Analysis of changes in the investment strategies of real estate funds for multi-family/single-family houses after the pandemic

by

Miao Xu

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ABSTRACT

A global economic recession followed the pandemic outbreak, as did real estate's value. However, the real estate recession lasted only two months, with a V-shaped rebound following it. The goal of this thesis is to analyze the investment of multi-family/single-family houses within the United States from an institutional investor's perspective based on an analysis of the benefits and constraints of the current market and economic environment, as well as studying the changes in investment strategies since the pandemic began.

The pandemic is a double-edged sword. It is important to note that the recession presents both negative impacts and opportunities. It created social and political restrictions, economic pressures such as lack of skilled labor, high unemployment rate, and development issues like high construction costs. However, at the same time, it also provided opportunities such as low capital costs, a desire for better living conditions, and the volatility of other capital markets. This thesis examines the above impacts and possibilities based on solid data analysis. In this thesis, we analyze the timing of investing in multi-families/single-families, capital structure, and strategy changes from the institutional investor's perspective. We also take Blackstone Real Estate Income Trust (BREIT) as an example and discuss institutional investors' investment strategies for an in-depth evaluation.

According to the comparison of investment strategies of real estate funds before, during, and after the pandemic and the comparison of investment strategies of different funds, this thesis sorts out the reasons for the impact and opportunities of the pandemic on real estate funds based on solid data, and the outlook of the investment trend, investment strategy and fund structure of multi-family and single-family houses after the pandemic. The analysis of this study also has practical significance in the process of normalizing the current epidemic situation.

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Miao Xu

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1 Introduction

1.1 Research Motivation

The World Health Organization announced the pandemic outbreak as a global emergency, and a worldwide economic recession followed. At the same time, people generally started to work from home, which resulted in a significant increase in the demand for a suitable living environment. As one of the important asset classes, real estate fell briefly at the beginning of the pandemic. Nevertheless, the pandemic showed real estate's excellent long-term value as it progressed. Exhibit 1-1 shows that the real estate market might have hit bottom in 2020 Q2 but showed strong resilience in just a few short months. Institutional investors like real estate funds began to largely bet on multi-family and single-family houses, especially the top-performing single-family houses. Similarly, according to Exhibit 1-1, residential-related assets accounted for the largest real estate investment market share, which supports institutional investors' investment behavior.

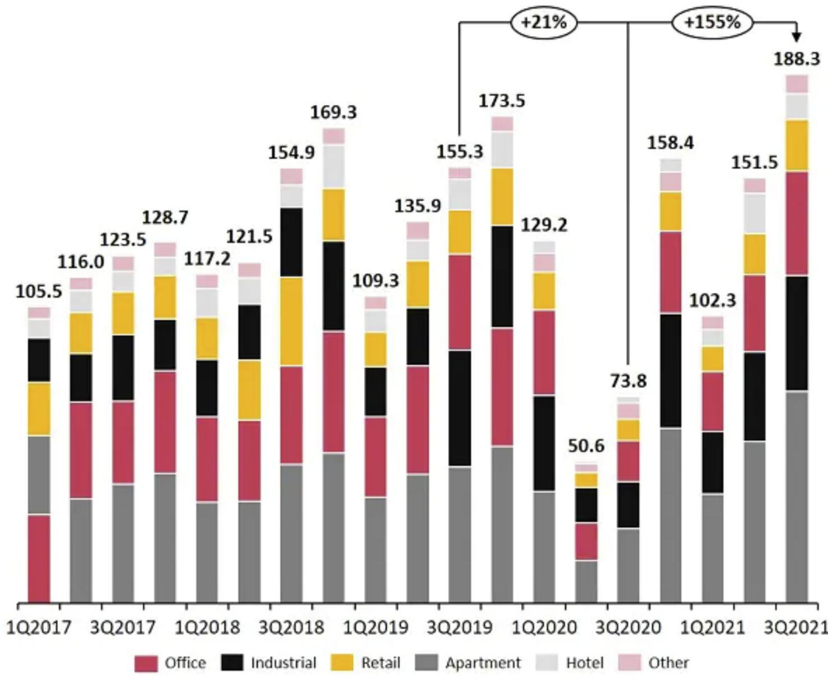

Exhibit 1-1 The United States Commercial Real Estate Transaction Volume (2017- 2021)

Source: Real Capital Analysis, PwC, Nov. 2021

This thesis focuses on multi-family/single-family houses from the perspective of institutional investors in the United States and is based on the analysis of benefits and constraints within the current market and economic environment and studying the changes in investment strategies of those funds since the beginning of the pandemic. With the increase in CAPEX, decline in immigration, higher labor and construction costs, and rise in inflation, there are a number of changes in the institutional investors' investment portfolios, including the number of houses owned, the categories of properties allocated, geographic targeting, and the rental income, capital gain, and fund structure adjusted. Furthermore, the thesis will compare the difference between multi-family and single-family investments in the real estate market.

According to the comparison of investment strategies of real estate funds before, during, and after the pandemic and the comparison of investment strategies of different funds, this thesis sorts out the reasons for the impact of the pandemic on real estate funds based on solid data, and the outlook of the investment trend, investment strategy and fund structure of multi-family and single-family houses after the pandemic.

The research will provide data support and trend analysis for institutional investors' investment in multi-family or single-family homes after the epidemic. This analysis also has practical significance in the process of normalization of the current epidemic situation.

1.2 Thesis Outline

This thesis will analyze how investments in multi-family/single-family real estate changed after the pandemic based on four aspects: impact, opportunities, changes, and trends to examine the reasons and effects of the pandemic on real estate markets, the changes in investment strategies during the pandemic, and the outlook of multi-family and single-family real estate.

Immediately following the first Coronavirus case, the world's order changed. Multi-/single-family investment is constrained in many negative ways. There was a sharp decline in price and volume in multi-family/single-family housing at the beginning of the pandemic. Chapter 2 will focus on the negative impacts and the constraints during the pandemic. However, the pandemic is a double-edged sword. People are reminded of better living conditions, and it helps investors figure out the actual trend at this particular time. The data presented in Chapter 3 will clearly illustrate the opportunities and trends.

As seen from the perspective of institutional investors in the United States, Chapter 4 compares their investment behaviors, returns, and risks and examines the changes in investment strategies. Based on the results of Chapter 4, Chapter 5 will focus on the future trends in investment and the structure of funds using data obtained during the pandemic. Starting with the reasons and opportunities for changes in investment strategies, the thesis analyses subsequent changes and trends. This study will be helpful for investment analysis of residence-related assets.

2 Factors constraint to multi- /single-family investment

Since 2019, Coronavirus has been the most significant uncertainty for normal operations worldwide. This highly contagious virus has forced more than half of the human population to endure various degrees of lockdown and quarantine. 3.9 billion people have been quarantined at home due to national quarantine policies or health safety measures in more than 90 countries.[1] Globally, governments and enterprises are putting all their efforts into reducing the spread and impact of the epidemic.

The economic recession and the massive changes in social life created tremendous resistance to real estate investment at the beginning of the pandemic in the United States. The United States' GDP, National Council of Real Estate Investment Fiduciaries (NCREIF) index, and the National Association of Real Estate Investment Trusts (NAREIT) index declined dramatically in 2020, as shown in Exhibit 2-1. Moreover, compared to Exhibit 2-2, the global GDP growth during the pandemic was worse than the growth during the financial crisis of 2008, reaching the

[1] Sandford, Alasdair. "Coronavirus: Half of humanity on lockdown in 90 countries", <https://www.euronews.com/2020/04/02/coronavirus-in-europe-spain-s-death-toll-hits-10-000-after-record-950-new-deaths-in-24-hou>, (Apr. 2, 2020)

historical lowest growth in the last 70 years. United States' recession stood at a better point than the global average. Many factors and constraints contributed to the sharp decline in the U.S. real estate market. Making changes to the real estate investment strategies would begin with that. The following content of this chapter describes the significant constraints to real estate investment strategies.

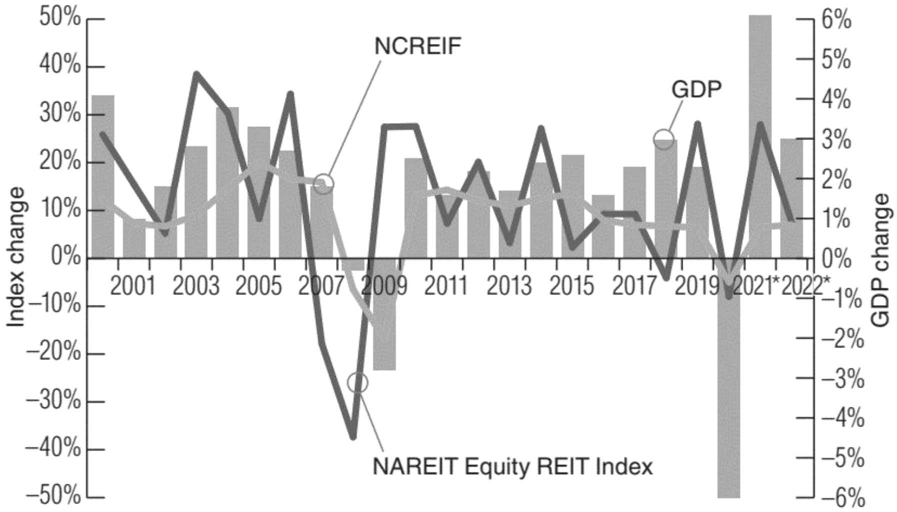

Exhibit 2-1 The United States GDP and real estate index (2000- 2022)
Source: Bureau of economic analysis, Prediction from PwC investor survey

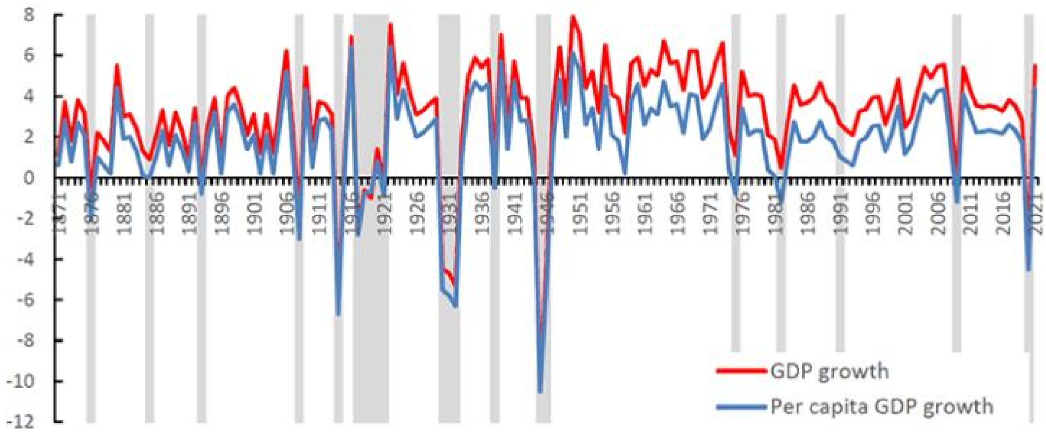

Exhibit 2-2 The global GDP growth comparison
Source: IMF-WEO, Apr. 2021

2.1 Major Constraints

According to the real estate trends analysis published by PricewaterhouseCoopers (PwC), the constraints are mainly divided into three aspects: economic, social, and real estate/development constraints.[2] Exhibit 2-3 filtered the top 50% significant important major constraints in each aspect: unemployment rate,

[2] PwC, Emerging trends in real estate 2022, (Mar, 2022)

skilled labor availability, interest rate/capital cost, pandemic social/political constraints, construction material/labor/land costs. The pandemic has entirely changed the supply and demand situation compared to the situation before. There was a negative impact on real estate investments because of these significant constraints. Institutional investors need to look closer at why the real estate market reacts negatively to negative impacts like this so that investors can better understand the constraints, reasons, and the future.

