Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Languages

Bachelor Thesis

Real Estate Investments: Exploring Types and Strategies for the Residential Market

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Real Estate Investments: Exploring Types and Strategies for the Residential Market

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Objectives of thesis

The main aim of the bachelor thesis is to identify types and strategies of real estate investments with a specific focus on the residential market.

Methodology

The work consists of two parts – theoretical and practical. The theoretical part will be based on the study of secondary sources. The empirical part will be compiled on the basis of outputs from quantitative/qualitative research.

The proposed extent of the thesis

30 – 40 pages

Keywords

Real estate investments, investment strategies, investment types, residential market, market analysis, property management, market trends, financing options

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Recommended information sources

HAIGHT, G. Timothy; SINGER, Daniel. *The real estate investment handbook.* Hoboken: John Wiley, 2005. ISBN 978-0471649229.

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Declaration

I declare that I have worked on my bachelor thesis titled "Exploring Types and Strategies for the Residential Market" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break any copyrights.

In Prague on 15.03.2024 ______________________________

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Real Estate Investments: Exploring Types and Strategies for the Residential Market

Abstract

This study aimed to compare the profitability and risk profiles of three distinct real estate investment options in the United States—the commercial market, housing market, and Real Estate Investment Trusts (REITs). Employing return analysis, correlation analysis, and time series analysis, our findings reveal positive returns for all three options, with REITs demonstrating the highest profitability. However, this superior return is accompanied by heightened risk, emphasizing the need for a balanced approach in aligning investments with individual risk tolerance and financial goals. Correlation analysis underscores the importance of diversification for risk mitigation, while time series analysis provides insights into market dynamics and trends. This study serves as a valuable resource for investors, offering a comprehensive understanding of the financial performance and risk considerations associated with diverse real estate investment avenues.

Keywords: real estate investments, investment strategies, investment types, residential market, market analysis, property management, market trends, financing options

Investice do nemovitostí: zkoumání typů a strategií pro rezidenční trh

Abstrakt

Cílem této studie bylo porovnat ziskovost a rizikové profily tří odlišných možností investic do nemovitostí ve Spojených státech—komerčního trhu, trhu s bydlením a realitních investičních trustů (Reit). Pomocí analýzy návratnosti, korelační analýzy a analýzy časových řad naše zjištění odhalují pozitivní výnosy pro všechny tři možnosti, přičemž Reit vykazují nejvyšší ziskovost. Tento vynikající výnos je však doprovázen zvýšeným rizikem, které zdůrazňuje potřebu vyváženého přístupu při sladění investic s individuální tolerancí rizika a finančními cíli. Korelační analýza podtrhuje význam diverzifikace pro zmírnění rizika, zatímco analýza časových řad poskytuje pohled na dynamiku trhu a trendy. Tato studie slouží jako cenný zdroj pro investory, nabízí komplexní porozumění finanční výkonnosti a rizikové úvahy spojené s různými investičními cestami do nemovitostí.

Klíčová slova: investice do nemovitostí, investiční strategie, typy investic, rezidenční trh, analýza trhu, správa nemovitostí, trendy na trhu, možnosti financování

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1 Introduction

Real estate investment is often seen as one of the most desired type of investments considered by wealthy individuals and ordinary people thriving to get rich. In light of current circumstances, when the global inflation rates are soaring and fiat money rapidly lose their value, researching the topic of real estate investments is extremely important and crucial.

Based on the aforementioned considerations, the decision to take an insight into the world of different types of real estate investments was taken with the emphasis put on the United States of America based on two particular aspects: the housing and financial markets of the US are often viewed as the most comprehensive and well-functioning ones, and the data is widely available for this particular country. The bachelor thesis seeks to analyze which investment option of the three – real estate investment trusts (REITs), commercial real estate and residential market is the best choice for making an investment.

The bachelor thesis analyzes the time period that follows the Great Recession that happened in 2007-2008 and was largely caused by the collapse of the housing market. Therefore, the focus is put on the period that followed the collapse in order to draw valid conclusions not overshadowed by one of the biggest economic and financial crises that has ever happened in the modern history.

The bottom line of this bachelor thesis lies in drawing relevant recommendations that will help investors to decide the best investment option out of the analyzed three. The metrics such as volatility and return are discussed and analyzed in the context of the selected set of real estate investment options. The bachelor thesis is split into various crucial parts, where the very first part is dedicated to the formulation of goals and objectives, and the methodology of the work. This part is followed by the literature review, where a look into the world of scientific publications related to real estate and housing are scrutinized and evaluated. The literature review is used to build a solid foundation for the chapter that follows it – the practical part. The practical part of the thesis is represented mainly by the quantitative approach, where different techniques widely used in the fields of statistics and finance are applied, such as the time series analysis, the return analysis and the correlation analysis of the housing market. After performing the analysis, the results are compared with the results of other scientists and conclusions are finally drawn in the very last chapter.

2 Objectives and Methodology

2.1 Objectives

The goal of the bachelor thesis is to identify different types of real estate investments with the emphasis put on REIT, residential housing and commercial real estate in the United States of America. The thesis seeks to formulate pertinent recommendations for investors depending on their strategy and individual preferences for investments.

2.2 Methodology

The analysis is represented by the interaction of two fundamental approaches – the qualitative and quantitative ones. The qualitative approach is used in the context of this bachelor thesis for forming the theoretical foundation of the work, which is represented by the literature review formulated through the technique of document study. Scientific publications, reports and articles are used, being thus the secondary sources used.

For the quantitative approach, the secondary data sources are used once again, but the data is drawn using one of the most comprehensive and sophisticated databases available for the United States of America – FRED (Federal Reserve Economic Data). The time period covered in the analysis is represented by Q1 2009 to Q2 2023. The selection is represented by the focus on the period following the Great Recession and the selection of the second quarter of 2023 is explained by data availability.

The quantitative techniques used in the analysis are the time series analysis (base index, trend functions, graphs and seasonality), correlation analysis (correlation matrix using Pearson correlation coefficient) and return analysis (descriptive statistics and geometric returns). All 3 methods are used in tandem in order to draw relevant conclusions about the behaviour of the three selected investment options. The final piece of the puzzle in the context of this bachelor thesis is the comparison of findings with the findings of other pertinent scholars in the results and discussion section of the bachelor thesis. The selected methods are expected to positively contribute to the success of properly addressing the goals of the bachelor thesis.

3 Literature Review

3.1 Real Estate Investment

Real estate is widely regarded as the most comprehensible and dependable financial vehicle. Statistically speaking, although there may be occasional declines, the value of apartments and land is appreciated over time. Generating financial losses in real estate is highly improbable. Nevertheless, there are no foolproof methods to invest money. Like other instruments, real estate possesses advantages and disadvantages and several categories. When considering the chances and benefits of investing in real estate, it is crucial to recognize that individuals engaged in investments have specific objectives to preserve and grow their resources—generating passive income through personal investments (Wentland et al., 2020). If an individual possesses surplus savings not currently required for expenses, they might utilize them to earn supplementary revenue. At one's discretion, an individual can withdraw and utilize the invested and accrued cash for personal expenses, as and when required, Preserving one's earnings. Inflation and currency depreciation erode the purchasing power of money over time, prompting a shift towards investment as the primary means of generating income through the regular resale of appreciating assets. In this scenario, an individual may have obtained funds from someone else instead of using their own money, which they utilize to complete lucrative transactions (Adam & Miller, 2021).

