

Comparison and Analysis of Real Assets Investment Between Chinese and the US Market

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ABSTRACT

As globalization is increasing, global investments are more popular than before. One of the attractive global investment fields is real assets. This work aims to review the performance in the US and Chinese real assets markets. It compares the differences between two countries from four subsectors: residential real estate, commercial real estate, natural resources, and infrastructure. By doing qualitative and quantitative analysis, this work provides a suggestion for global investors who plan to enter Chinese real estate markets. This work concludes that Chinese commercial and residential real estate markets deserve investors' attention and investments. This work helps global investors, especially American investors, have a big picture of the Chinese real assets market and evaluate their investment plan and strategies more rational than before.

Keywords: *Real Assets, Real Estates, China, US*

1. INTRODUCTION

Real assets have a close connection with the national economy, especially the real estate market, contributing to a significant proportion of national GDP in China and the US. In the past few years, global investment is increasing. Compared to other alternative investment tools, investing real assets do not require highly professional skill, so it offers more opportunities and attracts more global investors. Foreign capital gradually becomes a competitive group of investors in the real assets market in the world. Much research focuses on one country to discuss a specific phenomenon in the real assets market or analyze market performance in a specific country. However, research in the real asset category needs more research that makes a horizontal comparison between two countries to make global investors have a clear view of the differences and similarities between them. We realize the need and focus on providing a horizontal comparison for American investors planning to enter the Chinese real assets market. This work is also useful for global investors who are interested in American and Chinese real asset markets. This work builds an organized structure to do qualitative and quantitative analysis on American and Chinese real asset subsectors' performance separately. Then, it will compare the differences to explore the potential influence on investment caused by differences. In the end, this work gives a viable investment suggestion on entering the Chinese real assets market to global investors.

2. MARKET OVERVIEW

2.1. Overall Market

Real assets refer to tangible assets and a type of real property. There are four types of real assets: residential real estate, commercial real estate, natural resources, and infrastructure. It is property made up of land and the buildings on it. Four main factors that affect the real asset market and the variety of investments available are demographics, interest rate, the economy, and government policies. Unlike other investments, real asset is also dramatically affected by its surroundings and immediate geographic area. One can invest in real assets directly by buying actual properties or parcels of land, or indirectly, by buying shares in publicly traded real estate investment trusts (REITs) or mortgage-backed securities (MBS). Direct investment in real estate results in profits—or losses—through two avenues that have not changed in centuries: Revenue from rent or leases, and appreciation of the real estate's value [1].

2.2. Subsectors

2.2.1. Residential Real Estate

Residential real estate includes houses, condominiums, and townhouses. The structures can be dwellings, owner-occupied or rental properties. Residential real estate is for

housing purposes instead of commercial or industrial purposes. Sometimes, residential real estate is the most important financial investment a person owns. Simply becoming a landlord is one way of investing—also, REIT and REIG work. Looking for a healthy national market and a specific location is important for the investment purpose. Regarding the return, investors wait to appreciate the asset or the monthly rent deriving from it.

2.2.2. Commercial Real Estate

Commercial real estate is used in commerce and is divided into four categories according to function: office, industrial, multi-family, and retail. Personal spaces are also classified. For example, office space is divided into category A, category B, or category C. The duration of commercial leases is from one year to 10 years or even longer, and the average lease duration of office and retail space is 5 to 10 years. Investors can use the direct investment to become landlords by owning physical property. Providing a stable and rich source of income and potential capital appreciation are the benefits of investment [2].

2.2.3. Natural Resources

Lands that can produce anything valuable are natural resources. Investments in natural resources range widely, including anything that is mined or collected in its original form. Rising incomes, global infrastructure and maintenance, political purchases and stores of value are all reasons to invest in natural resources. Natural resource investors have four investment options: direct investments, futures and options, exchange-traded funds and equities [3].