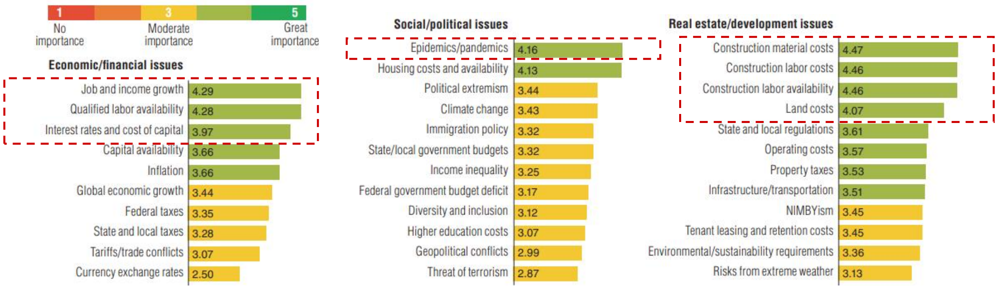

Exhibit 2-3 Importance of constraints for real estate during the pandemic
Source: Emerging trends in real estate, PwC, Mar. 2022

2.2 Pandemic social/political constraints

Lockdown and quarantine policies constrained trade, travel, and capital markets across the world. The following Exhibit 2-4 shows the lockdown region allocation during the first three months of the outbreak of pandemics around the world. More than 170 countries were counted based on national lockdowns, national recommendations, and localized lockdowns and localized recommendations.[3] With the first confirmed case in China and Thailand before January 2020, there was the longest localized lockdown since the outbreak in Asia, Australia, and New Zealand, as well as the longest national lockdown in European countries.

With the successful invention of vaccines and higher vaccination rates, more people benefit from the vaccination and fewer constraints of lockdown at the national level. However, real estate investment based on tangible assets requires much onsite due diligence and evaluation. Therefore, the constraints of lockdown directly affected the business activities of real estate investment, such as onsite visits, room tours, open houses, onsite construction, and so on. As shown in Exhibit 2-5,

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[3] BBC News, "Coronavirus: The world in lockdown in maps and charts", < https://www.bbc.com/news/world-52103747>, (Apr.7, 2020)

comparing the number of daily flights at the end of March 2019 and the end of March 2020 shows that there was a two-thirds reduction in the number of flights because of social and policy control.

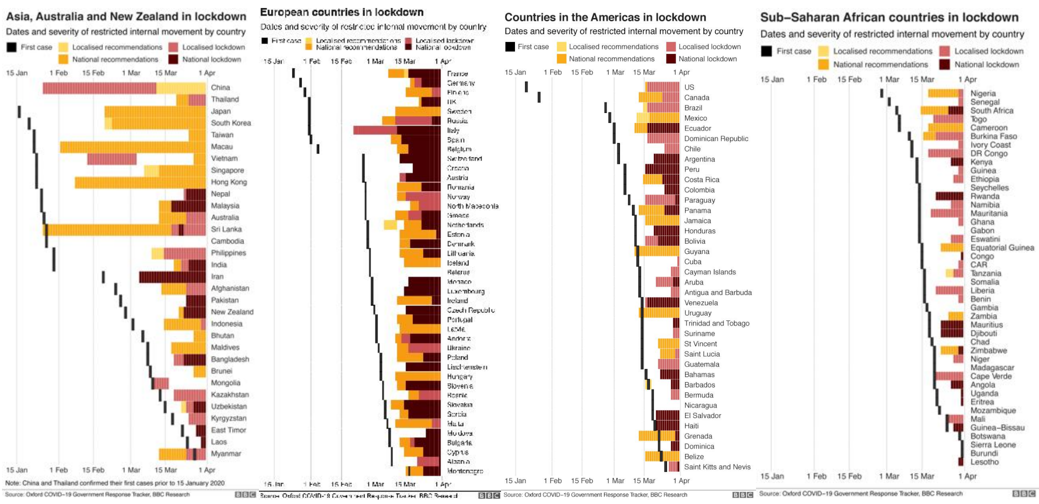

Exhibit 2-4 Global lockdown situation

Source: Oxford Covid-19 government response tracker, Apr. 2020

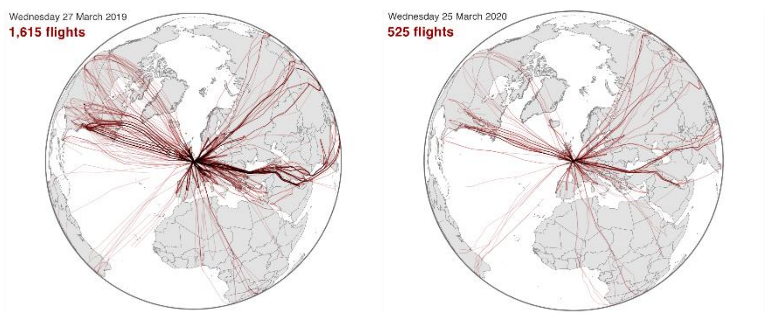

Exhibit 2-5 Number of flights before and during the pandemic

Source: Fightrader, Apr. 2020

The reduction is also reflected in the transaction volume of the United States commercial real estate market. The total transaction volume of the commercial real estate market decreased from $173.5 billion in the fourth quarter of 2019 to $129.2 billion in the first quarter of 2020 and hit a bottom at $50.6 billion in the second quarter of 2020.[4] When Coronavirus outbreaks became global, different countries took various actions to reduce damage to the society. The political and social voices responded first, and the enterprises and people reacted later in order to follow the rules announced by the government. During the pandemic, social and

[4] PwC, Real estate: Deals outlook 2022, < https://www.pwc.com/us/en/industries/asset-wealth-management/real-estate/library/deals-insights.html>, (Dec. 2021)

political constraints resulted in other constraints and changes that affected every aspect of the economy, industry, and life. Social and political constraints were a start, but not only a beginning.

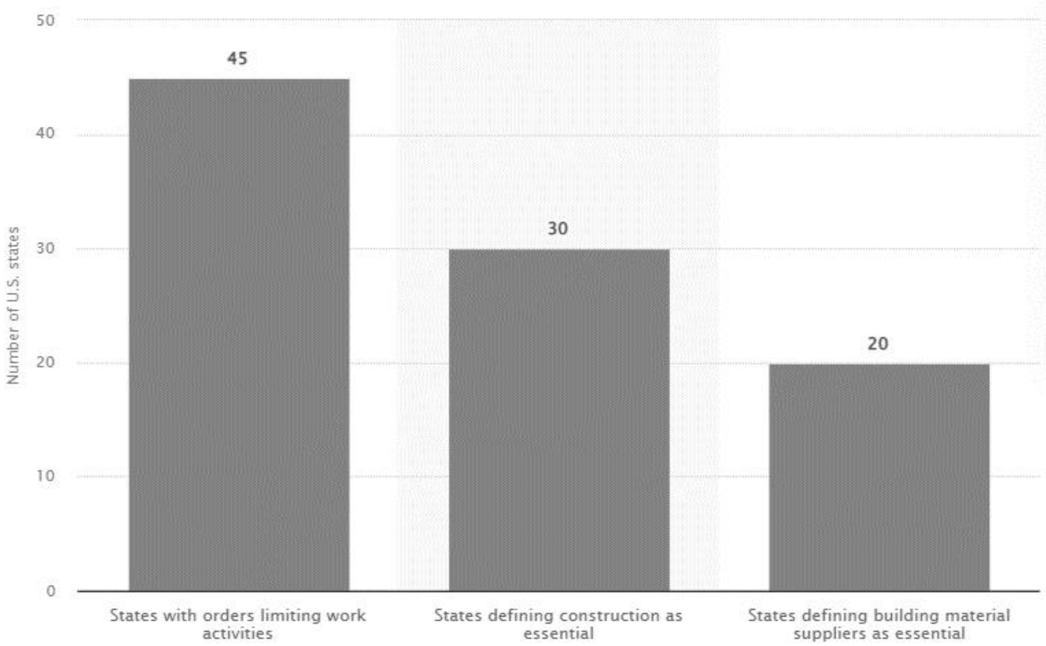

Exhibit 2-6 Amount of states constrained construction industry during the pandemic.

Source: Statista Research department, Apr. 2020

In the wake of the Coronavirus outbreak, 45 U.S. states curtailed construction activities and redefined essential construction, as shown in Exhibit 2-6. In New York, for instance, Governor Cuomo emphasized that essential construction refers to projects related to the health and the safety of occupants, or if the project stayed unfinished, it might lead to a risk of being unsafe. Otherwise, all the construction firms had to shut down non-essential onsite construction.[5] After the redefinition of essential business and government constraints, political constraints were put on real estate.

2.3 Unemployment rate

Due to the constant increase in the number of positive Coronavirus cases in the United States, the unemployment rate increased sharply until April 2020, reaching its highest level in nearly 90 years, 14.8% and 20.5 million jobs lost in total, as shown

[5] Statista Research Department, U.S. states' responses to the construction sector due to Covid-19, <https://www.statista.com/statistics/1109617/covid-19-response-of-us-states-construction-limits/>, (Apr. 2020)

in Exhibits 2-7 and 2-8.[6] During the pandemic, most people who lost their jobs were low-income individuals working in offline retail, tourism, hospitality, and other industries that were severely affected by the epidemic. 59% of the jobs were lost within the first nine months after the outbreak in 2020, from February to October. 1.3 million unpaid workers were not included in the total number of unemployed people after the outbreak until October of 2021.[7]

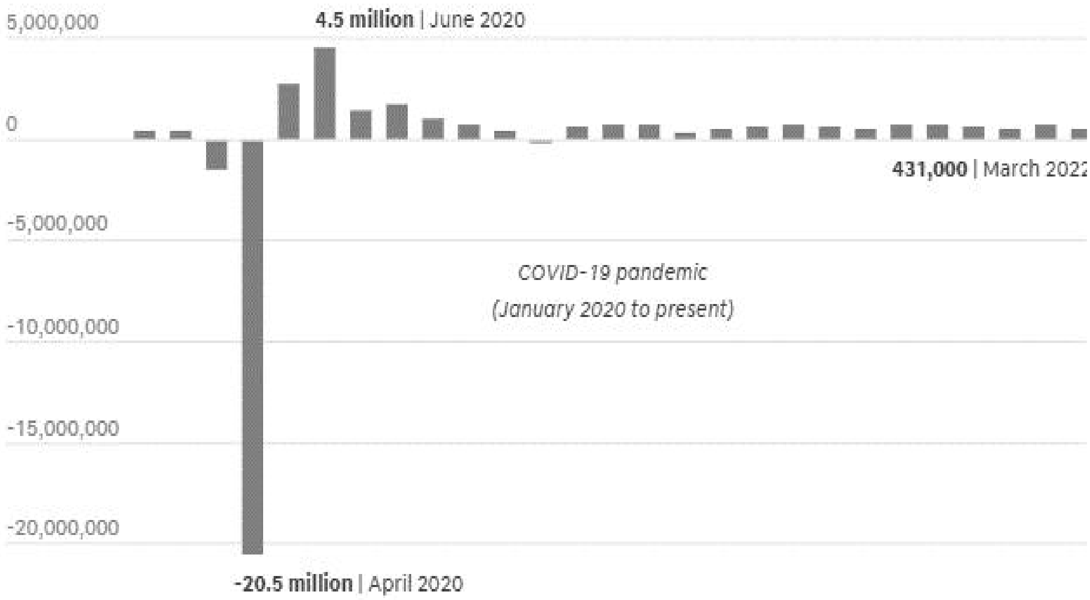

Exhibit 2-7 Job gains and losses in the United States (01/2020-03/2022)
Source: Bureau of labor statistics, Mar. 2020