The decision to allocate funds towards real estate is undertaken with deliberate intent. Real estate investments offer distinct advantages when compared to other sorts of investing. On average, real estate generates higher income than a bank account, and the price of an apartment or other property increases at least in line with inflation. Stock market investments exhibit significant volatility, entailing a substantial danger of major losses (Baum et al., 2021). In contrast, investing in real estate is considerably more dependable. Investing in housing under construction can generate supplementary income. In this scenario, the unit cost escalates proportionally with the construction of the housing complex. Therefore, individuals choose to invest in real estate due to its inherent stability and ability to defend against inflation, resulting in appreciation of its value. Additionally, the proprietors of the premises generate supplementary revenue by leasing the property through property management (Cocola-Gant & Gago, 2021).

Investments serve as the catalyst for economic growth in all countries, regardless of their level of development. They allocate funds to a diverse range of assets. To successfully invest in real estate in any market, it is crucial to get insights from the experiences of other nations and their foreign property kinds and trends (Swinnen, 2012). Domestic investors who wish to invest their money in foreign real estate markets should also consider incorporating investment experience from other countries. The examination of investments in real estate in other nations can be categorized into the subsequent divisions (Sun, 2015):

- Asian countries and the broader Asian region. These countries encompass China, Japan, Vietnam, and India.
- The Western European countries include Germany, Switzerland, Italy, and Spain.
- Countries in North and South America. Some examples of such countries include the United States of America, Canada, Brazil, Argentina, and Chile.

Each region possesses distinct attributes pertaining to economic and financial advancement within the real estate sector, which diverge significantly from one another. The real estate industry is significantly impacted by its distinct ethnic customs (Pike et al., 2016). Typically, real estate situated in other nations is categorized into the following types: commercial property, Commercial real estate refers to any property that yields financial gain. Examples of establishments include hotels, warehouses, offices, cafes, restaurants, and shops. Investments in foreign commercial real estate might result in various potential consequences or scenarios (Thilini & Wickramaarachchi, 2019):

a) Investing in overseas real estate with the intention of selling it later. It is essential that the amount of money obtained from the following sale be ultimately more than the initial investment. If the situation is reversed, the investment made in this property has shown to be unsuccessful. To generate a return with this choice, an investor must diligently analyze the real estate market and market trends. It is important to bear in mind that the information acquired is current. The relevance of something that was valid yesterday may no longer hold true today, as market prices fluctuate significantly in both upward and downward directions (Ngoc et al., 2022).

b) An investor may choose to invest in vacant real estate with the intention of establishing their own business at a later time. An illustration of such an enterprise would be to acquire a vacant structure, do tailored refurbishments, and establish a hotel. The revenue generated by a functioning hotel will be transformed into dividends from invested capital. Afterwards, the hotel might be sold for a financial gain or retained as a long-term investment (Kadi et al., 2020).

c) Purchase a vacant building or one that was previously occupied by another financially unviable enterprise. Subsequently, seek an additional investor who is willing to undertake the cost of renovations and establish a functional enterprise at the location, such as a collaborative hotel venture with the initial investment. The primary benefit of this alternative, in contrast to the second one, is that the initial investment is not exposed to financial risk. This is particularly advantageous in the event of an economic downturn, where a hotel running as a business may fail to generate revenue and even incur losses (Adom et al., 2023).

Alternatively, there can arise a situation where the hotel's revenue reaches a specific threshold, but the whole return on the initial real estate investment will take as long as 20 years. This extended duration may deter some investors from accepting these conditions. When a business performs successfully, the profit generated is distributed between two investors in a specific ratio (Yoshida, 2020). The magnitude of this ratio will be contingent upon the original consensus reached between the parties involved. If the hotel's expenses surpass its income, or if its income falls short of covering its expenses, this property can always be sold. Upon completion of the sale, promptly commence "monitoring" the market to identify new prospective real estate opportunities. Traditionally, the prices for several attractive real estate properties in Latvia, Estonia, and Lithuania have been comparatively modest. An advantageous aspect of the Baltic countries is their membership in the European Union, which grants business investors extensive chances for corporate expansion and prosperity (Anderson, 2019). The primary benefit of investing in real estate in these countries, as opposed to the CIS countries, is in the lower incidence of corruption among local officials. The local legislation is characterized by greater clarity and transparency, while the tax policy demonstrates a higher level of competence compared to the countries of the former Soviet Union. Investing in real estate situated in resort areas can provide substantial profits, as it is currently highly lucrative to allocate investment capital towards resort properties in countries such as Turkey, Egypt, Cyprus, Bulgaria, Italy, Spain, Germany, and the Czech Republic. The appeal of real estate in Egypt lies in its perennial mild climate and highly accessible transportation infrastructure. Spain's appeal lies in its favorable Mediterranean environment and exceptionally low mortgage rates. Bulgaria is a favorable investment opportunity in the real estate sector, as it offers relatively affordable pricing and high quality. Foreign real estate investment with the intention of establishing residency. This particular type of investment in overseas real estate is the most diminutive. It is primarily purchased by individuals who either already possess a residency permit in a specific nation or are already in the process of obtaining one (Anderson, 2023).

The second group of individuals who engage in overseas real estate investments with the intention of relocating consists of citizens who have been extended an invitation to work or study. When selecting real estate, it is advisable to reach out to a local real estate investment specialist residing in the desired state (Kaklauskas et al., 2021). He offers his services for a fee to assist you in promptly making market decisions and choosing the most appropriate alternative. A local real estate professional will provide you with comprehensive knowledge regarding the legislation pertaining to this region. The regulations might vary significantly from one country to another, with certain activities being allowed in one jurisdiction but forbidden in another. Investments in the real estate industry in other nations can be categorized into three major groups (Farris et al., 2020):

1. Self-financed real estate acquisition refers to the purchase of property by an investor using only their personal cash. This category is the most limited in size, as there are currently only a few individuals who have the financial means to purchase real estate outright and in full payment. Nevertheless, the annual count of investors opting to purchase real estate without relying on credit financing (various types of financing options) continues to rise consistently. World analysts credit this phenomenon to the constant upward growth of the global economy, despite several economic crises (Fischer & Zachmann, 2020).

2. Acquisition of real estate by an investor using exclusively borrowed capital. Only a limited number of foreign countries allow their national banks to provide

loans for the whole acquisition of real estate. Consequently, this approach to obtaining real estate is not commonly employed by local investors (Campello et al., 2022).

3. Real estate acquired through a combination of personal investment and borrowed capital (Campello et al., 2022).

The crux of this approach to investing in overseas real estate is that the investor leverages a portion of the funds through borrowing, while using their own capital for the remainder (Gadzinski et al., 2021). This strategy is commonly employed by investors from the Commonwealth of Independent States (CIS) and overseas investors. The credit share in each particular country typically varies in proportion, but it generally hovers around 80%. Typically, the investor's personal contribution to the funds is smaller than the borrowed component. Let us examine the characteristics of investing in the real estate market in foreign nations. Germany serves as the driving force of Europe due to its significant industrial capacity. Hence, it is unsurprising that the local real estate market is highly advanced on a global scale (Dang & Zhao, 2020).

