VILNIUS UNIVERSITY

FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATION

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MASTER THESIS

INVESTICIJŲ Į NEKILNOJAMĄJĮ TURTĄ PELNINGUMO IR RIZIKOS VERTINIMAS	VALUATION OF PROFITABILITY AND RISK OF REAL ESTATE INVESTMENTS

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Vilnius 2024

Abstract

The present study investigates the risk assessment strategies and different approaches of valuing potential success and hazards in the field of real estate investments. It puts emphasis on the valid and useful investment opportunities and analyzing different factors which affect its profitability model. It includes different methods to examine the validity of the employed factors in measuring the usefulness and impactfulness of carrying out a successful investment venture in real estate business. Furthermore, as per the relevance of the topic different factors such as economic, financial and market aspects have been used as comparative metrics to evaluate the profitability and risk coiled with real estate investment projects. Other, cooperative links such as different market dynamics of the location of investment , different economic indicators and different sources of findings are being discussed.

The research also provides solutions to the complexities involved in investment choices. The best initiatives and alterations need to be made in initial choices. The environmental analysis has been done further and examined carefully from the perspective of stakeholders, the costumers and people interested in the ventures. The swings in the market trends and economic swings such as capital on return, internal and external return rates have been taken into consideration. Different valuation methods including the revenue obtained from renting the plots, capital appreciation market ups and downs and available financing methods to analyze the profitability model has been discussed, highlighting the link between the risk and profitability of the real estate investments. Different regulations and policies affecting the business such as legal and regulatory bodies involved in acquaintance of property are explained. A thorough explanation has been made of the different criteria in the interest of real estate investments and the use of approach made in the study.

The secondary qualitative approach has been used to predict the risk factors involved in the business and then proposing an identified framework in making a qualitative effectiveness of real estate investment focusing on the opportunities and countering the factors. Being a diverse market, the geographical analysis , econometric modeling, statistical approach of providing data is being used. Further different variables such as dependent and independent factors are being analyzed. The risk factors act as an independent variable and a profitability assessment is the dependent variable. The study also emphasizes collecting different data , structured analysis and helping to look for different patterns to establish effective research. The research context is explained in the study on the basis of a respective theory obtained from efficient research. Different critical valuation techniques such as the role of real estate investment trust is taken in the study. The real-

time data figure, statistical data and graphs have been taken in consideration to give an overview of the study. The positive approach of studying risk in investment to attain profitability is being discussed. The sampling and questionnaire method is used as a spectrum of effective methods. The analysis of the results of questionnaire and survey helps in maximizing the investment results successfully solving the complexities of real estate by giving practical and real-life examples to contribute to theoretical developments.

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INTRODUCTION

Topic Relevance

From equally a theoretical and a practical standpoint, the subject of "Valuation of Profitability and Risk of Real Estate Investment" is of paramount significance. Real estate investing is a necessary part of contemporary wealth for several reasons. Considering the profitability and risk of real estate assets is essential for making educated investment choices since real estate accounts for a significant amount of personal and institutional wealth. The thesis solves a real-world issue for financiers, builders, and regulators by looking at how real estate assets are valued. Offering insights and tools to evaluate the profitability and risk associated with real estate investments, it gives a scientific answer. Investors, lenders, and financial institutions may optimize investment plans and reduce risk using this information, making real estate transactions more profitable for all parties involved. The theoretical sphere is not immune to the topic's importance. The economic, financial, and market aspects at play in a real estate investment are intricately intertwined. The thesis contributes to the growth and refining of scientific ideas pertaining to real estate finance and investment by investigating the appraisal of profitability and risk. Incorporating elements like market dynamics, economic indicators, financing choices, and risk management strategies, it presents a chance to create novel methodology and models that represent the complexities of real estate investments. Research's empirical evidence may either confirm or suggest changes to preexisting ideas, resulting in progress in real estate finance. Altogether, the thesis's solution to a real-world issue with far-reaching social ramifications is admirable. Provides stakeholders with the information and resources to make educated choices, maximize investment results, and successfully traverse the complicated real estate investment environment by giving practical solutions and contributing to theoretical developments.