[6] Paul Davidson, USA TODAY. “Economy adds 431,000 jobs in March as COVID fades but inflation soars”, <https://www.usatoday.com/story/money/2022/04/01/jobs-report-march-unemployment-rate/7237982001/>, (Apr. 2022)

[7] CBPP, “Tracking the COVID-19 Economy’s Effects on Food, Housing, and Employment Hardships”, <https://www.cbpp.org/research/poverty-and-inequality/tracking-the-covid-19-economys-effects-on-food-housing-and>, (Feb. 10, 2020)

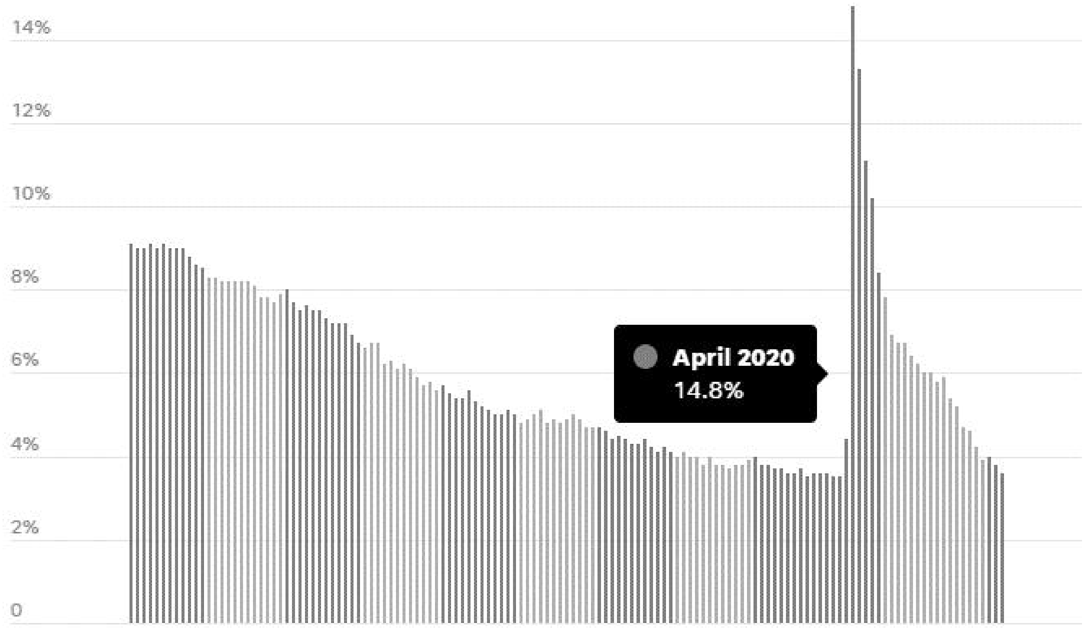

Exhibit 2-8 Unemployment rate in the United States (01/2020-03/2022)
Source: Bureau of labor statistics, Mar. 2020

Because of the high unemployment rate and the inability of many employers to pay their employees on time, many people were unable to pay their basic living expenses and rent. Many states' governments announced tenant protection ordinances, which affected operation in the leasing market and resulted in a severe debt burden to the landlord, indirectly affecting the price of residential housing.

Despite a positive job gain since May 2020, the renters could not overcome the unemployment crisis in a short period of time. The growth of the gains trended lower after June 2020. Over 10 million families experienced delayed rent payments during the pandemic.[7] The U.S. government announced a $46 billion rescue plan for emergency rental assistance in an effort to avoid evictions and the crisis of paying rent.

2.4 Skilled labor availability

Following the outbreak of the pandemic, many employees lost or quit their jobs due to the high unemployment rate and concerns over Coronavirus. There was a huge gap between hiring and recruiting in the skilled labor market. From the employers' perspective, if they wish to return to their normal pre-pandemic situation, there was a big void among advanced workers. From 2019 Q4 to 2021 Q2, there was an increase of 33% in job openings and vacancy changes in the United States, as shown in Exhibit 2-9. In spite of the surge in headcounts, the unemployment rate did not significantly decrease. During 2019 Q4, the unemployment rate was 3.6%, and it was 5.8% for 2021 Q2. However, there was a peak of 14.8% unemployment rate in 2020, although it did not last long. That meant that more than 9 million people were jobless for an extended period of time.[8]

Exhibit 2-9 Changes in job vacancies in the U.S. from 2019 Q4 to 2021 Q2
Source: Bureau of labor statistics, May. 2021

More than 20% of the employees who took part in the "Pulse of the American Worker Survey" during the pandemic changed jobs, and 72% rethought their skillsets after the outbreak. Because skilled labor opted to leverage their skillsets and expertise to meet higher demand job openings and higher salaries, the skilled labor job market was hot. However, there was still a high unemployment rate because of the low-wage and the low-skilled groups' growth.

The same situation existed in the real estate construction and development industry. Since onsite construction involves concentrated work, construction projects had to be postponed due to the impact of the epidemic spreading. In the United States, 81% of the construction firms had to raise their hourly wages and salaries to keep up with the pace of projects due to a shortage of advanced labor in civil engineering and construction.[9] The shortage or the less availability of skilled labor led to an increase in

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[8] Claire Currie, “Increasingly, workers expect pandemic workplace adaptations to stick”, < https://news.prudential.com/increasingly-workers-expect-pandemic-workplace-adaptations-to-stick.htm>, (Apr.06, 2021)

[9] Unissu, “How the Construction Labor Shortage Affects the Real Estate Market”, < https://www.unissu.com/proptech-resources/how-the-construction-labor-shortage-affects-the-real-estate-market>, (Apr. 2021)

labor costs and affected construction time and sale prices. Hence, construction firms had to postpone projects and increase the sale prices to finish them and break even. In other words, the higher cost eventually led to customers being unable to afford a house, thereby affecting the return and strategy of the real estate investment.

2.5 Interest rate/Capital cost

In addition to lowering the fed funds rate directly to 0% on March 15, 2020, the Federal Reserve also announced that it would purchase Treasury securities and government-guaranteed securities worth at least $700 billion.[10] Similar measures were taken by the Federal government to support the financial and economic markets during the 2008 crisis. Interest rates fell to a historical low since the Federal Reserve's action and were expected to trend lower until March 2021, as shown in Exhibit 2-10.

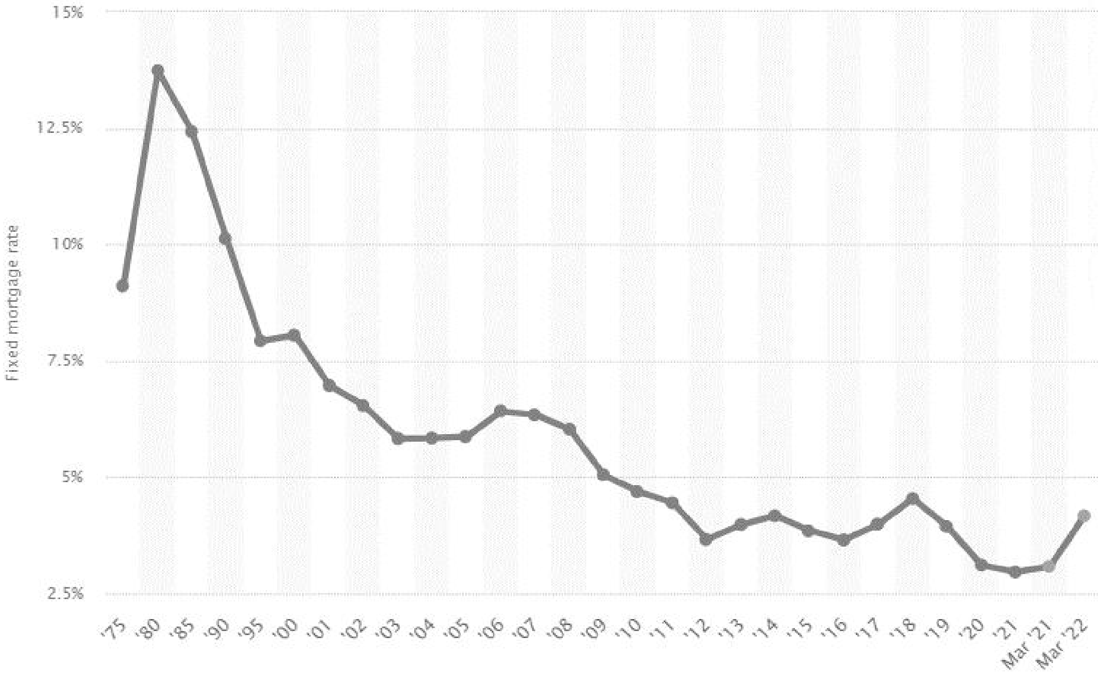

Exhibit 2-10 Conventional loan 30-year fixed rate in the United States (1975-03/2022)

Source: Bureau of labor statistics, Mar. 2020

Together with low capital costs and interest rates in the market, the volume of commercial real estate also reached a historical low. The institutional investors were alerted to risks behind the unstable financial markets. Thus, many institutional

[10]Eric Milstein and David Wessel, "what did the Fed do in response to the COVID-19 crisis?", <https://www.brookings.edu/research/fed-response-to-covid19/>, (Dec. 17,2021)

investors did not invest heavily during the early stages of the epidemic but held a wait-and-see attitude and maintained a relatively cautious investment strategy instead. Federal Reserve's action, low interest rates, and unpredictable financial and capital markets alerted investors, and investors' risk estimation became the resistance and constraints of investment.