2.2.4. Infrastructure

Infrastructure is the general term for the basic physical systems of a business, region, or nation. These systems are often capital-intensive and high-cost investments, which are crucial to the operation, economic development, prosperity, and stability of a country. Infrastructure can be categorized into three main types. The soft infrastructure refers to institutions that help maintain the economy, such as the education system, healthcare system, governmental systems, and financial institutions. The hard infrastructure usually refers to roads, highways, bridges, which play an essential role in running modern and industrialized countries. Critical infrastructures are real assets that are being essential to the functioning of a society and economy, for example, shelter and heating facilities, telecommunication systems, and agriculture. In addition to subsectors above, infrastructure also includes other subsectors like waste disposal services and IT Infrastructure. Globally, consumer and business needs for

infrastructure far exceed investment, especially in developing countries. In developed countries, repairing and updating some infrastructure need to be resolved.[4]

3. QUALITATIVE ANALYSIS

3.1. Residential Real Estate

3.1.1. U.S. Markets

In the 19th century, most people had no way of owning their own house. Over 50% of Americans had their own home by 1950, which is historic cause it is the first time in the history of the US. The average American lived in 526 square feet 40 years ago. And the average living space in the United States is 969 square feet now. Boise, ID, Frisco, TX, Overland Park, KS, Cary, NC are currently the four best real estate markets in the United States. Landlords are skillful and patient at tenant management. Real Estate Investment Groups have their rental real estate but do not operate them directly. House flipping requires experts in real estate valuation, marketing, and renovation. Some investors would like to invest in REIT, which is an untraditional investment tool in this market. The value of the US housing market climbed to \$33.3 trillion in 2018[5], with the total value of the US housing market growing by \$1.9 trillion. Existing sales in the US residential real estate market went up by 2.5 percent in July 2019 compared with a year earlier. There are many career choices in the market, for example, real estate broker and agent, property manager, and appraiser.[6]

3.1.2. Chinese Markets

In 1949, Chinese residential real estates were not tradable. The government planned, built, and distributed residential real estate. Chinese reform and opening-up is the turning point of the real estate market. As the town housing system reformed, China's real estate market gradually formed. 2008 financial crisis made the Chinese residential real estate market experienced a downturn period. The government reduced taxes and interest rates to stimulate the growth of the residential market. In 2016, the real estate market started to rebound sharply and emerged an overheating sign. Over the past 40 years of reform and opening-up, China's real estate industry has experienced rapid development and become the pillar industry of the national economy. The investment process in the residential real estate market is similar to the way in the commercial real estate market. Mostly investments are direct investment conducted by individuals and developers. Besides, investors will choose bonds and stocks of promising developer companies. According to the IBISWorld industry report, in 2019, the total revenue generated from the residential market is 1.5

trillion, which is 5.09% higher than last year. The number of enterprises and employees follow an upward trend over the past ten years. Chinese residential real estate market is highly related to the performance of the macroeconomy. In the five years through 2019, the Residential Real Estate industry grew rapidly. Industry profit has gradually increased from 2.3% of revenue in 2000 to 11.0% in 2019 [7]. High profitability encourages more investors to step into this market. Rapidly increasing demand for residential real estate has led to the development of many widely-appreciated buildings, such as Xinghewan in Guangzhou and SHIMAO Binjiang Garden. Now, the residential market in smaller cities become more and more active than before. People want to pursue a career path in this market, they can think about construction companies, real estate intermediary agencies, and property management.

According to the IBISWorld industry report, revenue for the Residential Real Estate industry is forecast to increase by an annualized 4.2% over the next five years to total \$1.80 trillion in 2024[7]. The government is likely to strengthen its control over the industry to ensure it develops at a sustainable pace. Although most investors, especially developers, concentrate in big cities like Beijing and Shanghai now, in the next several years, some second- and third-tier cities, such as Chengdu, Xi'an, and Shenyang, will become regional centers and gain market share.

3.1.3. Comparison

Real estate taxes range from about 1 percent to 4 percent in the United States, and each state has its tax rate. After buying a home, the owner must pay an annual real estate tax as the cost of owning the property. China currently does not have to pay property tax. It is an advantage for global investors aiming to enter the Chinese residential real estate market. Because of property taxes, the American market has a lower real estate vacancy rate than the Chinese market.

However, there are some negative influences on global investors while entering the Chinese market because of differences. Property rights in China have a fixed term, whereas, in the US, they are permanent. The US has an established market, so there are many agencies to help investors complete the buying and selling process. However, the Chinese market has a shorter history, so the intermediary system is not as transparent as the US market. For example, intermediaries sell only their homes or exchange information in a generally small and limited scope. Still, the American market has the Multiple Listing System (MLS), which makes real estate brokers access to all available real estate information, so the American market is more competitive. Also, the Chinese government has more intervention measures to adjust and control the residential real estate market [8].