Level of Exploration of the Topic

Indicative of a deep dive into the issue, the "Valuation of Profitability and Risk of Real Estate Investment" has been studied by several academics. Various valuation strategies, models, and contributors to the success or failure of real estate investments have been studied and reported on in the current literature. Profitability and risk have been quantified in diverse market circumstances and geographical location using quantitative analysis, econometric modelling, and statistical approach. However, regardless of the tremendous study that has been done, there are still lots of questions that need to be answered. Real estate investment value may be improved by research into emerging trends like sustainable investing and the effect of technology, as well as into more narrow subtopics like risk management techniques and the function of behavioral finance. The master's thesis may help by filling in information gaps, suggesting new ways of approaching the problem, and expanding on previous studies.

The Novelty of Master Thesis

The suggested master thesis on "Valuation of Profitability and Risk of Real Estate Investment" contributes originality to the area by supplying a new angle on the topic by way of unique empirical research and data collection. The concept improves the precision of valuation models by using up-to-date data on real estate transactions, market trends, and financial indicators. The thesis also makes a difference by filling in knowledge gaps, recommending directions for future study, and synthesizing and organizing existing material. It also creates a research approach that is specific to real estate assets and their needs. The method overcomes problems with more conventional valuation strategies. Overall, the thesis is original since it adds to the existing body of knowledge on the valuation of profitability and risk in real estate investment via the introduction of fresh data, a synthesis of the relevant literature, and a tailored research technique.

The Issue of Master Thesis

The problem of the master thesis on "Valuation of Profitability and Risk of Real Estate Investment" can be formulated as follows: What methodologies and factors should be considered in accurately valuing the profitability and risk of real estate investments?

Investors, developers, and legislators all confront the difficulty of trying to precisely predict whether or not a real estate venture will be profitable. There is currently no agreement on the best approaches to real estate valuation or the aspects that have the greatest bearing on profitability and risk. The focus of the master thesis is to fill in the gaps and overcome the present difficulties in accurately assessing the potential returns and associated risks of real estate investments.

Aim

The aim of the master thesis on "Valuation of Profitability and Risk of Real Estate Investment" is to analyze the effects of various risk assessment strategies and valuation approaches on the capacity to precisely estimate the potential rewards and dangers of real estate investments. The purpose of this thesis is to provide light on the usefulness and viability of these methods for improving the quality of investment choices.

Objectives

1. To review and analyze existing literature on real estate investment valuation, examining different valuation methodologies and risk assessment techniques employed in the field.
2. To develop a methodology to examine how various elements, such as rental revenue, capital appreciation, market circumstances, and available financing, impact the potential for a real estate investment to generate a profit.
3. To conduct a study to interpret first-hand information regarding risk and profitability in real estate investment.

The Method Deployed by Master Thesis

The appraisal of profitability and risk in real estate investment was studied using a mixed-methods approach in the master's thesis. The study plan included a comprehensive literature evaluation to collect previously gathered data. In addition, interviews with real estate investors and professionals were conducted as part of the core data collecting process. A survey has been conducted though the help of google form as well as social media platform had been chosen to gather data. SPSS software is an effective tool that has been incorporated to come to a conclusion. Journals and articles are also used for secondary data. This provided helpful data on their views on property prices, returns, and risks associated with property investments. A cross-sectional research strategy was used to compile the data, which guaranteed a representative representation of the real estate investment market. Statistical approaches were used to the data in order to see how different factors influence the profitability and risk of real estate investments.

Description of Structure

The format of the thesis makes sense and is tailored to meet the needs of the study. The study's goals and rationale are outlined in the introduction. Existing literature on real estate investment valuation, examining different valuation methodologies and risk assessment techniques employed in the field studies are reviewed and analyzed in the literature review section. Then a methodology is constructed to examine how various elements, such as rental revenue, capital appreciation, market circumstances, and available financing, impact the potential for a real estate investment to generate a profit. Lastly, a study is conducted to interpret first-hand information regarding risk and profitability in real estate investment.

1. THEORETICAL FRAMEWORK

1.1. Analysis on real estate valuation, various techniques, and methods currently in use

The purpose of this document is to evaluate the literature on real estate investing strategy and procedures currently in use. Investors in the difficult and ever-changing world of real estate use a large variety of tools and techniques to study and estimate investment prospects. This study aims to give thorough insights into the various procedures and approaches used in the sector by evaluating relevant academic papers and research projects.