2.6 Construction material/land costs

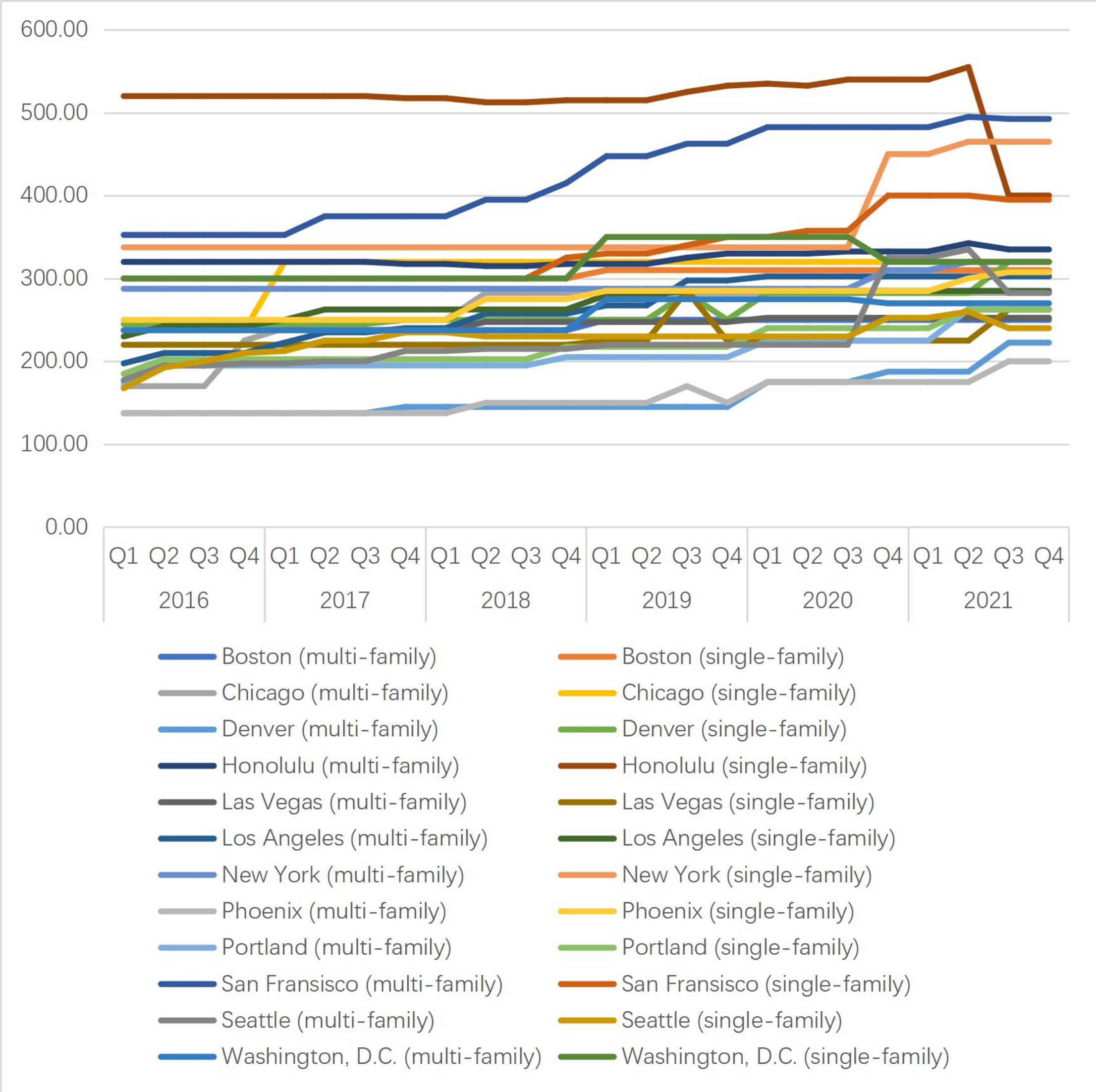

Exhibit 2-11 Construction cost of Multi-families and Single-families in the U.S.

Source: Statista research department, Feb. 2022

Due to the difficulties of hiring advanced laborers and importing raw materials, construction costs increased 17.5% from 2020 to 2021 nationwide in the United States.[11] Exhibit 2-11 shows that the United States' national-wide single-

[11] Sarah Hollenbeck, "Construction materials see highest year over year price spike in 50 years.", <

family construction costs were about 1.2-1.4 times multi-family construction costs. Construction cost increases showed up later during the pandemic, as many materials inventories could still be used at the beginning of the pandemic. However, construction costs increased eventually due to a variety of reasons including a reduction of international and domestic routes, an increase in laborers' salaries, out-of inventories, and a shortage of advanced workers.

It is shocking to see the magnitude of construction material increase, which had already reached the highest point in the last 50 years. From 2020 to 2021, construction material increased by 17.5%, which was the highest increase since 1970.[11] As the primary cost of development, construction costs directly affect housing prices. They are positively correlated. San Francisco and New York have the most expensive construction costs as well as the highest housing prices in the United States. At the same time, the continuous increase in construction costs has become a significant constraint on real estate investments.

3 Factors contribute to multi- /single-family investment success.

In the real estate market, the recession lasted only two months. Even with the high risk during the pandemic, there was still a strong recovery in the real estate market, which impressed many investors. Many opportunities appeared at the bottom of the market during the pandemic. The V/U-shaped recovery showed the resilience of the real estate market compared with other types of investment products in the capital markets. Investing in multi-family/single-family real estate proved to be a high return investment in the long run. People may love to compare the financial crisis in the pandemic with the one that happened in 2008. However, the situations were totally different. Behind the health and unsafe risk, there were many factors that contributed to the success of institutional real estate investments in residential buildings during the pandemic. These factors include a different situation than the financial crisis of 2008, stock market volatility, low interest rates, capital costs, and

https://www.abcactionnews.com/news/region-pinellas/construction-materials-see-highest-year-over-year-price-spike-in-50-years >, (Feb. 2022) the desire for better living conditions. This chapter describes how the above-mentioned factors contributed to success in institutional real estate investment.

3.1 Opportunities from the severe constraints

During the pandemic, the whole world and capital markets were stricken by panic and concern. Investors rarely took action during that period. But with higher vaccination rates and faith in the real estate market, many investors started to act when the market price reached the bottom. In order to maximize their returns, institutional investors waited to make a deal at a low price. The opportunity analysis below will reveal why institutional investors were ramping up investments in real estate and waiting for the right time.

3.2 A different situation than the crisis in 2008

The 2008 financial crisis was triggered by a subprime mortgage crisis when a large number of people without credit nor the ability to pay were able to obtain home loans, also known as subprime mortgages. With the help of subprime mortgages, some people even bought homes without paying any down payment. And this led to the real estate bubble in the United States in 2008. In 2019, the global health crisis was triggered by the spread of the epidemic, and the credit system was well established with strict down payment ratios and credit history requirements for home loans. Coronavirus' spread triggered 2019's recession because of its enormous impact on people's health and death tolls, GDP, business activity, etc.[12]

Exhibit 3-1 compares the economic impact of the Coronavirus crisis and the 2008 subprime mortgage crisis, and it clearly shows that the fiscal deficit affected by the epidemic far exceeded that of the 2008 financial crisis. Faster recovery from the 2019 epidemic was attributable to the rapid response and handling at the government level, the speed of vaccine development and diffusion, and the reduction in mortality rates. The 2008 subprime crisis, which led to the rebuilding of the entire financial system, had a much lower rate of recovery and capacity than the current crisis.

[12] Marc-Olivier Strauss-Kahn, "Can we compare the COVID-19 and 2008 crises?", < https://www.atlanticcouncil.org/blogs/new-atlanticist/can-we-compare-the-covid-19-and-2008-crises/>, (May. 5, 2020)

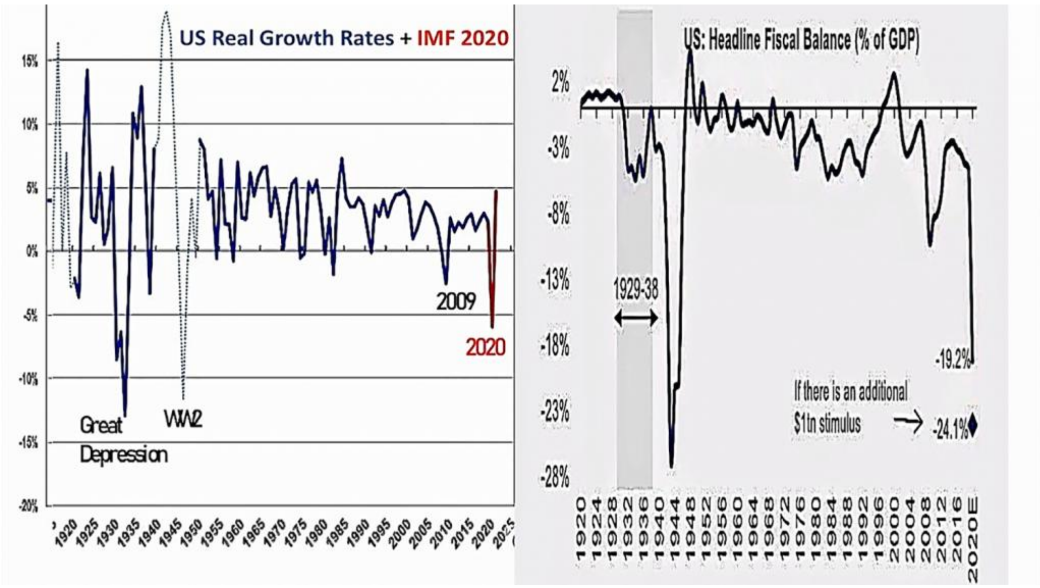

Exhibit 3-1 The comparison of GDP growth and headline fiscal balance between Covid-19 and the financial crisis of 2008 in the U.S.

Source: BEA Federal reserve, Dec. 2020

There is no similarity in the causes of the crisis, the method and speed of recovery, and the resulting impact. As a result, we cannot predict this new epidemic based on the 2008 financial crisis. At the same time, the recession that lasted only two months and its strong rebound ability have brought significant economic momentum, confidence, and potential to the recovering real estate market. A post-recession real estate market was also a great time for institutional investors to wait to make investments.

3.3 Stock market volatility

The stock market, one of the representatives of capital markets, has exhibited a level of unprecedented volatility since the outbreak of the pandemic. The U.S. stock market melted down four times in ten days in early 2020, a record of successive meltdowns never seen before. Starting with the stock market crash that occurred on October 19, 1987, the U.S. stock meltdown mechanism was implemented in 1988.[13] U.S. stocks suffered their first meltdown more than thirty years ago. A significant pullback in the U.S. stock market occurred at the same time as the stock price situation broke the record of being consistently bullish during the Trump

[13] James A. Anderson, "We Can't Blame Stock Market Volatility on COVID-19 Anymore", < https://time.com/6143033/covid-19-stock-market-fears/ca>, (Jan. 2022)

administration. Exhibit 3-2 shows the Panic Index (VIX), which is commonly used to indicate the measure of volatility. In the first year of the pandemic, the multiplier increased from an average of 13%-14% to a maximum of 80%.[13]

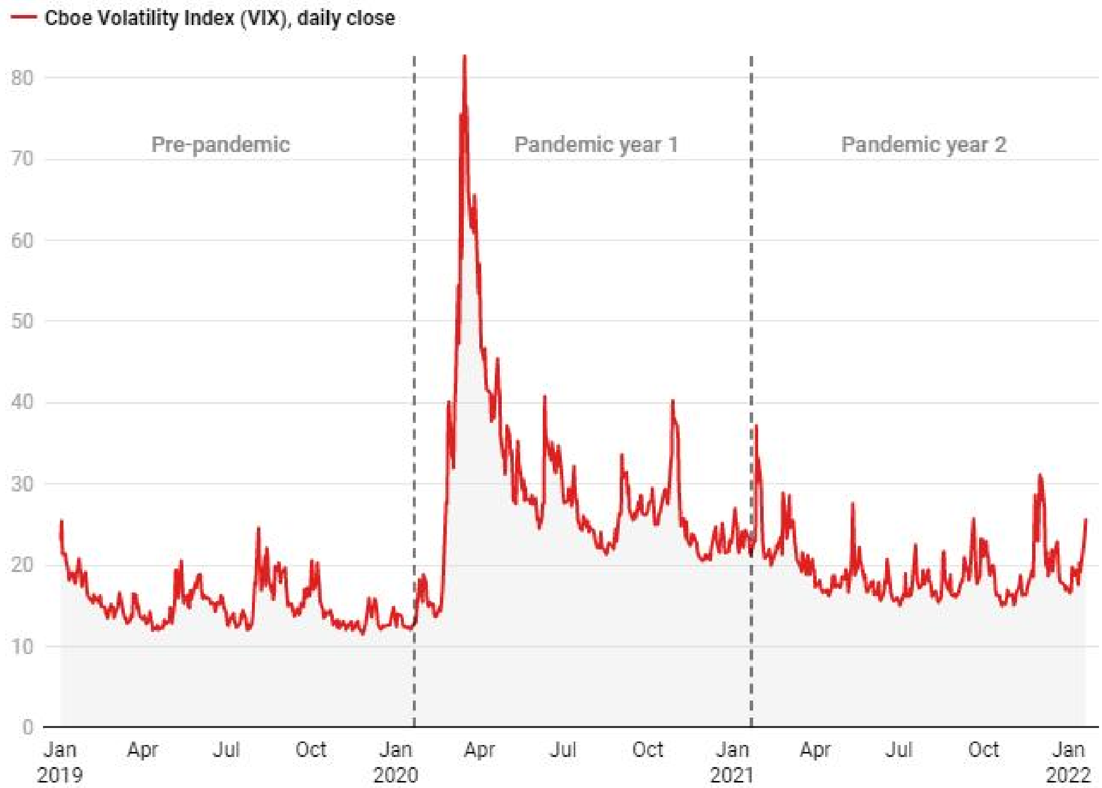

Exhibit 3-2 The stock market VIX volatility during the pandemic in the U.S.