3.2. Commercial Real Estate

3.2.1. U.S. Market

The National Association of Realtors which is the first official group of realtors was born in 1908. CRE communities began going digital like many other communities in the twenty first century. Rockefeller Center, Mall of America, King of Prussia Mall (KOP), KFC, The Langham, Chicago, and Silver Sands are some typical examples of US commercial real estate markets. To invest in commercial real estate in the US, you need to learn your niche, identify your market, find an investment opportunity, acquire funding, manage the property, and dominate the property. Commercial Real Estate in the US Market Size in 2020 is 1.1 trillion dollars. The Number of Businesses in the US Market is 2,065,401, and the Industry Employment in the US Market is 3,618,603. The average US commercial real estate market industry growth from 2015 to 2020 is 2.1%. Commercial real estate in the US annualized market size growth from 2015 to 2020 is 2% [9], and commercial real estate in the US market size growth in 2020 is -1.2% [9]. Brokerage, dispositions, loan servicing and property management are some career choices in US commercial real estate markets [10].

3.2.2. Chinese Market

As the marketization and economic growth became rapid in the 1980s in China, the demand for land and buildings emerge, further invested by oversea capitals. After decades, China's commercial real estate is more mature, especially cities like Shanghai and Beijing. Now, the focus will shift to lower-tier cities. Wanda plaza is one representative example, the core product of Dalian Wanda Group, that accommodates various business functions, including entertainment, culture, dining, shopping, and offices. In order to invest in Chinese real estate market, The total asset of the Chinese commercial market is 1,697.5 million, with 220.5 billion in revenue [11]. Overall, the commercial real estate industry in China has proliferated over the past five years. Detailed career opportunities spread vastly, from the construction, agency to investment banking, all included. From the past performance and policies, China's continued urbanization is anticipated to drive the industry's growth over the next five years, especially in the second and third-tier cities. More city complex projects are expected to be built in these cities over the period. Also, product differentiation will be the main target of Chinese commercial real estate enterprises [12].

3.2.3. Comparison

The return on the commercial real estate investment in first-tier cities in the United States is generally higher than

that in first-tier cities in China. Due to the strong economic recovery and mature legal system in the United States, the market risks are relatively smaller, with the more substantial potential for preservation and appreciation. Besides, the government's regulation in the Chinese commercial real estate market is strict; the authority is more sensitive to foreign capital. Overall, when U.S. investors decide to move into the Chinese market, the more diversified product differentiation and stricter regulation should be closely monitored [13].

3.3. Natural Resource

3.3.1. US Market

Natural resources existed as early as people started to extract raw materials from the land. Natural resources provided the foundation for the second industrial revolution in the US in the 19th century. During the 20th century, energy consumption rapidly increased, and the exploitation of natural resources also speed up. The United States is the 7th richest in natural resources, and mining is the primary industry.

Total natural resources reserve is approximately 45 billion in the US, and coal and metal account for 90% of the total reserve. In the past decades, America keeps being the largest coal-producing country, and its coal reserve is more than 30% of the global reserve. Besides coal, America also has a vast amount of copper, gold, oil, and natural gas deposits. For example, America has two of the five most famous coalfields globally: Appalachian Coalfield and Powder River Basin.

In the natural resources market, investors usually make a direct investment, which means that they buy a resource directly. This approach is suitable for small investment on precious metal, but usually do not work well on large investment of timber and gas, which need enough space to store inventory. Some resources are sustainable, like timberland can plant trees many times, and some resources are unsustainable, and it takes a long time to form coal mine. This feature of resources will affect the investment value. Who wants to work in this area needs to equip the following skills: the ability to collect and analyze data, financial skills, and strategic thinking and modeling. The future of the American natural resources market will have more intensified competition and lower growth rates due to demand changes.

3.3.2. Chinese Market

The investment of natural resources started early. However, the investments are dominated by the Chinese government until about 2000. Investments of natural resources are gradually open to social capital in recent years, and the investors are paying more attention to the investments in this area.

The minerals, oil wells, natural gas, and forest are the major types of natural resources. For the mining resource like the minerals, oil wells, natural gas, these grow slowly even decrease in recent years since the market is almost saturated. However, with the government's policy on the protection of the national strategic resource, these kinds of resources tend to grow rapidly in the future. Additionally, the government allows more social capital to invest in this kind of resource. The individual investors can have more access to this investment. The risk of mining resources is high owing to the exploration risks, feasibility risk, mine operation risk, geopolitical risk, and mineral price risk.