As a result of its robust industrial growth, this state possesses a highly advanced finance sector. Consequently, Germany is home to over 20 prominent banks that provide mortgages for acquiring domestic real estate (Barasinska et al., 2019). It is worth mentioning that the initial bank to provide a mortgage to its first customer was established in 1770 and is among the oldest banks not just in Western Europe, but globally. German banks are distinctive in their practice of providing borrowed cash at a significantly reduced interest rate and for an extended duration (Bindseil, 2019). This characteristic is highly appealing not just to domestic real estate investors, but also to individuals from foreign nations. Furthermore, when coupled with investor-friendly legislation, this situation becomes much more robust. German banks account for one third of the total volume of all loans through the issuance of mortgage loans. Generally, the interest rate for these loans does not surpass 5% annually, although in certain instances it may reach up to 10% annually. The required percentage of the client's own funds in relation to the total amount of the mortgage loan might reach up to 40%. This percentage varies and is determined by the specific bank providing the loan. Generally, there is an inverse relationship between the size of a bank and the percentage amount. (Deleidi & Levrero, 2021) The interest rate of 10% on a mortgage loan for real estate purchase is considered low and appealing for an investor from the Russian Federation, especially when compared to the potential rate of up to 30% in Russian banks. Due to this reality, a significant number of Russians opt to invest in real estate situated in Germany rather than in their home country. A prominent characteristic of a German mortgage loan is the exceptional preferential system that is present in Germany. An illustrative instance of these advantages: upon the conclusion of the year, the state grants clients a bonus, the magnitude of which may fluctuate and is contingent upon numerous variables (Surak, 2022). The United States of America possesses a sophisticated and advanced mortgage financing system. An idiosyncrasy of the real estate market in the United States is the substantial disparity in pricing, contingent upon the state and location of the country. Historically, San Francisco has been renowned for having the highest-priced real estate in the United States. The mean price of a residential dwelling in the location amounts to $600,000. Real estate prices in California, including San Francisco, are the highest in the entire state. This can be attributed to the close vicinity of the ocean, the climatic conditions, and the presence of Hollywood and Las Vegas in the region (Phillips, 2022). Hollywood is the domicile and workplace of renowned performers who are globally recognized for their films. The primary characteristic of the investment strategy in the American real estate market is the establishment of the Federal Farm Credit System. This financial consortium brings together over 700 commercial banks and diverse credit institutions. The objective of establishing this group is to optimize the procedures involved in granting and overseeing mortgage loans. Hence, the subsequent inference can be derived. Investing in the real estate market in foreign nations might yield significant returns on your capital. Prior to studying abroad, it is essential to examine the regulations of each nation meticulously and independently. Each state possesses its own distinct mentality, which directly impacts the economic circumstances around real estate investment. An illustrative instance: exclusively French nobles possess the privilege to acquire a parcel of land in France, while others are solely entitled to lease the ground on which the property is situated (Beck, 2022).

3.2 Types of Real Estate Investment

Engaging in real estate investing offers the potential for steady profits, the opportunity to build lasting wealth, and the gratification of owning a tangible property. Thorough research and professional help are crucial to understanding the various alternatives available for real estate investment. This knowledge is essential for confidently navigating this profitable field. Real estate investments can be categorized into three main groups, each targeting specific investment strategies and levels of risk tolerance (Hartzell & Baum, 2020).

Real estate investment offers a compelling opportunity to accumulate wealth, generate passive income, and experience the satisfaction of owning a tangible asset. Individuals may confidently traverse this market and attain their financial objectives by comprehending the various array of real estate investment opportunities, assessing risk profiles, and implementing effective investment methods. Real estate encompasses the physical ground and any buildings or other structures attached to it. It encompasses a diverse range of assets, each possessing unique characteristics and potential for investment. The real estate market can be categorized into four main types: residential, commercial, industrial, and special use. These classifications offer a structure for understanding the different facets of the industry (Stein, 2019).

Residential real estate is both a way of providing housing and a channel for investment prospects. Residential real estate pertains to properties primarily intended for dwelling purposes and is the most prevalent form of real estate. This encompasses several residential properties, such as detached houses, condominiums, town houses, flats, and multi-unit residential buildings. Investing in residential real estate has the advantage of a comfortable living space and the potential to earn cash through rental agreements. Investing in residential buildings to leave them can be a lucrative financial strategy (Fields & Rogers, 2021). Rental income, characterized by a steady stream of money, provides a trustworthy and reliable means of financial benefits. Moreover, the potential for substantial and enduring appreciation in value remains a compelling incentive for investing in residential real estate. However, it is crucial to exercise careful attention to detail in managing rental properties, including a comprehensive evaluation of tenants, regular maintenance, and compliance with local zoning regulations and property taxes (Merrill, 2020).

Commercial real estate caters to the requirements of enterprises, encompassing office buildings, shopping complexes, warehouses, hotels, and retail spaces. These elements are the essential foundation of economic activity, providing vital infrastructure for thriving businesses. Commercial real estate investments offer the potential for higher profits compared to residential properties, making them appealing to investors seeking more growth opportunities. However, this also results in heightened susceptibility, as commercial properties are more susceptible to fluctuations in the overall economic climate and market conditions. Before engaging in commercial real estate investments, it is essential to carry out extensive research and undertake a meticulous risk assessment. Land, the essential asset upon which all real estate structures are built, is a physical investment with long-lasting potential. While land may not undergo rapid appreciation, its scarcity and inherent value could lead to substantial long-term returns. Land can be acquired for several purposes, such as urban development, agriculture, or mining. However, participating in land investment requires a thorough and deep understanding of the primary market forces and focusing on long-term opportunities (Immanuel, 2023).

Real Estate Investment Trusts (REITs) offer investors a convenient way to participate in the real estate market without the responsibility of managing individual properties. REITs are corporate entities that own and oversee real estate holdings that generate income, pooling investments from several shareholders. These investors gain a portion of the rental income generated by the properties owned by the REIT, so obtaining exposure to the real estate business. REITs provide diversification benefits by allocating risk across different assets and markets and offering the potential for generating income. Long-term rental properties, leased for one to two years or more, offer a dependable and steady source of income for investors (Adnan et al., 2021). These rental agreements provide a reliable and predictable income stream and can benefit from tax advantages, such as depreciation allowances. However, when dealing with extended lease agreements, it is crucial to carefully examine renters, maintain effective maintenance control, and adhere strictly to property management standards. Short-term lodgings, which can be rented daily, weekly, or monthly through platforms like Airbnb or Vrbo, have the potential to generate higher financial profits compared to rentals with more extended lease periods. This type of venture attracts tourists and corporate travelers seeking short-term accommodation. However, short-term rentals require increased engagement in frequent cleaning, handling guest inquiries, and complying with local laws (Barron et al., 2021).

The most suitable real estate investment for an individual investor depends on their circumstances, risk tolerance, and financial goals. Long-term rentals are an excellent choice for anyone seeking a stable and dependable revenue stream. Commercial real estate or real estate investment trusts (REITs) may be more attractive alternatives if the main objective is to attain superior financial gains. Investors seeking ownership without the requirement of active management may find Real Estate Investment Trusts (REITs) appealing. Ultimately, selecting a real estate investment requires careful assessment of individual needs and capacity to handle uncertainty (Singh et al., 2020).