Source: Cboe, Dec. 2020

Exhibit 3-2 also shows that the shock of the epidemic did not ease quickly as the epidemic entered the recovery phase in Pandemic year 2, and there has been no clear trend toward stable volatility in stock markets. A general decrease in confidence in the market has clearly led institutional investors and individuals to take more cautious investment strategies. As we can see from the VIX, its average value has increased from 13%-14% before the epidemic to 18%-19% after the outbreak of the epidemic. The post-epidemic era has also seen a decline in previously stable international multilateral relations, increasing the uncertainty in equity markets.

In contrast, the real estate market became more attractive. Real estate can provide stable cash flows to support investments. In an environment where asset values are highly volatile, the logic of cash flow-based valuation prevents asset values from wildly fluctuating. Therefore, institutional investors can use the increase in real estate investments as a strategy to stabilize their assets portfolios in the midst and recovery phase of the epidemic. In the wake of the epidemic, institutional investors continued to increase their investment shares in real estate. Furthermore, an increase in institutional real estate investment will also bring better liquidity and higher asset prices to the market. Therefore, the high stock volatility has brought more opportunities to the real estate investment market.

3.4 Lowest interest rate and capital cost

The Federal Reserve normally uses monetary policy and lowers interest rates to control the economy's stability. Exhibit 2-10 illustrates the decline of U.S. interest rates over time. Real estate mortgage rates decreased further during the pandemic. Rates for 30-year fixed-term mortgages had fallen from 4% in 2018 to less than 3% in 2021, and although they rose 1% to 4.42% in the first quarter of 2022, they were still at historic lows.[10]

A lower cost of capital for institutional real estate investors increases their leverage ratio, which in turn allows them to acquire more assets. Therefore, the decrease in interest rates encourages institutional investors to put more money into the real estate market.

The Fed's loose monetary policy often provides a great investment environment for the real estate market. To some extent, the current situation is similar to the situation that followed the 2008 financial crisis: a significant drop in the risk-free rate was followed by the Fed printing money, resulting in a corresponding drop in interest rates. After 2008, real estate prices soared during the subsequent decade, and early real estate investors successfully arbitraged their profits. During and after the epidemic, low capital costs were and will be the most effective weapon for real estate investment.

3.5 The desire for better living conditions

According to the "Paulse of the American Worker Survey", 87% of the respondents had remote work experience during the pandemic and would prefer to work from home at least one day per week after the pandemic. 68% of the respondents preferred a hybrid workstyle after the pandemic.[8] The pandemic gave people a chance to experience a change in the way they work. As the number of hours spent at home increased, people developed a strong desire to improve their living conditions. Exhibit 3-3 shows more than half of the people surveyed wanted to move to a new apartment as soon as possible after they started working from home. As more and more people started to work from home, the awareness of inadequate living spaces, poor working conditions, and noisy communities contributed to the demand for a new living environment.

According to Exhibit 3-4, the average rent has gone up much higher since the beginning of 2021, generating a higher positive cash flow and return for this investment. Institutional investors eliminated their fear of the pandemic, shared by the renters and the first-time home buyers, and responded to the opportunities of high potential returns behind the risk of the pandemic. Many people wanted to purchase their primary dwelling for the first time, according to Exhibit 3-5. Exhibit 3-6 compares the recent ten years' ownership rate and shows the rate reached a historically high of 67.9% in 2020 Q2 and stabilized at 65.4% in 2021 Q2. Based on the demand and supply in the residential real estate market, individuals had a stronger desire to purchase their primary dwelling to improve their current living conditions. There has been a sharp increase in the multi-family and single-family capital gains due to competition among individual customers, individual investors, and institutional investors—especially a sharp increase in the single-family purchase and sell prices.

The appreciation of rental incomes and capital gains in the residential real estate market was greatly appreciated by institutional investors thanks to the strong desire for better living conditions among primary dwelling customers and renters. A more aggressive investment strategy was applied among the institutional investors. The renters and the individual primary dwelling customers brought opportunities to the real estate investment market.

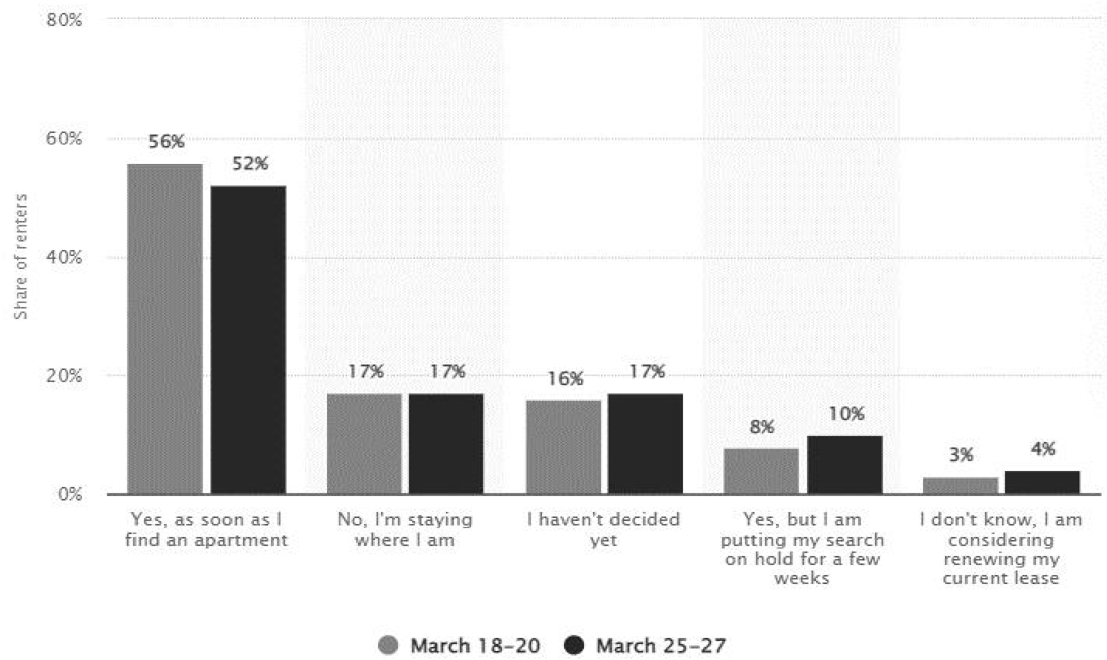

Exhibit 3-3 Preference for living conditions during the pandemic in the U.S.

Source: Statista research Department, Mar. 2020

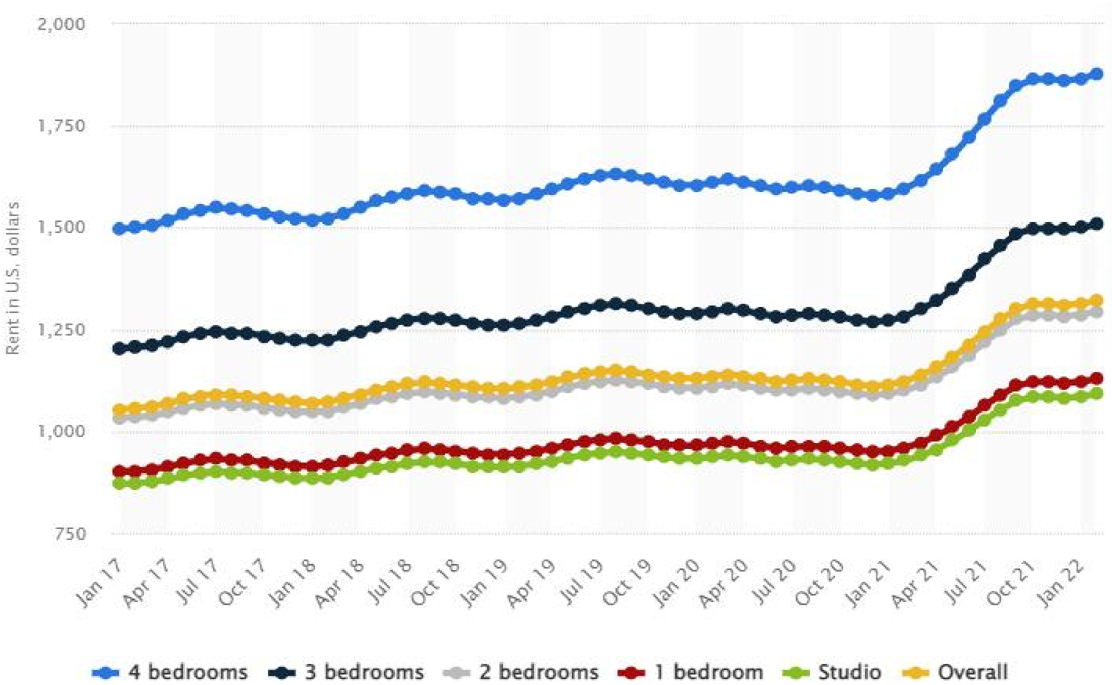

Exhibit 3-4 Average monthly residential rent by size in the U.S.