For renewable resources like forestry, animal husbandry, and fishery, it grows slowly in recent years since most capitals do not notice it. The investments in this resource all have problems on the marketization. Additionally, the financing level is low, and the financing channel is unitary. This problem makes the investment of natural resources dominated by the Chinese government. It is hard for the capital, especially individual investors, to invest in this area.

3.3.3. Comparison

There are some differences between Chinese and American natural resources market. Firstly, the ownership of land is different. In China, the land is owned by the nation, and there is a potential corruption problem; in America, the market is well-established, and companies and individuals can acquire and own land. Secondly, the pricing is different. In the US, pricing is mostly determined by the supply and demand relationship. The rising price can push technological innovation in the natural resources market; in China, the National Development and Reform Commission sets and adjusts the price, so the speed of technological advance is slower than the US. Thirdly, the nature of companies in this market. In China, state-owned companies monopolize natural resources market to guarantee their sales and profit. However, in the US, many non-state-owned companies are expanding in the market. The difference is not obvious in the mining industry between China and the US; but in China, for the renewable industry like forestry, fishery, the main body of production is self-employed. Many products do not have a sufficient guarantee of risk, which means they have lower risk tolerance.

3.4. Infrastructure

3.4.1. the US Market

Infrastructure investments boost economic growth in 20 years. The infrastructure includes power and gas, transport drinking, water irrigation, telecom, and other rural infrastructure, such as the TGP. China has better performance since it can get reasonable returns,

implementation ability, and profitability. The size of the infrastructure is huge in China—at present, the amount of provincial and municipal key projects that have been completed this year has exceeded 4 trillion, and the current project reserves are relatively sufficient. The ways to invest in infrastructure are limited especially individual investors like government-managed funds (including special bonds), municipal investment bonds, local government replacement bonds, policy bank financial bonds, railway bonds, PPP, and non-tender bonds. In the future, the government tends to let more social capital have access to infrastructure investment. Additionally, the ‘new infrastructure’ method will boost a wave of infrastructure investment in new industries. Therefore, the investors should pay more attention to the government policy, which will not only provide the instruction in the future but also can access the ways to invest in infrastructure.[14]

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3.4.3. Comparison

Generally, the U.S. infrastructure market contains roads, bridges, mass transit systems, air and seaports, water. The Chinese market is also filled with mainly the ones that affect citizens' life. Though the two countries have different priorities, the scope of infrastructure types is similar regarding the investment in the infrastructure market. Both the U.S. market and the Chinese market are profitable and future due to the steady increase in investment. Risk is both considered low. Return in the US market is above 10%, and with information about the

continuous development and plan on the Chinese infrastructure market. However, no return data is available; it is convincingly consistent with the U. S market and even above.

4. QUANTITATIVE ANALYSIS

4.1. Data

4.1.1. Universe

This section data focus on commercial and residential real estate market. This work chooses three investment companies in the field of REITs and a developer company, which comes from Chinese and American real estate markets to reflect the performance of four market separately. In this way, this work can analyze and compare the similarity and difference among four markets and offer guide for future investment decision making.

4.1.2. Data Sets

Balance sheets and income statements of Essex Property Trust, Inc. and Country Garden Stock Holding Co. Ltd: This work use these two companies which invest in residential real estate and aim to see the performance of residential real estate market by analyzing these two companies

Balance sheets and income statements of Alexandria Real Estate Equities, Inc., and Zhuhai Huafa Comprehensive Development Co., Ltd: These two companies are working in the commercial real estate market, and this work use their financial statements to calculate annual return rates and analyze performance in recent years.

4.1.3. Data Sources

Data come from S&P Capital IQ database.

4.1.4. Date Range

The data range is from 2015 December to 2019 December. 5 years can provide the pattern of recent performance and give a hint for the future investment because it is not too far from now.

4.2. Research

4.2.1. Analysis

4.2.1.1. Commercial real estate

In the commercial real estate market, this work uses data in financial statements to calculate return on equity (ROE) and use ROE as the return rate of each company. In order to see the volatility of the return in the past five years, this work calculates the standard deviation via Excel function to measure volatility risks. The second parameter this work use is the Sharpe ratio because it measures the performance of investment compared to the risk-free investment products. This work uses the rate of 5-yr Treasury Bonds as the risk-free rate in this section. The third statistic is the maximum drawdown, and it measures the portfolio risk. This work also measures the correlation between commercial and residential real estate markets in the US and China.