3.3 Current Investment Environment

In 2022, the total amount of foreign direct investment (FDI) worldwide decreased by 12% to reach $1.3 trillion. The decrease was mostly attributed to reduced financial inflows and transactions in wealthy nations. Investment trends showed a notable improvement, as there was a rise in the number of new investment projects being announced across various areas and sectors. Foreign direct investment (FDI) experienced a moderate increase in developing countries, with most of the growth being focused on a small number of prominent rising economies. Inflows to numerous minors developing nations have exhibited no significant growth, whilst FDI to the least developed countries (LDCs) has experienced a fall (Shagar, 2023). Recent industry trends indicate a rise in infrastructure projects and supply chain reorganization in sectors such as electronics, automotive, and engineering. Three out of the five leading investment initiatives were disclosed in the domain of semiconductor materials as a response to the worldwide scarcity of computer chips. Investment in the digital economy has decelerated following a period of rapid growth in 2020 and 2021. The quantity of investment projects in the energy industry has stayed constant, alleviating fears on the declining trend in fossil fuel investment caused by the energy crisis. Oil companies are progressively divesting their fossil fuel assets to private equity firms and smaller operators with less stringent disclosure obligations, necessitating the development of new transaction models to assure responsible management of these assets (Stamm & Vorisek, 2023).

In 2022, there was a rise in foreign investment in areas pertaining to the Sustainable Development Goals (SDGs) in developing nations. There has been a rise in the quantity of projects in sectors such as infrastructure, energy, water and sanitation, agri-food systems, health, and education (Jahanger & Usman, 2023). Nevertheless, there has been limited advancement since the adoption of the SDGs in 2015. An assessment of investment requirements at the midpoint of the 2030 Agenda for Sustainable Development reveals that the shortfall in investment across all Sustainable Development Goal (SDG) categories has risen from $2.5 trillion in 2015 to over $4 trillion per annum at now. The most significant deficiencies exist in the domains of electricity, water supply, and transport infrastructure. The backlog is caused by inadequate investment and the emergence of additional requirements. Developing nations are experiencing a growing disparity in investment for achieving the SDGs, which is in stark contrast to the favourable sustainability trends observed in global financial markets (Allen et al., 2021). The sustainable financing market achieved a valuation of $5.8 trillion in 2022. Sustainability funds witnessed a positive net flow of money, but traditional funds witnessed a negative net flow of funds. The issue of sustainable bonds has shown a fivefold growth during the previous five years. Primary market objectives involve increasing market penetration in emerging economies and resolving environmental sustainability issues related to camouflage. Investment in renewable energy on a global scale has increased by over three times since the implementation of the Paris Agreement in 2015. Nevertheless, most of this expansion is concentrated in wealthy nations. Over 30 developing nations have yet to record any international investment projects related to renewable energy sources. The expense of acquiring funds presents a significant obstacle to investing in energy projects within developing nations. Engaging foreign investors to collaborate with the government and multilateral financial institutions greatly decreases the capital expenses. The majority of developing nations have implemented nationally decided targets for transitioning their energy systems. Only over 33% of individuals have converted these measurements into investment prerequisites, and a small number have formulated the asset definitions necessary to establish strategies for identifying and promoting lucrative initiatives (Gordon, 2023).

Consequently, several developing nations employ extensive fiscal and financial incentive structures that are relatively ineffective in stimulating investment in the energy transition. There is a need to greatly increase support for risk mitigation to decrease the cost of financing for investments in energy transition in developing nations. Furthermore, it is necessary to offer supplementary technical support for the purposes of investment planning and project preparation. There is a pressing need to expedite the revision of international investment agreements to broaden the scope for climate action and enhance the measures for promoting and facilitating investments. This paper suggests an Action Agreement on Sustainable Energy Investment for All, which includes suggestions for national and international investment policies, international and regional alliances, financing structures, and involvement in capital markets (Dent, 2021).

The level of investment policy activity significantly increased in 2022 as numerous countries implemented efforts to mitigate the anticipated economic decline. The total count of investment-friendly policies increased to 102, nearly tripling from the previous year and returning to the same level as before the epidemic. The inclination towards heightened scrutiny of FDI persists. 37 countries are now conducting investment evaluations for national security grounds. Nearly half of the actions that were less favorable to investment were due to the implementation or strengthening of national security regulations impacting FDI. Most of these policies were implemented by wealthy nations (Mekuria, 2019).

In 2022, nations that implemented FDI screening regimes accounted for 68% of the entire FDI stock. The quantity of mergers and acquisitions (M&A) transactions that were cancelled due to regulatory or political issues rose by 33%. Investment facilitation measures are extensively examined in both developed and developing nations. The primary aim of policies implemented by developing countries has been to encourage and facilitate FDI by promoting and creating opportunities in new sectors or activities. In industrialized countries, the number of investment-friendly criteria has experienced a substantial increase for the first time since the epidemic (Mauro, 2023). The measures encompassed steps to stimulate investment and incentives specifically targeting renewable energy and other investments connected to climate change. Nations at all stages of development are implementing diverse strategies to promote investment in renewable energy. Developing countries, notably Least affluent Countries (LDCs), frequently employ tax incentives that do not necessitate an initial expenditure of scarce public funds, whereas affluent countries prefer financial incentives along with more intricate mechanisms like feed-in tariffs. The utilization of auctions and tenders as prevalent mechanisms to attract investment in renewable energy is increasingly gaining traction among all categories of countries (Marcus et al., 2023).

In 2022, global fossil fuel subsidies reached a staggering $1 trillion, marking a new record and surpassing renewable energy subsidies by a factor of eight. Fossil fuel subsidies act as a deterrent to investment in the energy transition by impeding the ability of renewable energy sources to effectively compete, particularly when they are not provided with equivalent levels of assistance. Although the process of phasing them out poses difficulties, particularly for developing nations, it will effectively encourage investment in renewable energy (Bouraima et al., 2024). The process of reforming the legislation governing international investment agreements (IIAs) persisted throughout 2022. Notable developments have encompassed the rise of novel forms of investment agreements, the decline of bilateral investment treaties (BITs), and ongoing international talks over the reform of Investor-State Dispute Settlement (ISDS). Several international investment management tools were successfully negotiated, incorporating proactive investment promotion and a heightened emphasis on sustainable investment. The number of contract terminations has surpassed the number of new IIAs for the third consecutive year. In 2022, nations engaged in the establishment of 15 fresh IIAs, while 58 IIAs were formally dissolved. The entirety of the Management Information System (MIS) comprises a total of 3,265 agreements, out of which 2,584 are now in effect. The MIS system is primarily controlled by outdated IIS technology. These entities are distinguished by their overlapping obligations and lack of alignment with the global drive for sustainability. This presents potential hazards to efforts aimed at addressing climate change and transitioning to cleaner energy sources, hence intensifying the need for reform in international investment agreements (Shirlow & Gore, 2022).