Source: Statista research Department, Apr. 2022

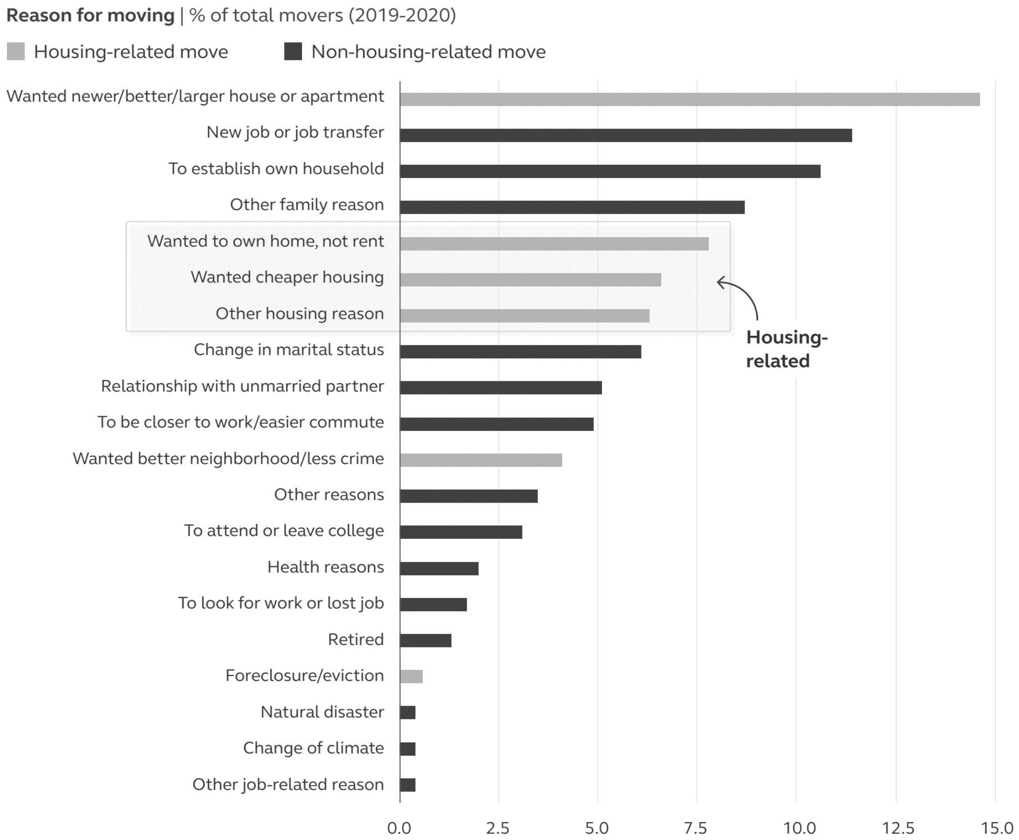

Exhibit 3-5 Moving reasons during the pandemic in the U.S. from 2019 to 2020

Source: The U.S. Census Bureau, Sep. 2021

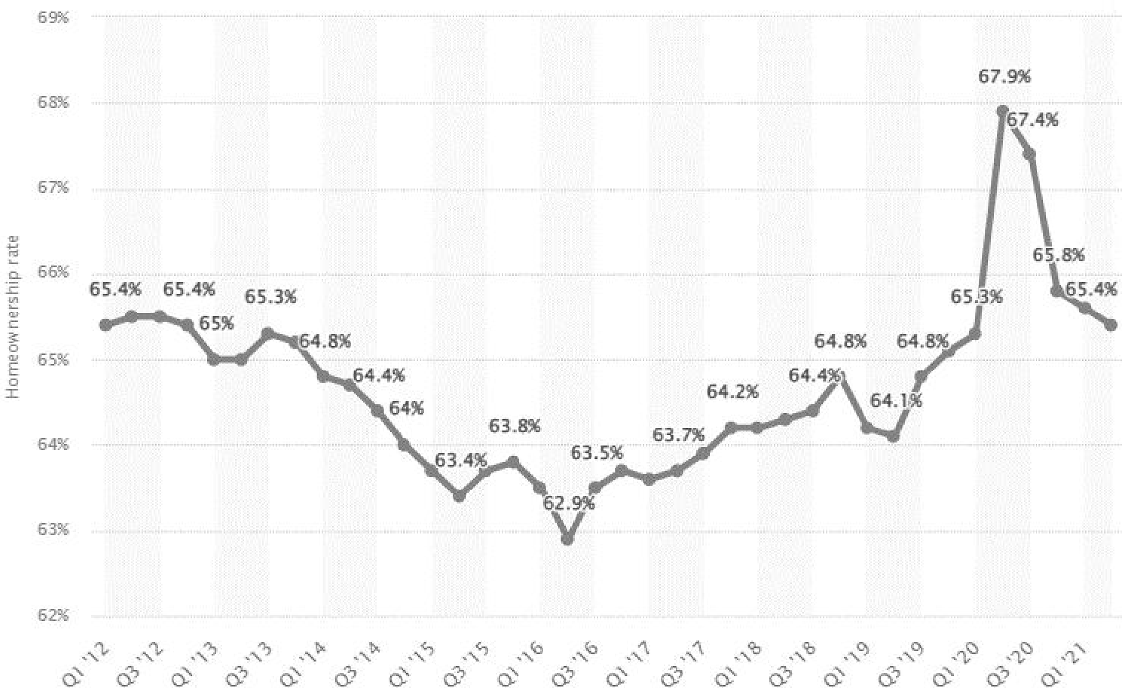

Exhibit 3-6 Ownership rate of housing in the U.S. from 2012 Q1 to 2021 Q2

Source: Statista research department, Sep. 2021

4 Investment comparison among institutional investors

4.1 The starting point of multi-family and single-family

Since the real estate market stabilized after the 2008 financial crisis, institutional investors have focused almost exclusively on multi-family when investing in residential-related asset classes and are rarely involved in single-family, especially before 2010. Due to the sharp increase in capital gains and rental income in the single-family market since 2010, many institutional investors have begun to invest in the single-family properties. Especially after 2019, institutional investors' preference for the single-family asset class borders on obsession. Institutional investors purchased 90,215 single-family homes in the third quarter of 2021 alone, representing 18% of all transactions. Compared to the same period in 2020, transaction volume increased 80.2%, and single-family investments outnumbered multi-family investments by a 3:1 margin.[14] Multi-family, an institutional investor's top choice residential asset class in the past, is now considered less desirable than single-family homes.

The geographical dispersion of single-family properties and lack of management made them unpopular with institutional investors before 2010. However, with the improvement in market analysis, portfolio management capabilities, and property management capabilities, acquiring a large number of single-family homes will alleviate the disadvantages of their scattered location and inconvenient management and instead become a key direction to improve returns.

During the 2008 financial crisis and epidemic crisis, multi-family and single-family properties both offered high returns and predictable rents, which institutional investors view as a powerful tool against inflation. Thus, institutional investors have rebalanced their portfolios to achieve higher returns by adjusting the ratio of multi-family to single-family investments and the mix of residential assets with other asset classes. By splitting the huge investment amount into small investments for each single-family investment, the desired return has been generated through the effect of scale.

[14] Hudson Cashdan, "Modeling an Asset Class: Why Wall Street May Be in the Single-family Rental Market for Keeps" <https://www.toptal.com/finance/real-estate/wall-street-buying-single-family-homes>, (Dec, 2021)

In 2012, Blackstone, the institutional real estate investor with the world's largest Assets Under Management (AUM), acquired Invitation Homes together with its 80,000 single-family properties and subsequently helped Invitation Homes go public and successfully cash out in 2019. As the epidemic progressed, single-family transaction volumes and prices declined. Blackstone again took advantage of the situation by acquiring Home Partners of America, which owned 17,000 single-family homes for $6 billion. [14]

In 2020, when the pandemic was at its height, J.P. Morgan successfully seized the window to form a joint venture and started to develop multi-thousands of single-family homes.

In 2021, Goldman Sachs officially announced the plan to acquire 20,000 single-family homes over three years and planned to raise over $5 billion to support this acquisition. [14]

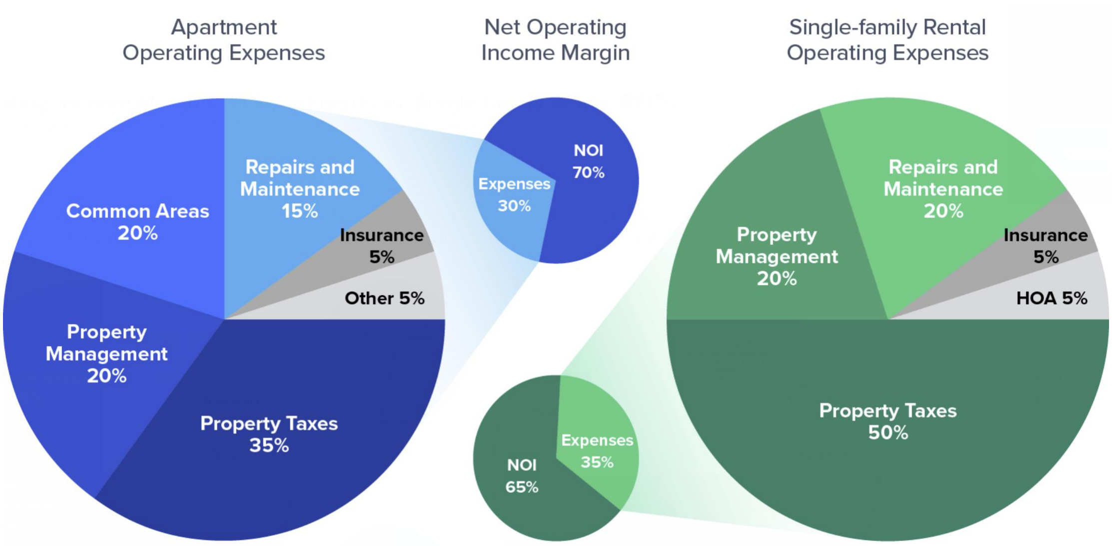

Exhibit 4-1 NOI margin of multi-family and single-family

Source: Hoya Capital real estate reports, Dec. 2020

Exhibit 4-1 shows that the apartment NOI margin was 70%, and the single-family NOI margin was 65%. In the past, multi-family rents were much higher than single-family rents. However, during the epidemic, single-family rents have been catching up with multi-family rents through market adjustments. A single-family home offers a more comfortable living experience with high privacy and has had a higher appreciation during the epidemic. Among all asset types, single-family was one of the top asset classes because of its outstanding performance. Diversification of a portfolio with a higher proportion of residential-related assets than the current or pre-pandemic situation would result in better returns.

4.2 The capital structure among institutional investors

In order to understand how institutional investors allocate capital and form their investment decisions, it is first necessary to understand the long-term and short-term performance of different asset classes. Exhibit 4-2 shows the performance of different asset classes during the past ten years. The short-term returns and annualized 10-year returns for single-family and multi-family rental properties are both excellent. Multi-family and single-family properties should be appropriately allocated in a portfolio for diversification and return enhancement. In terms of return on investment, the results of Exhibit 4-2 are also consistent with the findings in 4.1, with long-term rental returns slightly higher for multi-family than for single-family, and capital gain growth relatively stable for multi-family but not as large as for single-family.