4.2.2. Results

4.2.2.1. Residential real estate Market

This work uses the performance of two investment company investing in residential real estate market to review the performance of residential real estate market in two countries. The graphs below are the return rates (ROE) from 2015-2019 of the two companies.

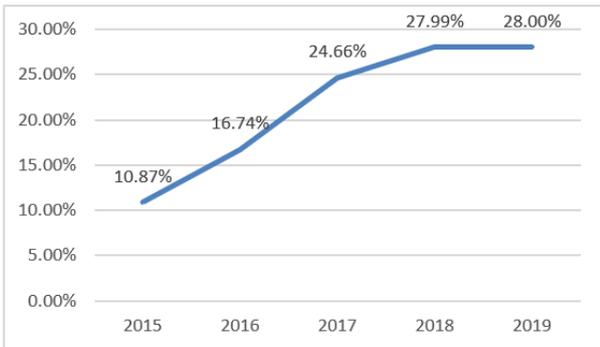


Figure 1. Return Rate (ROE) of Country Garden

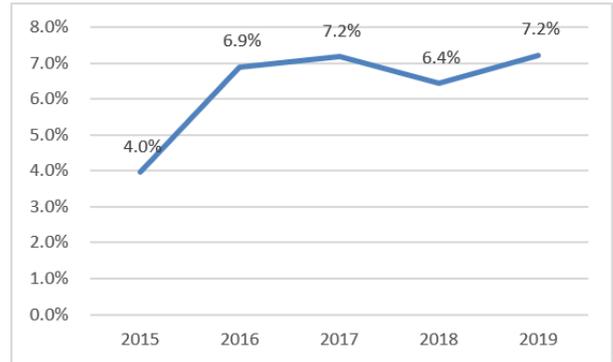


Figure 2. Return Rate (ROE) of Essex Property Trust Inc

Figure 1 is about the return rates in the Chinese residential real estate market and figure 2 shows the return rates of the US residential real estate market from 2015 to 2019. Figure 1 reflects that the return rates from 2015 to 2019 keep going up and are really high. Compared with Figure 1, the return rates in Figure 2 are lower but are more smoothly, especially from 2016 to 2019.

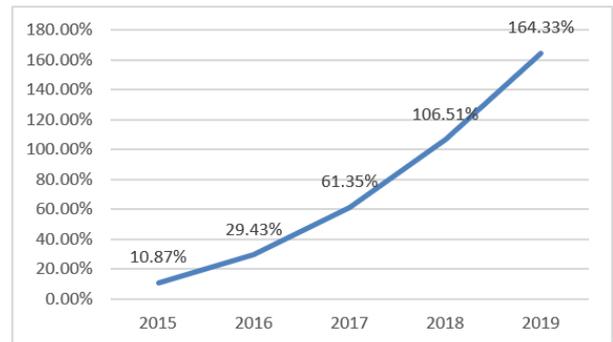


Figure 3. Cumulative Return Rate of Country Garden

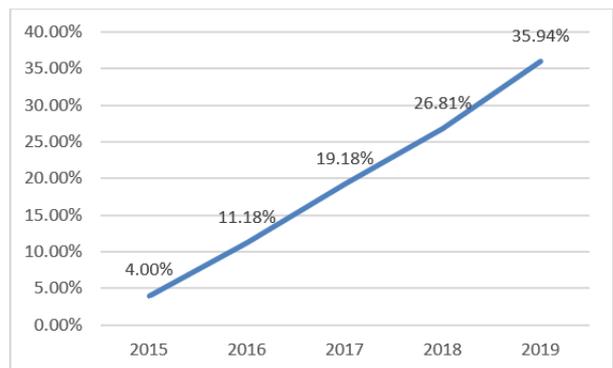


Figure 4. Cumulative Return Rate of Essex Property Trust Inc

Figure 3 shows the cumulative return rate from 2015 to 2019 in the Chinese residential real estate market and Figure 4 is about the cumulative return rate of the US residential real estate market from 2015 through 2019. Based on the statistics from the annual return rates and cumulative return rates, the tables below describe the

performance of two residential real estate markets via volatility, annualized return and Sharpe ratio.