Although open markets and reporting standards play a crucial role in enhancing sustainability performance, there is a rising apprehension that corporations would opt to stay in the private market to evade disclosure duties. Policy interventions are necessary to enhance openness and enforce disclosure obligations in the private market. This phenomenon is gaining importance as fossil fuel assets are progressively shifted from government-owned energy companies to private equity firms and smaller unlisted operators. Institutional investors, pension funds, and sovereign wealth funds are well-suited for providing financial support to sustainable energy projects. Nevertheless, their ability to invest in developing countries is frequently hindered due to their inability to invest in projects that do not meet the criteria for investment grade (Haas et al., 2021). Policy intervention is necessary to convert non-fiduciary investment opportunities in emerging nations into fiduciary investment assets by means of international assistance for risk mitigation endeavors. This paper suggests the implementation of a comprehensive plan, known as the Global Compact of Action, aimed at allocating resources towards the development of sustainable energy accessible to all individuals. The document encompasses a comprehensive set of principles that consider the three main objectives of the energy transition: attaining climate targets, ensuring accessible energy for everyone, and guaranteeing energy stability. It suggests six sets of actions that encompass the establishment of domestic and international investment policies, collaborations at the international, regional, and South-South levels, financing mechanisms and tools, and sustainable financial markets. The UNCTAD Global Investment Forum, scheduled to occur prior to COP28 later this year in the same location, will offer a platform for high-level policymakers and a diverse group of stakeholders involved in investment for development to initiate the implementation of the measures outlined in the Global Compact for Action on Investment in sustainable energy for all (Lyons, 2023).

4 Practical Part

4.1 Variables

Based on the identified state of affairs, it was decided to focus on three following types of real estate investment types in the United States of America:

1) **REIT.** The data for this indicator is obtained from FRED and the values are represented in quarterly million USD. REIT, over the course of the last decades, has become one of the main cornerstones of any real estate investment and performing the analysis without considering this integral aspect of the financial market is not sensible.

2) **Commercial real estate.** Commercial real estate is the second variable used in the analysis, whose values are also represented in million USD quarterly. This specific type of real estate investment is more traditional, but it does not prevent from using this option as an alternative to REIT and the third variable that will be introduced shortly in the narrative. The data is also obtained from FRED>

3) **Traditional housing.** This variable is represented in USD and the variable shows the median price of a house sale in the whole US quarterly. This variable is crucial due to the fact that investments into traditional housing are one of the most common and widely used types of investments into the real estate market. Therefore, without including this variable, the analysis will not be complete at all. FRED is the source of data for this case as well.

4.2 Time Series Analysis

Following the formulation of the variables, it is the time to introduce the dataset used in the analysis. Table 1 introduces the dataset containing 4 columns – the first column indicates the date and the remaining three stand for the selected variables.

Table 1, the dataset.

Date	Commercial, million USD	House, USD	REIT, million USD
2009-01-01	207,294	208,400	54,747
2009-04-01	170,324	220,900	52,722
2009-07-01	165,416	214,300	48,062
2009-10-01	153,915	219,000	45,988
2010-01-01	159,163	222,900	51,485
2010-04-01	171,393	219,500	46,022
2010-07-01	169,808	224,100	44,798
2010-10-01	171,902	224,300	44,567
2011-01-01	178,367	226,900	56,577
2011-04-01	174,542	228,100	58,680
2011-07-01	172,307	223,500	56,614
2011-10-01	182,607	221,100	56,075
2012-01-01	182,672	238,400	55,535
2012-04-01	182,038	238,700	58,329
2012-07-01	185,314	248,800	60,046
2012-10-01	187,817	251,700	64,456
2013-01-01	189,829	258,400	63,055
2013-04-01	201,253	268,100	207,541
2013-07-01	213,111	264,800	207,913
2013-10-01	212,090	273,600	214,736
2014-01-01	208,737	275,200	237,281
2014-04-01	218,810	288,000	237,041
2014-07-01	223,304	281,000	241,139
2014-10-01	230,359	298,900	247,269
2015-01-01	240,589	289,200	240,705
2015-04-01	245,894	289,100	241,703
2015-07-01	245,621	295,800	230,382
2015-10-01	243,616	302,500	217,721
2016-01-01	238,496	299,800	227,692
2016-04-01	247,709	306,000	225,177
2016-07-01	256,277	303,800	243,207
2016-10-01	257,194	310,900	227,763
2017-01-01	252,243	313,100	223,984
2017-04-01	271,908	318,200	223,346
2017-07-01	266,704	320,500	222,940
2017-10-01	270,953	337,900	234,824
2018-01-01	273,463	331,800	232,877
2018-04-01	274,622	315,600	231,292
2018-07-01	275,106	330,900	237,453
2018-10-01	271,963	322,800	254,977
2019-01-01	284,124	313,000	264,793
2019-04-01	296,597	322,500	276,042
2019-07-01	294,278	318,400	285,590

2019-10-01	291,265	327,100	273,864
2020-01-01	295,707	329,000	250,792
2020-04-01	288,932	322,600	247,914
2020-07-01	295,160	337,500	260,052
2020-10-01	304,559	358,700	265,665
2021-01-01	308,885	369,800	272,687
2021-04-01	317,136	382,600	288,260
2021-07-01	340,814	411,200	309,340
2021-10-01	354,158	423,600	347,264
2022-01-01	346,345	433,100	357,611
2022-04-01	345,092	449,300	381,568
2022-07-01	351,041	468,000	375,653
2022-10-01	349,977	479,500	379,016
2023-01-01	346,951	429,000	384,490
2023-04-01	353,988	418,500	376,067

Source: FRED, 2023

The very first technique of analysis that is applied to the dataset introduced in Table 1 is the base index. The base index shows the percentual increase in the last period of time from the very first quarter that is included in the analysis. The table with base indices for every selected investment option is presented in Table 2.

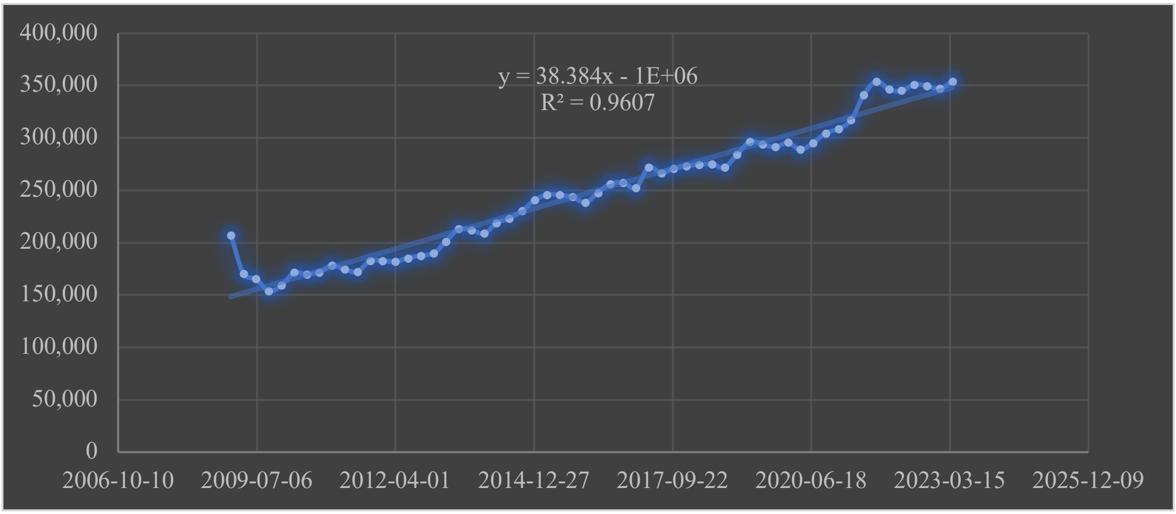
Table 2, the base indices.