The sales comparison method is a prominent technique used by real estate investors. Location, square footage, amenities, and general condition are all taken into account as part of this method's comparison to previously sold houses with comparable features. It is extensively utilised in residential real estate appraisal since it serves as a standard for determining the property's worth (Alzain et al., 2022). Using comparable sales to determine a property's worth aids investors by providing a direct comparison of market pricing. The revenue approach is another popular strategy, which considers the property's potential for producing money. This method is especially useful for commercial properties, the value of which is heavily influenced by rental revenue. The direct capitalization method, which uses the property's net operating income and a capitalization rate to get a value estimate, is one example of an income approach methodology; another is the discounted cash flow (DCF) analysis, which takes into account the property's predicted future cash flows (Balemi et al., 2021). By using these techniques, financiers may gauge the property's potential for yielding a profit. A valuation technique called discounted cash flow (DCF) is used to evaluate the viability and dangers associated with real estate projects. It is a frequently used method that takes into account future cash flows produced by the investment as well as the time value of the money. This approach calculates the current value of the property by projecting future cash flows and then discounting them to their current value. Estimating the anticipated cash flows that a property is anticipated to produce over a certain time period is the first step in the DCF analysis. Rental revenue, operating expenditures, maintenance costs, and possible resale value are all included in these financial flows. In order to develop realistic estimates, it is essential to have precise and trustworthy data (Leskinen, Vimpari and Junnila, 2020).

The following step is to discount the expected cash flows backward to their present value. Adding a discount rate, which represents the opportunity cost of purchasing the property, accomplishes this. The discount rate takes into consideration variables like inflation, the state of the market, interest rates, and the particular hazards connected with the property in order to account for the investment risk. The net present value (NPV) calculation is used to determine the discounted cash flows. The total present value of all eventual cash flows less the original investment is the NPV. If the NPV is positive, the property is anticipated to produce a return that is higher than the needed rate of return, which makes it a desirable investment. A negative NPV, on the other hand, indicates that the investment could not be worthwhile (Leskinen, Vimpari and Junnila, 2020). When determining the value of real estate assets, DCF analysis offers various benefits. It recognises that a dollar obtained in the not-too-distant future is substantially less than a dollar received today by first taking into consideration the time value of money. By contrasting the present cost of future cash flows to the initial investment, this aids investors in making wise selections. Second, DCF analysis takes into account the unique risks related to real estate investments. The risk premium, which accounts for the investment's uncertainties and possible dangers, is included in the discount rate. The DCF analysis gives a more complete view of the profitability of the investment by taking risk into account (Calabro and Dell Spina, 2019). Additionally, sensitivity analysis and test scenarios are possible with DCF analysis. Investors can assess the effect of changing the input factors, such as the rental revenue, costs, or discount rate, on the property's worth. This aids in identifying the primary value-creating factors and evaluating the investment's resistance to changing market circumstances.

The cost technique is also an essential strategy for real estate investors. The cost to replace or recreate an asset is included in the calculation of its worth. Land value, building expenses, and depreciation are all taken into account using the cost method (Baum et al., 2021). In cases when there is insufficient comparable sales data, such as with rare or specialised properties, this technique becomes very useful. It's a different way to calculate the property's worth by factoring in its unique qualities and the price to replace it. Modern methods of real estate investment analysis have arisen in recent years. The use of machine learning and predictive analytics is one such method. Property prices and investment returns may be predicted with the use of these techniques (Calabrò and Della Spina, 2019), which take into account past data, market trends, and a number of different property variables. Predictive analytics equips investors with the tools they need to make data-driven investment choices and conduct more precise risk assessments by taking into account a large number of factors and using complex modelling approaches.

In addition, GIS and spatial analysis have become more popular in the property market. Property valuations, market trends, and investment prospects may all be better understood using these methods because of their incorporation of geographical data and location-specific characteristics (Beylot et al., 2019). Investors may learn more about geographical trends, market segments, and promising development locations by using spatial analysis in investment research. In addition, REITs (real estate investment trusts) have become an ordinary tool for real estate investors. Real estate investment trusts (REITs) are openly listed organizations that own and run income-generating buildings, giving investors circuitous exposure to real estate resources (Sadhwani et al., 2019). Individual and institutional investors alike find REITs appealing because of the diversity, liquidity, and expert management they provide. Real Estate Investment Trusts (REITs) are financial institutions that let individuals invest in a broad portfolio of income-producing real estate assets. In these unique investment vehicles, real estate investments' benefits and those of publicly traded companies are merged. When assessing the profitability and risks of real estate investments, REITs provide a variety of advantages and considerations. For REIT investments, Funds From Operations (FFO) and Adjusted Funds From Operations (AFFO) are crucial performance indicators. Depreciation and amortization expenses are added to net income before any profits from property sales are reduced when computing FFO, an indicator of a REIT's operational success. AFFO further changes FFO by accounting for non-cash costs, capital expenditures, and other factors that impact the REIT's cash flow. Using FFO and AFFO, investors may evaluate a REIT's financial strength and compare it to that of its rivals (Sadhwani et al., 2019). These metrics reveal the REIT's ability to generate consistent income from its real estate holdings. The dividend yield of the REIT, which is the annual dividend payment represented as a percentage of the REIT's stock price, is another factor that investors typically consider. A more tempting investment opportunity may be indicated by a higher dividend yield (Feng, Lin and Wu, 2020).