Table 1 statistics of the Chinese residential real estate market

Volatility	7.58%
Annualized Return	21.46%
Sharpe ratio	2.24

Table 2 statistics of the US residential real estate market

Volatility	1.35%
Annualized Return	6.33%
Sharpe ratio	4.50

This work uses one REIT company’s data in US residential real estate analysis, but did not find data about Chinese REITs real estate markets because REITs markets are still not very mature in China. Instead, this work uses one developer’s data of China to analyze. Because of this, it is not very reasonable to compare these two markets. I will analyze them more in absolute return and risk perspective. In the Chinese market, although the annualized return rate is high, the volatility is also very high and the sharp ratio is not very high. But the sharp ratio in the US market is really high. Overall, on the safe side, I will recommend US investors choose to invest more in US residential real estate markets. Since the data is measured in years, there is no drawdown in the residential real estate market data this work studied, but it may exist if measured in months. The Covid-19 began to outbreak in China in the end of 2019 and I thought it may affect Chinese residential real estate markets, but in fact, it seems did not affect that.

4.2.2.2. Commercial real estate Market

This work uses the performance of two investment company investing in commercial real estate market to review the performance of commercial real estate market in two countries. The graphs below are the annualized return rate (ROE) of two company.



Figure 5. Return Rate (ROE) of Alexandria Real Estate Equities

In Figure 1, the US market is volatile in the past five years. In Figure 2, this work shows that returns of Chinese commercial real estate market keep increasing until reach peak point in 2017, and then go down sharply. In 2015, the inventory of the commercial real estate was too high, but the demand was low, so the return performance was not good. In 2016, government exact policies to save the market, like reducing tax and giving subsidies.

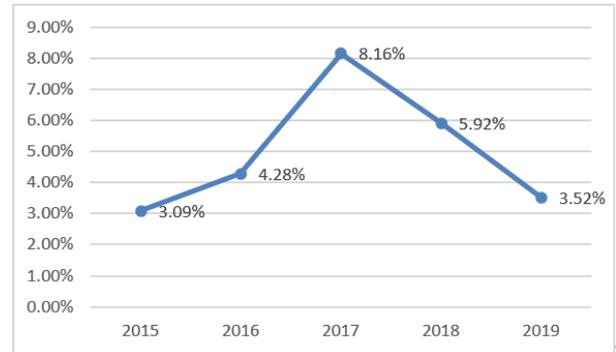


Figure 6. Return Rate (ROE) of Zhuhai Huafa

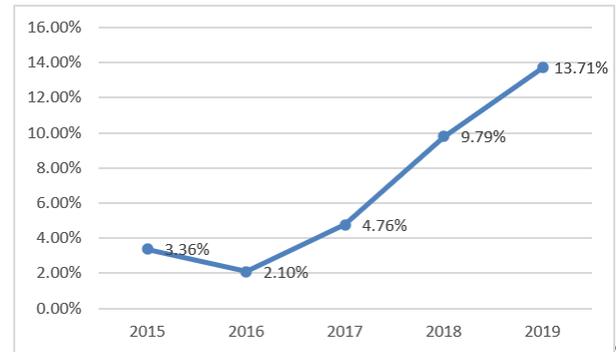


Figure 7. Cumulative Returns Rate of Alexandria

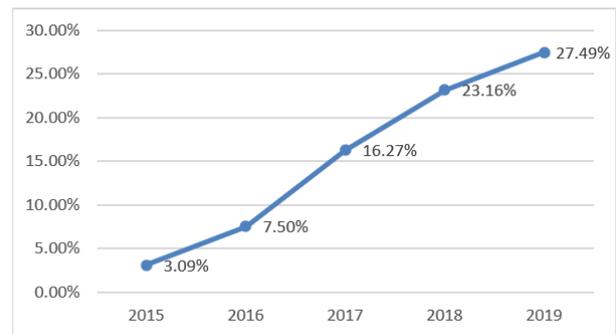


Figure 8. Cumulative Returns Rate of Zhuhai Huafa

Based on the statistics from the annual and cumulative return rate, the tables below describe the performance of two commercial real estate market via volatility, Sharpe ratio, correlation, and drawdown.

From the perspective of absolute return, the return of Chinese commercial real estate has a downward trend. Taking effect of COVID-19 into account, there is not a favorable potential return in the next few years. However, there is no drawdown in the Chinese commercial real

estate market, as the cumulative returns keep going up in the past five years.