	Commercial, million USD	**House, USD**	**REIT, million USD**
Base Index	71%	101%	587%

Source: FRED, 2023

According to the calculated base indices, the investment option that saw the smallest increase out of the two compared to the very first quarter is commercial real estate. Commercial real estate is followed by housing real estate and the absolute leader is the REIT with the percentual increase of 587% by the end of the analyzed time period compared to the very first year. Overall, the development of all real estate investment types was somewhat optimistic and positive, considering the fact that the base indices are positive with rather large figures. The next step is represented by the creation of time series plots, where the commercial real estate is the first variable to be discussed. The time series plot of the variable is presented in Figure 1.

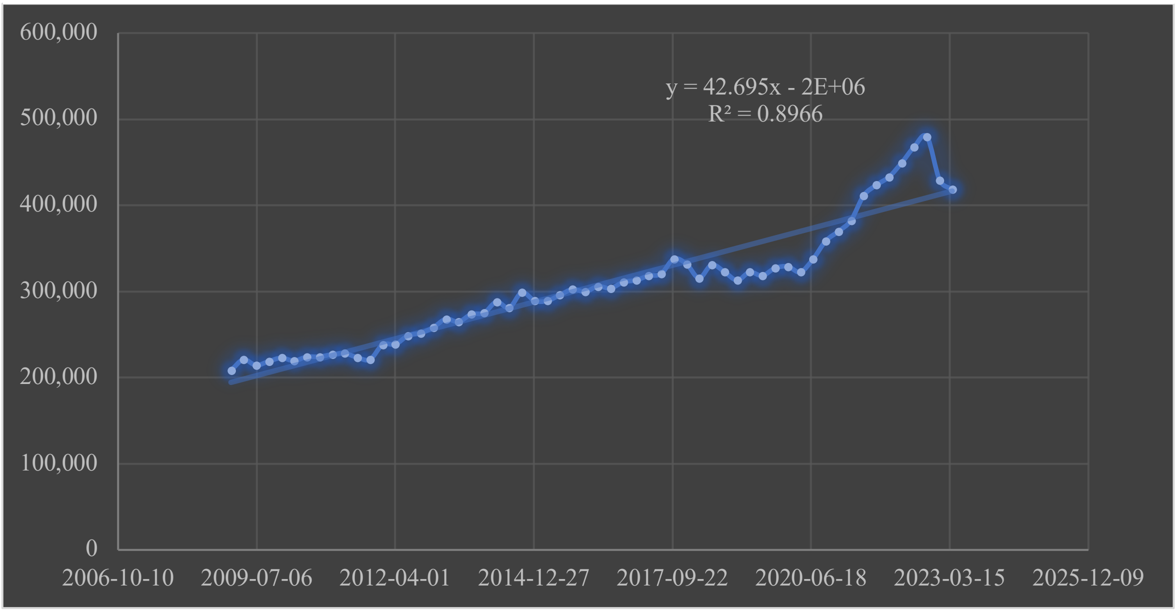
Figure 1, the time series plot of commercial real estate.



Source: own processing based on FRED, 2023

The development of the commercial real estate is categorized by an upward-sloping curve that indicates a positive tendency in the price of the commercial real estate in the United States of America. There were no particular periods of major recession over the analyzed time period apart from the year 2009, which was still categorized by the repercussions of the Great Recession that had happened before the year 2009. According to the fitted linear trend, the quarterly increment in the value of the commercial real estate investments in the US accounted for 38.384 million USD, which is an impressive result. The next type of real estate investment addressed is the housing market, whose time series plot is presented in Figure 2.

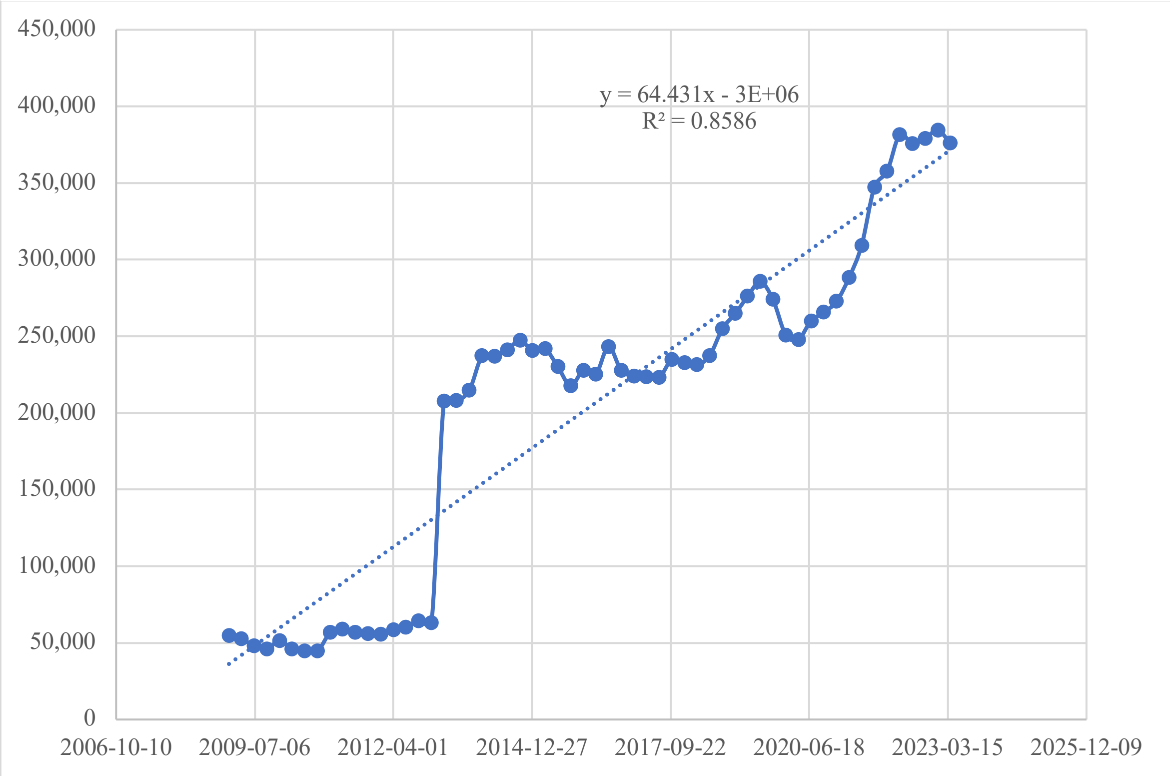
Figure 2, the time series plot of the housing market.



Source: own processing based on FRED, 2023

The development of the housing market in the US does, to some extent, follow the behaviour of the commercial real estate since the line that explains the development of the variable was mostly upward-sloping for the most time. However, there were major drawbacks during the COVID-19 pandemic and in the recent period. However, even despite the major drawbacks that happened with the value of the housing market did not stop the market from expanding. According to the linear trend, the quarterly increment in the value of the housing market accounted for 42.695 USD. The final time series plot that is created for the REIT variable is presented in Figure 3.

Figure 3, the time series plot of REIT.



Source: own processing based on FRED, 2023

The behaviour of the last variable was less stable as its value was developing in a more abrupt manner, especially in 2013-2014. On the other hand, based on the overall picture observed in Figure 3, it is possible to conclude that the market was experiencing a bullish stage, which is further confirmed after checking the fitted linear trend function that indicates an increase of 64.431 million USD quarterly. At last, in order to understand if the investment options behave themselves differently or not, the seasonal factors for each quarter are calculated. The breakdown of all seasonal factors for the selected real estate options is presented in Table 3.

Table 3, seasonal factors.

