on it. CNN and FOX have discussed it at length, and the Chinese government has even begun to take action to try and stop this bubble from growing any further. This November CNN posted an article detailing how the current trade war between the United States and China has been exacerbating this bubble and has begun to slow building and cause house prices to begin to dip slightly (CNN.com). To me, this shows that my courses at the University of Rhode Island truly prepared me to think outside the box and ahead of the curve. I combined the knowledge I had from both of my majors and then found a real issue that needed to be discussed.

To me, this honors project was a reflection of everything that I have been working towards while at the University of Rhode Island. This honors project has allowed me to combine those two majors into a single piece of work where I draw on knowledge from both of my degrees. Further, the project gave me the experience of conducting research and writing a
research paper in two different languages. By forcing me to use my academic skills in two languages and two different disciplines, this project gave me an insight as to what working for a business in both China and the U.S. would be like, the major goal of the Flagship program.

I believe that I must attribute a lot of my growth to the honors program as a whole. This program has allowed me to challenge myself through their courses. Each honors course that I have taken has been researched based and has allowed me to hone my researching skills. When I first attempted this project in my second year attending this institution, I found it extremely difficult. It was not a project that I would have felt comfortable turning in and presenting to the honors board. It was not until I re-visited my past research, refined it, found new and better sources, and then added on to it, that I felt as though I had a project that I was proud to call an honors project.

Looking back on my honors project I believe there are things about it I would have changed about it. Although I had this great opportunity to refine my project over time and add to it, I think that this approach also limited me in some ways. The need to combine my original project with my new research into the economic bubble in China felt awkward in some places. In my original project, I compared the two cities New York and Shanghai. When examining the bubble in China, however, I had to look at the housing market at a more macro-level of economics. It was not enough to simply try and compare two cities in their respective housing bubbles; to do a complete project, I had to compare these two nations as a whole. I believe that if I were to re-make this project, I would not only compare the New York and Shanghai housing markets. I would compare the housing markets as a whole in both countries. Even in this project, I began to move away from the simple city to city comparison to give the reader the full view of the economic crisis.

Through this project, my main goal was to answer the question about China’s housing bubble, but my second and equally important goal was to demonstrate my personal growth. These four years have been challenging, and this honors project is a testament to how much I have learned and grown here.
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