From the relative return perspective, the Chinese market has lower volatility and a higher Sharpe ratio. In this way, Chinese commercial real estate seems like a better investment choice. American commercial real estate has a small drawdown, which means the potential risk is small. As a result, the US investor could also allocate their money in the market, but this work suggests Chinese commercial real estate is a better investment direction.

Investors also need to take account differences mentioned in the second part. There are more policies to restriction in the real estate market than the US, so it may limit the return. Chinese governments usually intervene in the real estate market. It can help stabilize the real estate price. The real estate market is closely related to economic conditions. Now, the interest rate in China is higher than the US, and lower urbanization than developed countries suggests that there will be potential growth in the future. Even though real estate is experiencing a downturn because of the current economic condition, it still has growth potential in the future. As a result, investors can hold cautious but positive attitude to investing in the Chinese real estate market.

Table 3 statistics of the US commercial real estate market

Volatility	2.29%
Annualized Return	2.60%
Sharpe ratio	1.03
Drawdown	1.26%

Table 4 statistics of the Chinese commercial real estate market

Volatility	2.07%
Annualized Return	4.98%
Sharpe ratio	2.28
Drawdown	N/A

5. EXTENSIONS

5.1. Studied

5.1.1. Behavioral Economics and Real Estate Price Bubble

The paper Price Bubble in The Real Estate Market—Behavioral Aspect studies exogenous and endogenous factors that lead to a price bubble in the real estate market. It mostly focuses on behavioral factors and analyzes how

these behavioral factors cause a price bubble. No matter global investors want to make a direct or indirect investment in the real estate market, investors need to understand what may affect the market and underlying bad situation and reasons for its formation. The price bubble is one of the bad situations that bring loss to investors. The behaviors of participants play an important role in causing a price bubble, which may finally attack investors and the economy. This paper discusses the behavior of investors in the US market. This work extends it to the Chinese market because investors' behavioral patterns are similar to some degree between the two countries. After observing and analyzing the behavioral factors, American investors could decide to increase or decrease investment in the Chinese real estate market or specific subsectors of real estate and make a better investment decision.[15]

5.1.2. Benefits of International Diversification

The second extension paper is International diversification with securitized real estate and the veiling glare from currency risk. It studies whether investments in international securitized real estate markets make a statistically significant contribution to an internationally diversified mixed-asset portfolio. It also discusses the currency risk exposure's potential impact on these results. This work aims to study this topic, and then understand and confirm the benefits of investing internationally to add diversification and narrow down the more beneficial area.

5.2. Results

5.2.1. Behavioral Economics and Real Estate Price Bubble

The authors find that the price bubble has highly connected to investors' behaviors. Behavioral factors can be categorized into four features: limited rationalism, the pursuit of short-time profit, herd behaviors, and optimism. Same like US investors, Chinese investors also own these four features. Four factors work together and lead to a price bubble in the real estate market. Limited rationalism causes investors to make decisions based on their cognitive possibilities and simplified mechanisms, lacking logic, and informed manner. Investors would like to pursue short-term profit. When investors find that real estate is heating, people tend to join the market continuously to get returns today.

The phenomenon of investors running into the market also results from herd behavior. People tend to follow others' behaviors blindly. Compared to the US market, there are limited investment tools in China. The leading group of investors is individuals who usually make direct investments. Individuals usually make investment decisions without serious analysis, so they tend to be overconfident and optimistic. This feature of investors'

behaviors may also lead to bubble price, because blind optimism continuously drives capital into the real estate market, driving up prices, it may lead to price bubbles. The more people join the market, the price of real estate will go up. If the real estate market's performance is not consistent with economic growth, it will potentially generate a price bubble and then influence the financial instruments like REITs, bonds, and stocks in the real estate market. investors' behavior hugely affects the return of developers and other financial agencies. When a US investor aims to join the Chinese investment market, they need to understand the behavior pattern and combine the current economic situation. When they find the following signals, it might be a price bubble in the future: Shaky loans are common; lots of leverage like beyond 50%; Home prices are rising faster than salaries. Chinese government usually intervene in the real estate market to make it accommodate to the economic situation. In China, governments usually take measures to restrict continuously increasing prices by taking expansionary monetary policies. As a result, the potential risk generated by individual behaviors can be offset to some degree.