	Commercial, million USD	**House, USD**	**REIT, million USD**
Q1	240,422.43	293,500.00	184,987.21
Q2	243,303.57	297,800.00	198,259.79
Q3	246,732.93	303,042.86	201,656.36
Q4	248,741.07	310,828.57	205,298.93
Total Average	**244,800.00**	**301,292.86**	**197,550.57**
Q1	1.79%	2.59%	6.36%
Q2	0.61%	1.16%	-0.36%
Q3	-0.79%	-0.58%	-2.08%
Q4	-1.61%	-3.16%	-3.92%

Source: own processing based on FRED, 2023

Based on the computed seasonality factors, it is possible to come up with the following interpretation for every quarter and investment option:

In the first quarter:

- The value of commercial real estate is 1.79% higher on average.
- The value of housing real estate is 2.59% higher on average.
- The value of REIT is 6.36% higher on average.

In the second quarter:

- The value of commercial real estate is 0.61% higher on average.
- The value of housing real estate is 1.16% higher on average.
- The value of REIT is 0.36% lower on average.

In the third quarter:

- The value of commercial real estate is 0.79% lower on average.
- The value of housing real estate is 0.58% lower on average.
- The value of REIT is 2.08% lower on average.

In the fourth quarter:

- The value of commercial real estate is 1.61% lower on average.
- The value of housing real estate is 3.16% lower on average.
- The value of REIT is 3.92% lower on average.

Overall, it is possible to come up with the conclusion that the best-performing quarter for all three investment options is the first one, while the absolute worst one is identified to be the fourth quarter. The next sub-chapter is dedicated to the correlation analysis.

4.3 Correlation Analysis

The correlation analysis is based on the creation of a correlation matrix that will display the strength of relationships between the selected real investment types for the American market. All correlation coefficients are presented in Table 4.

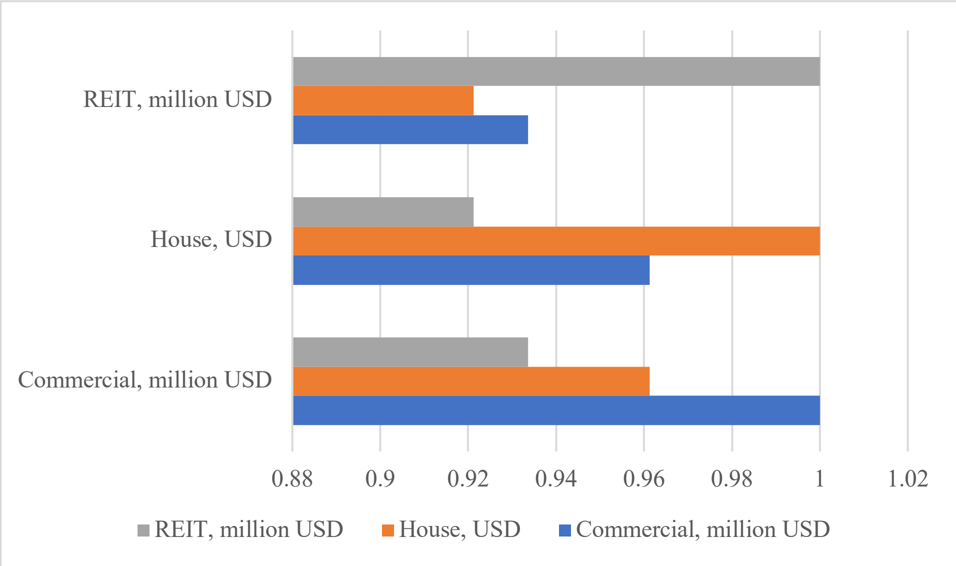
Table 4, the correlation matrix.

	Commercial, million USD	***House, USD***	***REIT, million USD***
Commercial, million USD	1	0.96	0.93
House, USD	0.96	1	0.92
REIT, million USD	0.93	0.92	1

Source: own processing based on FRED, 2023

According to the results of the correlation matrix, it is possible to conclude that the degree of association between all the selected real estate investment options is extremely high with the value of Pearson correlation indicators above 0.9. This indicates that investing simultaneously into 3 different assets might not prove itself to be a safe bet due to the fact that a slump in the price of one asset is likely to happen in the price of other assets as well. Therefore, the selected bundle is not good for portfolio diversification. In addition to the correlation matrix, Figure 4 presents the visualization of the correlation matrix.

Figure 4, the visualization of the correlation matrix.

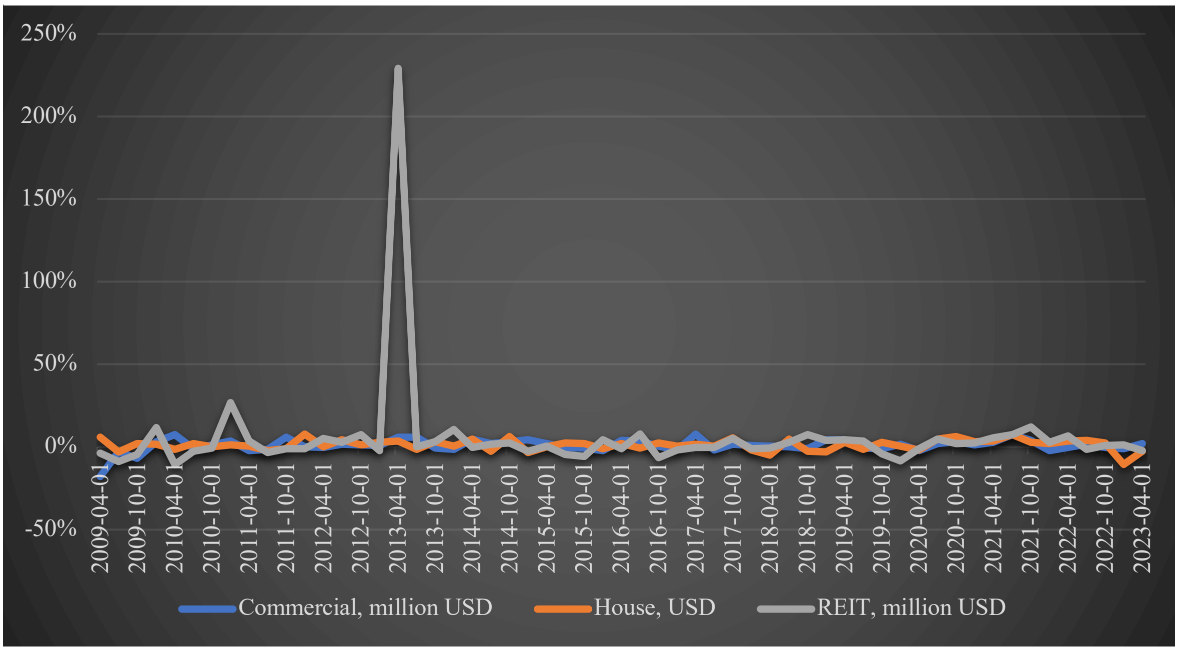


Source: own processing based on FRED, 2023

4.4 Return Analysis

The final part of the empirical analysis is represented by the return analysis. Normal returns that are represented by chain indices are first analyzed, whereas the further analysis deals with the geometric returns that offer a more comprehensive overview of the situation. Figure 5 presents the visual comparison of returns of the selected set of real estate investment types.

Figure 5, the visualization of returns.