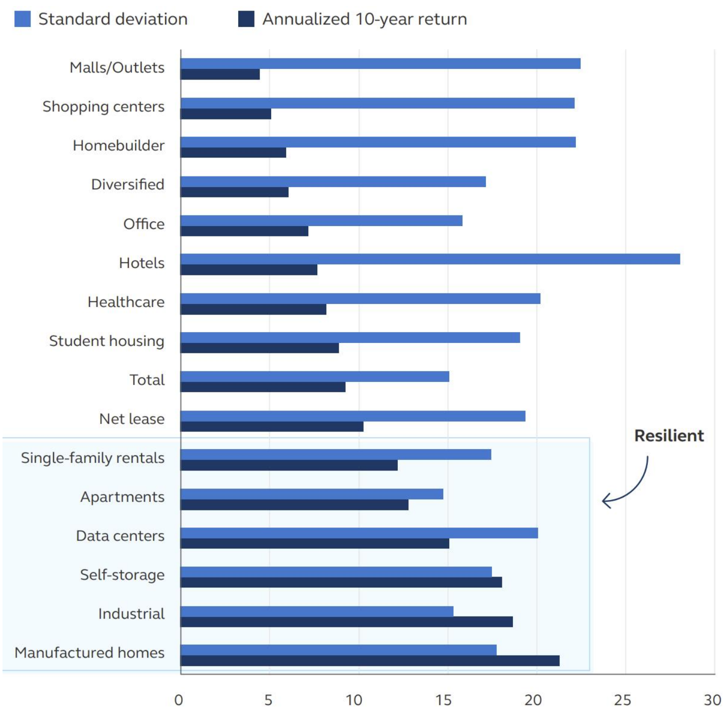

Exhibit 4-2 Ten-year annual return and volatility among multiple asset types | %

Source: FTSE EPRA NAREIT Developed Index, Sep. 2021

The capital allocation structure of institutional investors can also be further analyzed through commercial banks' real estate commercial loans. Exhibit 4-3 shows that 8 of the top 10 institutional investors invested more than 50% of their capital in multi-family, with the largest investment ratio reaching 95%. The solid returns of multi-family investment are highly desirable to institutional investors. Although the acquisition behavior of the industry's leading institutional investors shows that single-family and multi-family have similar investment potential, the top institutional investors involved in the single-family sector are still in the minority, as evidenced by their commercial loan ratios.[15]

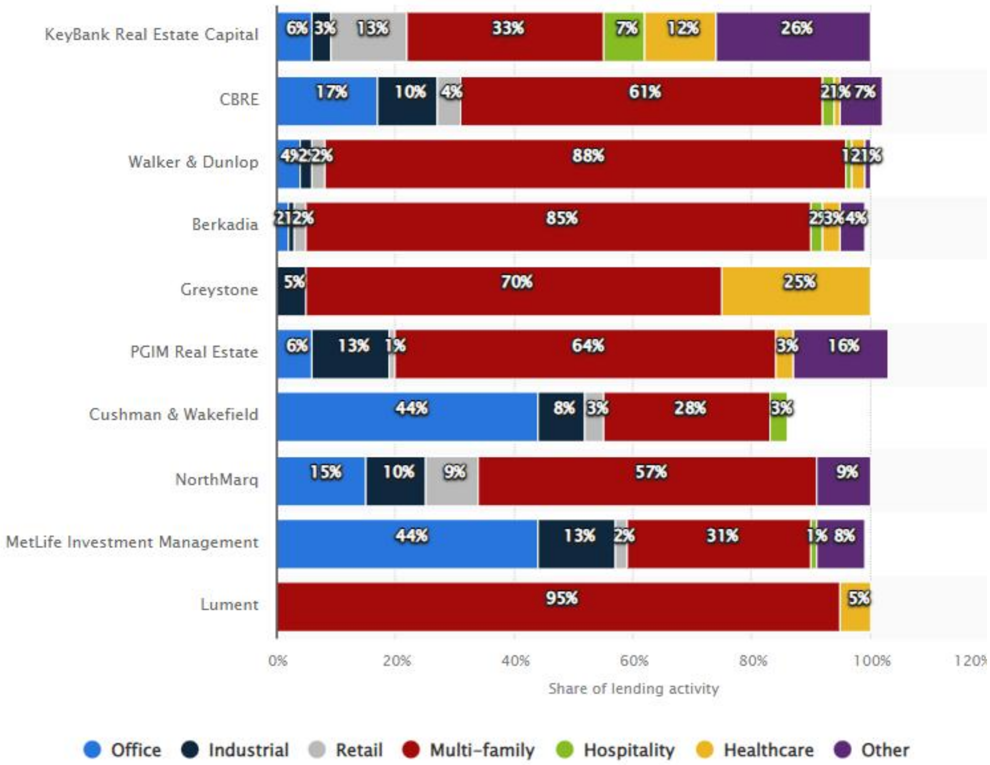

Exhibit 4-3 The allocation of commercial real estate mortgage by companies | %

Source: Commercial property executive, Sep. 2020

4.3 BREIT's fund structure and detailed performance

Let us take BlackRock's BREIT (Blackstone Real Estate Income Trust) as an example and analyze its fund structure, returns, and detailed performance during the outbreak (before Apr.2020), recovery phase one (before Dec. 2020), and recovery phase two (before Dec.2021).

In 2020, BREIT generated a net return of 6.1% during the outbreak of the pandemic. The total return over the same time pre-pandemic in 2019 was -8.2% for

[15] Statista Research Department, "Leading commercial real estate mortgage lenders worldwide 2020", <https://www.statista.com/statistics/1270133/lending-of-leading-commercial-mortgage-banking-companies-by-sector/>, (Oct 2021)

the outbreak and -7.6% for the recovery phase one. Dividends at year-end were 4.7%, with 97%-100% of distributions being tax-deferred returns. [16]

It avoids the asset classes most affected by the epidemic, hospitality, and retail, concentrating its investments in the multi-family, industrial, and net lease sectors. In 2020, $10.5 billion was raised.

Before April 2020, with an over 75% concentration of multi-family, industrial, and net lease sectors, the portfolio contained 72,000 garden-style multi-family properties, which occupied 38% of the portfolio, with a stable occupancy rate of 94%. Exhibit 4-4 shows that the portfolio consists of 37% industrial, 16% net lease, and 9% other real estate.[16]

In the latter half of 2020, it increased 15% in multi-family, industrial, and net lease sectors to 90% of the portfolio before Dec.2020. The increases are mostly located in the western and southern United States suburbs. The stable occupancy rate dropped 1% to 93%. As shown in Exhibit 4-5, there are 35% industrial and 13% net leases in the portfolio.[17]

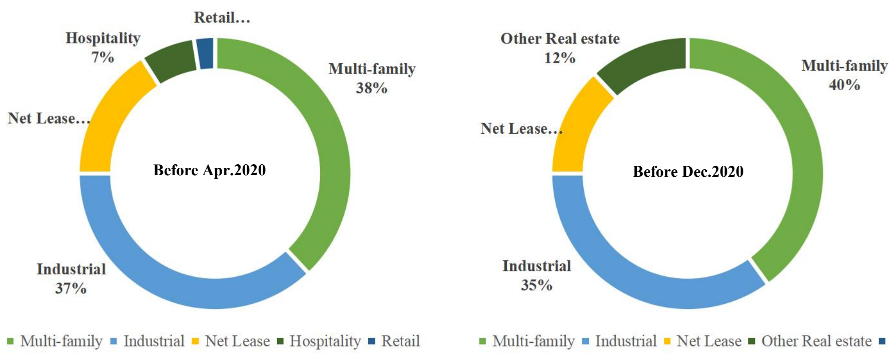

Exhibit 4-4, 4-5 Fund structure of BREIT, 2020 Q1 and 2020 Q4

Source: Seasonal report of BREIT, Apr. 2020 and Jan 2021

In 2021, BREIT, under $94 billion AUM, generated a net return of 28.7% during recovery phase two. The total return was 12.4% over the same time in 2020. Dividends at year-end were 8%, with 92% of distributions being tax-deferred returns. It acquired single-family owner/operator Home Partners of America for $6 billion in

[16] Blackstone, BREIT quarter report-2020 Q1, Apr.2020
[17] Blackstone, BREIT quarter report-2020 Q4, Jan.2021

June 2021, occupying 6.4% of the portfolio. Exhibit 4-6 shows that multi-family occupied 46.6%, and total residential occupied 53% of the portfolio.[18]

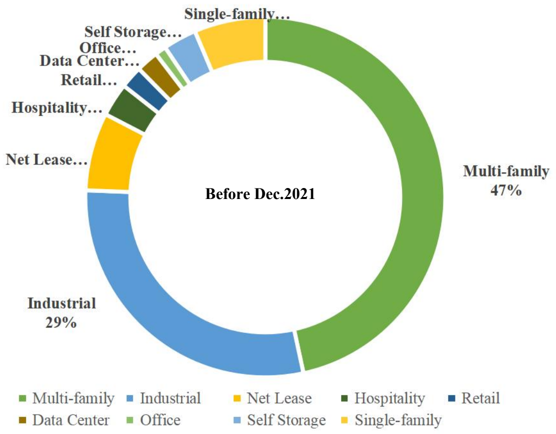

Exhibit 4-6 Fund structure of BREIT, 2021

Source: Seasonal report of BREIT, Jan 2022

BREIT not only diversified the asset types but also paid much attention to diversifying the geographical allocation to reduce the risk from the location. We see 73% of assets located in the south and west of the country, and 99% of assets are located in the U.S., as shown in Exhibit 4-7.

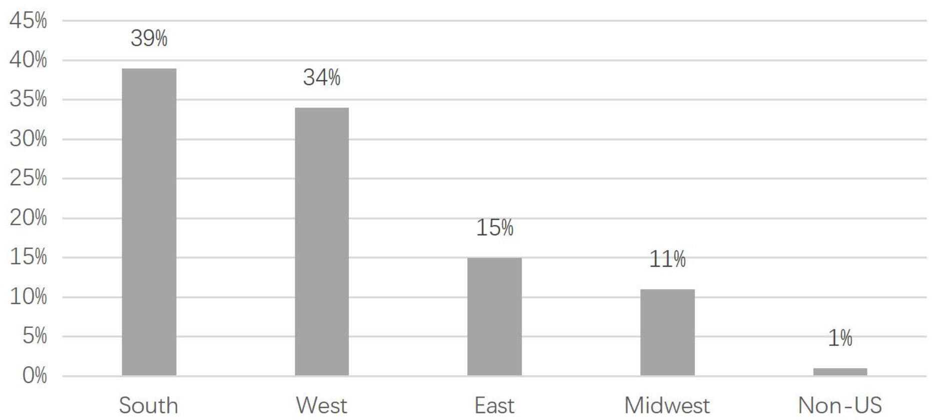

Exhibit 4-6 Geographical allocation of BREIT's assets, 2021

Source: Seasonal report of BREIT, Jan 2022

[18] Blackstone, BREIT annual report-2021, Jan.2022


Home Partners of America
$6B purchase price*


QTS Data Centers
$3B purchase price*


Ace Affordable Housing Portfolio
$8B purchase price*


Canyon 2.0 Industrial Portfolio
$2B purchase price*


Acorn 2.0 Multifamily Portfolio
$2B purchase price*

Exhibit 4-7 2021 Investment highlights of BREIT

4.4 Strategical changes during and after the pandemic

As a result of the return performance, rental income, and the vacancy rates of single-family and multi-family properties during the epidemic and recovery period, as well as the institutional investors' adjustment of investment behavior and fund structure during the epidemic and recovery period, we can summarize institutional investors' investment strategical changes during the epidemic and recovery period.

4.4.1 During the pandemic:

1. An initial conservative investment strategy: timely sales of hotels and retail properties

The lockdown policy affected many countries during the epidemic, but the hotel and retail sectors were the most affected. In hotels, there were many vacancies, whereas in retail businesses, due to social distance restrictions, many businesses closed down or saw reduced customer traffic. Blackstone sold 3% of its hotel assets and 1% of its retail assets within six months between April 2020 and December 2020. The early sale of related assets by institutional investors reduced the overall fund's risk, as they believed that the epidemic would have a long-term impact on the relevant sectors. The Q1 2020 report indicates that BREIT's investment behavior in the initial stage of the pandemic was relatively conservative, with a wait-and-see approach to market changes. The trading volume display also indicates that the trading volume in the first quarter of 2020 declined dramatically, suggesting that institutional investors adopted a relatively conservative investment strategy at the beginning of the epidemic.