5.2.2. Benefits of International Diversification

The authors find that international diversification improves portfolio performance compared to domestic diversification when including securitized real estate. The simulation is operated several times under a dynamic, time-varying framework with hedged or unhedged currency risk, compared by referring to forecasted return and differential Sharpe ratio. Data proves that when the portfolio contains international stocks and bonds, further adding international real estate, it results in a drastically higher return, varying in size. However, the results can be affected by economic conditions. During the financial turmoil of 2008, International securitized real estate does not offer more diversified returns than international stocks. However, overall, diversification benefits seem to be more significant from international real estate than from common stocks and bonds, especially in Asia. As a more exploited country has less diversification benefit, the Chinese real estate market, a relatively unexploited country in Asia, could become a new opportunity for US investors.

5.3. Proposal

5.3.1. How do government policies affect investments in real estate?

Researchers also can study the impact of policies on U.S. investors who want to invest in real estate in China, such as tax policies and purchase restrictions. The tax for international investors may be higher than that for domestic Chinese investors. In this case, the investment

profit for American investors may be greatly reduced or even not worth investing. And different cities in China may have different purchase restriction policies for investors from different places, which will directly affect the size of the total investment and the types of investment.

5.3.2. How the larger proportion of the individual operation in natural resource will affect the investor's decision?

For the forest farm, fishery, and pasture in China, the individual operation dominates the whole market. With the characteristic of the smaller size, the individual operation always has a lower risk tolerance and lower guarantee. Additionally, the smaller size, which limited the ways of advertisement makes the investors hard to notice this kind of natural resource. Therefore, investors are expected to invest in these assets with a relatively higher return rate since the individual operation will increase the return due to the disadvantages mentioned above. Additionally, the more professional investors are more likely to invest in these since the smaller size requires more analysis from investors themselves instead of the institution compared with larger operations, and the access of these assets is easier to get for professional investors.

6. CONCLUSION

This work does a comprehensive analysis of the real assets market to make American investors know the strengths and limitations in four subsector markets. By comparing Chinese and American markets, investors will notice the differences and make better investment strategies according to the research. After analysis, this work points to two relatively profitable subsectors in China: commercial real estate market and residential real estate market.

Overall, the real estate market is an essential factor in the investment market and have several characteristics: Firstly, income mainly comes from rental income and real estate appreciation; Secondly, the majority of the proceeds will be used to distribute dividends; Thirdly, the long-term returns of REITs are relatively high, with low correlation with the stock market and bond market. Therefore, the investment into real estate can be used into diversification for investors to reduce risk. Furthermore, the higher return in the long term is also attractive for investors.

The Chinese market has a relatively shorter history than the US market; therefore, with a long time of development, the US real estate market is more mature than the Chinese market. Therefore, the market size is much larger, and the species are more diversified than the Chinese market. Investors are more likely to find a suitable choice for them. Additionally, due to China's national condition, the government will play an irreplaceable role in the whole market. On the one hand, the government will control the

risk by limiting the rise and fall range and frequent government intervention, especially the residential real estate market, which significantly correlates with people's livelihood. Therefore, the risk will be smaller for the investors in the Chinese market. On the other hand, the monopoly and restriction of the market make the investors challenging to have access to the Chinese market. Some of the market in the US even does not exist in the Chinese market. Additionally, the market will more likely be influenced by the policy.

This work concludes that, on the one hand, under the real assets category, American investors could invest their funds in the real estate market because natural resources and infrastructure are strictly controlled by local government and underwriters. It is hard for individual people to invest in these two kinds of markets. On the other hand, this work recommends that US investors could invest two-thirds of their capital in the Chinese market and the remaining one third in the US real estate market if they want to enter the Chinese real assets market. Although the quantitative analysis results in the third part show that the Chinese market has relatively good market returns and stability, entering the Chinese market needs to deal with some investment environment and government policy restrictions. For US investors who have just entered the Chinese market, it is not appropriate to invest all funds in the Chinese market at once. American investors should pay more attention to the Chinese macroeconomic situation and adjust their investment strategies in the future. From the data in the third part, the Chinese commercial real estate market outperforms the US market so that investors can allocate more money here. Among the funds invested in the Chinese real estate market, this work recommends that 60% be invested in the commercial real estate market.

In the future, other researchers can keep focusing on the changes in the real estate market, especially under the influence of COVID-19. How do investors react to the challenges, and how will market performance change because of the influence of COVID-19? Investing in real assets is attractive, and investors also can expand their attention to natural resources and infrastructure markets to explore potentially viable investment approaches.

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