Source: own processing based on FRED, 2023

Effectively, based on the visualization and the comparison of different investment options, it is visible that REIT evidently stands out from the crowd with extremely high returns for some periods of time, especially for earlier quarters of the addressed time period. Table 5 presents the summary of descriptive statistics for the returns of commercial real estate, housing market and REIT.

Table 5, returns (explanatory statistics).

Commercial, million USD		***House, USD***		***REIT, million USD***	
Average	1.02%	Average	1.28%	Average	5.48%
S.E.	0.52%	S.E.	0.44%	S.E.	4.07%
Median	1.23%	Median	1.78%	Median	0.90%
Mode	#N/A	Mode	#N/A	Mode	#N/A
St.dev.	3.89%	St.dev.	3.31%	St.dev.	30.73%
Variance	0.15%	Variance	0.11%	Variance	9.45%
Kurt.	896.09%	Kurt.	165.26%	Kurt.	5259.83%
Sk.	-188.53%	Sk.	-65.41%	Sk.	712.52%
Range	25.63%	Range	18.36%	Range	239.75%
Min	-17.83%	Min	-10.53%	Min	-10.61%
Max	7.80%	Max	7.82%	Max	229.14%
Sum	58.20%	Sum	73.24%	Sum	312.55%
Count	57.000	Count	57.000	Count	57.000

Source: own processing based on FRED, 2023

According to the calculations, it is possible to conclude that the investment option that has the absolutely highest average value of returns is REIT, whose average quarterly returns account for 5.48%. On the other hand, the second-best investment option is housing market with the average return of 1.28%. At last, the least profitable one is the commercial real estate with 1.02%. Overall, all 3 investment options are somewhat profitable given their positive values, but it is pretty apparent that REIT definitely stands out from the crowd as the most profitable but, on the other hand, the riskiest class of real investment options.

At last, the geometric returns are calculated as well and the results of the calculation are presented in Table 6.

Table 6, the table of geometric returns.

Geometric Returns		
Commercial, million USD	***House, USD***	***REIT, million USD***
0.94%	1.23%	3.44%

Source: own processing based on FRED, 2023

The same dynamic as with normal returns is identified for the case of geometric returns, where the leading asset class is REIT with 3.44% of geometric returns, followed by housing market with 1.23% and the commercial one with just 0.94%, which is the worst result out of the three. The next chapter continues with the interpretation of the results.

5 Results and Discussion

The investigation into the profitability of three distinct real estate investment options within the United States, namely the commercial market, the housing market, and real estate investment trusts (REITs), has revealed positive returns across all sectors. This study aimed to assess and compare the financial performance of these investment avenues to provide valuable insights for potential investors.

In terms of overall profitability, each of the selected real estate options exhibited positive returns during the examined period. The commercial market, known for its dynamic and diverse nature, demonstrated a commendable level of profitability. Investors engaging in commercial real estate ventures experienced favorable returns, highlighting the sector's resilience and potential for financial gain.

Similarly, the housing market emerged as a lucrative investment option, with positive returns observed over the study period. The stability and consistent demand for residential properties contributed to the sustained profitability of investments in this sector. Homeownership, a fundamental aspect of the housing market, proved to be a reliable source of returns for investors seeking long-term value appreciation.

Among the three options, Real Estate Investment Trusts (REITs) emerged as the most profitable in terms of returns. REITs, as financial instruments that allow individuals to invest in a diversified portfolio of real estate assets, showcased remarkable performance. The ability of REITs to provide investors with exposure to a broad spectrum of real estate properties contributed to their superior returns compared to individual real estate sectors.

Despite the evident profitability, it is crucial to note that REITs also emerged as the riskiest option among the three. The inherent volatility of financial markets and the sensitivity of REITs to economic fluctuations contribute to their elevated risk profile. Investors seeking higher returns must carefully weigh the potential benefits against the increased risk associated with REIT investments.

The observed risk associated with REITs can be attributed to several factors, including market volatility, interest rate changes, and economic downturns. The interconnected nature of financial markets exposes REITs to external influences, making them susceptible to sudden fluctuations. Investors considering REITs as a primary investment option should adopt a comprehensive risk management strategy to mitigate potential downsides.

The results of this study underscore the importance of aligning investment choices with individual risk tolerance and financial goals. While REITs present an attractive opportunity for high returns, investors must be cognizant of the accompanying risks. Conversely, the commercial and housing markets offer stability and consistent returns, making them suitable options for those with a lower risk appetite. Similar findings are achieved by Eichholtz & Yönder (2015) and Block (2011)

In conclusion, the findings of this investigation reveal that all three selected real estate options in the United States—the commercial market, the housing market, and REITs—are profitable, each with its unique set of advantages and risks. The REIT option, despite providing the highest returns, demands careful consideration due to its elevated risk profile. As investors navigate the complex landscape of real estate investment, a balanced approach that considers both returns and risks is paramount for achieving long-term financial success.

6 Conclusion

The primary goal of this study was to compare three distinct real estate investment options within the United States—the commercial market, the housing market, and Real Estate Investment Trusts (REITs)—utilizing a comprehensive analysis that included return analysis, correlation analysis, and time series analysis. Through an in-depth examination of these investment avenues, valuable insights have been gained to aid potential investors in making informed decisions.

Return analysis played a pivotal role in assessing the profitability of each real estate option. The findings indicate that all three options—commercial market, housing market, and REITs—demonstrated positive returns during the study period. Investors engaging in the commercial market experienced commendable profitability, while the stability and consistent demand in the housing market contributed to favorable returns. Notably, REITs emerged as the most profitable option, albeit with a heightened level of risk.

Correlation analysis provided further understanding of the relationships between these real estate options and their susceptibility to external factors. The interconnected nature of financial markets revealed through correlation analysis emphasizes the importance of diversification for risk mitigation. Investors seeking a balanced portfolio should consider the correlations between the commercial market, housing market, and REITs to achieve optimal risk-adjusted returns.

Time series analysis allowed for a dynamic assessment of the performance of each real estate option over the study period. Trends and patterns in return fluctuations provided valuable insights into the market dynamics, enabling investors to make well-informed decisions based on historical performance. The time series analysis underscored the need for a nuanced understanding of market cycles and trends, particularly when considering long-term real estate investments.

In conclusion, this thesis has shed light on the profitability, risk, and interrelationships of three prominent real estate investment options in the United States. The commercial market and housing market both offer stable returns, catering to investors with a lower risk appetite. On the other hand, REITs emerged as the most profitable option but with an inherent risk that demands careful consideration.

As investors navigate the complex landscape of real estate investment, it is crucial to align choices with individual risk tolerance, financial goals, and investment horizon. The insights provided by this study underscore the importance of a diversified approach to real estate investment, considering not only the potential returns but also the associated risks. By leveraging the findings from return analysis, correlation analysis, and time series analysis, investors can develop a well-rounded investment strategy that aligns with their financial objectives and risk preferences.

Ultimately, successful real estate investment requires a nuanced understanding of market dynamics, risk management strategies, and a long-term perspective. This analysis contributes to the body of knowledge guiding real estate investment decisions, providing a foundation for investors to navigate the intricacies of the real estate market with confidence and informed decision-making.

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8 List of Supplements

8.1 List of Figures

8.2 List of Tables

8.3 List of Abbreviations

REIT	Real Estate Investment Trust
USD	United States Dollar
USA/US	United States of America