2. Increased attention on both multi-family and single-family, with multi-family as the top investment choice

There was a short recession in the real estate market during the pandemic, lasting only two months, and then a strong recovery followed. BREIT's capital structure allocation showed an increase of 2% in multi-family in just six months, from April 2020 to December 2020, as it began to focus on the single-family market through planned acquisitions. Investors anticipated that the increasing demand for residential upgrades, the increased cost of building homes, and the extreme volatility of other financial products would push the price of real estate higher. As a result, more institutional investors were betting on residential assets during a pandemic.

3. Keeping more than two-fifths of the fund in multi-family

Based on the statistics of commercial real estate loans in 2020 and BREIT's investment adjustment during the epidemic, institutional investors gravitated toward multi-family as the largest asset class and commonly allocated more than two-fifths of the entire fund. Its high rental yield, low vacancy rate, and capital gain growth made it the most desirable investment for institutional investors.

4. Diversification of asset classes

According to the statistics of real estate commercial loans in 2020 and BREIT investment statistics during the epidemic, most institutional investors had at least more than five asset types in one fund. Diversification of asset types can help institutional investors reduce risk while optimizing their portfolios.

5. Diversifying asset locations and concentrating on key geographic regions

Observing institutional investors' preferences through Redfin's statistics on the location and volume of new real estate transactions in 2020 was not easy, but it confirmed that institutional investors wanted to diversify their location choices the most they could so that an investment loss in a particular geographic location would not negatively affect the fund's returns. BREIT, for example, had a geographic distribution that was dominated by the West and the South but also covered 28% of the other regions. This deployment would target regions that appear promising.

4.4.2 After the epidemic downturn

1. Investment strategy with relative aggressiveness, focusing on asset classes with strong rents to combat inflation

Based on the previous analysis, we can conclude that institutional investors generally believe that strong rents can effectively resist inflation caused by the epidemic. Following the epidemic recession, institutional investors focused on asset classes with strong rents, such as multi-family, single-family, industrial, and self-storage properties. As a result of the fear of the pandemic, many assets lost their value during the recession. But institutional investors have predicted that the recession would end shortly. Hence, they have started to adopt a relatively aggressive investment strategy.

2. Increasing multi-family investments and single-family layouts by taking advantage of low capital costs

Loan rates have been lowered to a historical low since the outbreak of the epidemic. Although rates have begun to rebound recently, we are still at a historical-low period. Institutional investors have recognized the historical opportunity of lower capital costs to further increase their investments, particularly in multi-family properties with high rents. BREIT, for example, acquired Home Partners of America in June 2021, representing 6% of the total portfolio with 17,000 single-family homes.

3. Limiting single-family homes investment

Institutional investors are still relatively few when it comes to single-family investments. Despite their advantages of rentability and capital gains, the geographical dispersion, each asset requires evaluation and differentiation, and other inconvenient aspects of management are still disadvantages of single-family homes. As a result, institutional investors have controlled the risk associated with single-family investments by limiting their investment in them. BREIT, for example, has only 6% single-family investments in its portfolio, and none of the top ten institutional investors exceeds 10% of its AUM.

4. Diversification of asset classes

After the pandemic, many assets have shown a strong rebound. In 2020, BREIT held five types of assets, but by 2021, the number of asset types had grown to nine. By diversifying asset types, institutional investors have tried to gain more yield while lowering the risks.

5. Diversifying asset locations and concentrating on key geographic regions

After the epidemic, the same investment strategy of diversifying the distribution of asset locations has been maintained to reduce geographic location risk.

5 Conclusion

This thesis explored the reasons and the effects of the pandemic on the real estate market, the changes in investment strategies during the pandemic, and the outlook of the multi-family and single-family future investment trend. Step by step, the analysis of the impact, opportunities, changes, and trends helps us better understand how investment strategies in multi-family/single-family houses changed after the pandemic and in the future.

The thesis concentrated mainly on three aspects: economic, social, and real estate/development constraints. For social and political constraints, lockdown and quarantine policies constrained trade, travel, and capital markets across the world, directly affecting the business activities of real estate investment, such as onsite visits, room tours, open houses, and onsite constructions. For the economic constraints, the unemployment rate increased sharply until April 2020, reaching its highest level in nearly 90 years. Many people suffered evictions and the crisis of paying rent. The shortage or the less availability of skilled labor led to the increase in labor costs and affected the construction time and the sale price. Hence, construction firms had to postpone projects and increase the sale prices to finish them and break even. The risks behind unstable financial markets and the continuous increase in construction costs have become a huge concern in real estate investments.

Despite the high risk during the pandemic, there was a strong recovery in the real estate market. Many opportunities appeared at the bottom of the market during the pandemic. The fact that the recession lasted only two months and its strong rebound afterwards have brought great economic momentum, confidence, and potential to the recovering real estate market. There is no similarity in the causes of the crisis, the method or speed of recovery, and the resulting impact compared to the financial crisis in 2008. The stock or other capital markets' volatility brought more opportunities to the real estate investment market at the same time. Low capital costs and people's strong desire to improve their living conditions were also the most effective weapon for real estate investment.

Since 2008, institutional investors have focused on multi-family when investing in residential-related asset classes. But because of the sharp increase in capital gains and rental income in the single-family market, many institutional investors have begun to become involved in the single-family business, especially after 2019. At the same time, the acquisition behavior of the industry's leading institutional investors showed that single-family and multi-family have similar investment potential. However, there were still few top institutional investors involved in the single-family sector, as shown by their commercial loan ratios.

Institutional investors adopted a relatively conservative investment strategy at the beginning of the epidemic and sold the hotels and the retail properties in a short time. They also paid attention to both multi-family and single-family. However, multi-family was still their top investment choice. Institutional investors gravitated toward multi-family as the largest asset class and often more than two-fifths of the entire fund. Most institutional investors hold more than five asset types in one fund, and the diversification of asset types helped institutional investors reduce risk while optimizing their portfolios. They also tried their best to diversify asset locations and concentrate on key geographic regions during the pandemic.

After the pandemic downturn, the institutional investors have started to adopt a relatively aggressive investment strategy, focusing on asset classes with solid rents to combat inflation. They have increased multi-family investments and single-family investments taking advantage of low capital costs. Institutional investors have controlled the risk associated with single-family investments by limiting the allocation on them to 10%. They have been kept increasing asset class and geographical diversifications.

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APPENDIX

1 Raw data of Exhibit 2-11

	2016				2017				2018			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Boston (multi-family)	237.50	237.50	237.50	237.50	237.50	237.50	237.50	237.50	237.50	237.50	237.50	237.50
Boston (single-family)	300	300	300	300	300	300	300	300	300	300	300	300
Chicago (multi-family)	170	170	170	225	240	250	250	250	250	282.50	282.50	282.50
Chicago (single-family)	237.50	237.50	237.50	237.50	320	320	320	320	320	320	320	320
Denver (multi-family)	137.50	137.50	137.50	137.50	137.50	137.50	137.50	145	145	145	145	145
Denver (single-family)	245	245	245	245	245	245	245	250	250	250	250	250
Honolulu (multi-family)	320	320	320	320	320	320	320	317.50	317.50	315	315	317.50
Honolulu (single-family)	520	520	520	520	520	520	520	517.50	517.50	512.50	512.50	515
Las Vegas (multi-family)	237.50	237.50	237.50	237.50	237.50	237.50	237.50	237.50	237.50	247.50	247.50	247.50
Las Vegas (single-family)	220	220	220	220	220	220	220	220	220	220	220	220
Los Angeles (multi-family)	197.50	210	210	210	222.50	235	235	240	240	257.50	257.50	257.50
Los Angeles (single-family)	230	242.50	242.50	242.50	250	262.50	262.50	262.50	262.50	262.50	262.50	262.50
New York (multi-family)	287.50	287.50	287.50	287.50	287.50	287.50	287.50	287.50	287.50	287.50	287.50	287.50
New York (single-family)	337.50	337.50	337.50	337.50	337.50	337.50	337.50	337.50	337.50	337.50	337.50	337.50
Phoenix (multi-family)	137.50	137.50	137.50	137.50	137.50	137.50	137.50	137.50	137.50	150	150	150
Phoenix (single-family)	250	250	250	250	250	250	250	250	250	275	275	275
Portland (multi-family)	175	195	195	195	195	195	195	195	195	195	195	205
Portland (single-family)	185	202.50	202.50	202.50	202.50	202.50	202.50	202.50	202.50	202.50	202.50	217.50
San Fransisco (multi-family)	352.50	352.50	352.50	352.50	352.50	375	375	375	375	395	395	415
San Fransisco (single-family)	300	300	300	300	300	300	300	300	300	300	300	325
Seattle (multi-family)	177.50	195	195	197.50	197.50	200	200	212.50	212.50	215	215	215
Seattle (single-family)	167.50	192.50	200	210	212.50	225	225	235	235	230	230	230
Washington, D.C. (multi-family)	237.50	237.50	237.50	237.50	237.50	237.50	237.50	237.50	237.50	237.50	237.50	237.50
Washington, D.C. (single-family)	300	300	300	300	300	300	300	300	300	300	300	300

	2019				2020				2021			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Boston (multi-family)	250	250	250	250	250	250	250	250	250	250	250	250
Boston (single-family)	310	310	310	310	310	310	310	310	310	310	310	310
Chicago (multi-family)	282.50	282.50	282.50	282.50	282.50	282.50	282.50	282.50	282.50	282.50	282.50	282.50
Chicago (single-family)	320	320	320	320	320	320	320	320	320	320	320	320
Denver (multi-family)	145	145	145	145	175	175	175	187.50	187.50	187.50	222.50	222.50
Denver (single-family)	250	250	282.50	250	282.50	282.50	282.50	282.50	282.50	282.50	320	320
Honolulu (multi-family)	317.50	317.50	325	330	330	330	332.50	332.50	332.50	342.50	335	335
Honolulu (single-family)	515	515	525	532.50	535	532.50	540	540	540	555	400	400
Las Vegas (multi-family)	247.50	247.50	247.50	247.50	252.50	252.50	252.50	252.50	252.50	252.50	252.50	252.50
Las Vegas (single-family)	225	225	285	225	225	225	225	225	225	225	262.50	262.50
Los Angeles (multi-family)	267.50	267.50	297.50	297.50	302.50	302.50	302.50	302.50	302.50	302.50	302.50	302.50
Los Angeles (single-family)	280	280	285	285	285	285	285	285	285	285	285	285
New York (multi-family)	287.50	287.50	287.50	287.50	287.50	287.50	287.50	310	310	320	320	320
New York (single-family)	337.50	337.50	337.50	337.50	337.50	337.50	337.50	450	450	465	465	465
Phoenix (multi-family)	150	150	170	150	175	175	175	175	175	175	200	200
Phoenix (single-family)	285	285	285	285	285	285	285	285	285	300	307.50	307.50
Portland (multi-family)	205	205	205	205	225	225	225	225	225	262.50	262.50	262.50
Portland (single-family)	217.50	217.50	217.50	217.50	240	240	240	240	240	262.50	262.50	262.50
San Fransisco (multi-family)	447.50	447.50	462.50	462.50	482.50	482.50	482.50	482.50	482.50	495	492.50	492.50
San Fransisco (single-family)	330	330	340	350	350	357.50	357.50	400	400	400	395	395
Seattle (multi-family)	220	220	220	220	220	220	220	325	325	335	282.50	282.50
Seattle (single-family)	230	230	230	230	230	230	230	252.50	252.50	260	240	240
Washington, D.C. (multi-family)	275	275	275	275	275	275	275	270	270	270	270	270
Washington, D.C. (single-family)	350	350	350	350	350	350	350	320	320	320	320	320