Investors can evaluate a REIT's diversification across various property types, geographical areas, and tenant mixes to reduce risk. By spreading out the risk, diversification lessens reliance on any one asset or market. In order to evaluate REITs, one must first establish their Net Asset Value (NAV) and then apply the proper multiples to arrive at market value. The REIT's obligations are subtracted against the market value of its assets to determine NAV. By comparing the NAV to the share price, investors usually determine when a REIT is being sold at a premium or discount. The Price-to-FFO ratio, which is computed by dividing the REIT's share price into its FFO per share, is also taken into consideration. This ratio sheds light on how the market perceives the REIT's capacity to generate cash flows (Feng, Lin and Wu, 2020).

Crowdfunding websites have also been more popular in the real estate investing sector in recent years. Investment possibilities in the real estate market are made more accessible and versatile by these platforms since different investors may combine their resources to make investments (Battisti and Campo, 2019). By making real estate investments more accessible to a wider variety of individuals and projects, crowdfunding might help make real estate investing more egalitarian. Decisions on real estate investments increasingly factor in environmental, social, and governance (ESG) factors. Sustainability, energy efficiency, and social effect are increasingly more heavily weighted in the evaluation of real estate assets by investors (David et al., 2021). Investors may choose properties that are in line with their values and add to long-term value development by using ESG elements in their study. In conclusion, this extended literature review offers a wide-ranging survey of the many approaches and strategies in use today for real estate investing. Traditional approaches to property assessment, such as the sales comparison technique, the revenue method, and the cost method, all provide useful information. Predictive analytics, machine learning, spatial analysis, and geographic information systems (GIS) have all emerged as potent tools for venture research, allowing investors to make better judgment and dot more investment possibilities.

1.2. Impact of different elements on Real Estate Investment

The purpose of this literature study is to inspect the factors—rental income, capital appreciation, market situation, and access to finance—that pressure a real estate investment's profitability. There are numbers of variables that might shape the profitability of an asset in real estate. This study intends to give thorough insights into the interaction of these components and their impact on investment returns by evaluating relevant academic papers and research projects. Profitability in real estate investments relies heavily on rental income. Research into what influences rental revenue has focused on things including geography, property type, rental market dynamics, and property management tactics. Locational appeal, tenant mix, lease terms, and property quality were shown to have a substantial impact on rental revenue in research done by (Duca and Ling, 2020). Feng et al., (2020) did a similar analysis of residential rental revenue drivers, with special emphasis on the roles played by local market circumstances, amenity availability, and property specifics. These analyses show how demand and supply dynamics, rental growth patterns, and tenant preferences all play a role in setting the ceiling and floor for rental income.

The rise in a property's worth over time is known as capital appreciation, another crucial factor. Market circumstances, economic indicators, city planning, and infrastructure development are only a few of the many factors shown to influence property values. Capital appreciation rates for properties situated close to transport hubs and enhanced transport networks were shown to be higher in research done by (Eichholtz et al., 2021). Gepner et al., (2022) looked at the link between

GDP growth, inflation, and interest rates and real estate prices, finding that these economic variables all had a major impact on home prices. Investors may make better selections and more accurately estimate returns if they have a firm grasp of these elements. The success of a real estate investment depends greatly on conditions in the market, counting the status of the economy, interest rates, and the delivery and demand for the venture's target marketplace. Investment results have been exposed to be affected by market cycles, economic indicators, and market trends. Research by (Gillespie, 2020) on the correlation among market cycles and the achievement of real estate investments establishes that the timing of property purchase and auction within market cycles had a substantial crash on investment returns. Similarly, (Ionașcu et al., 2020). investigated the connection between macroeconomic parameters and real estate returns, emphasizing the significance of GDP growth, unemployment rates, and consumer mood. Research like this highlights the need to assess current market circumstances and adjust investing tactics appropriately. The profitability of real estate investments is also heavily impacted by the accessibility and conditions of financing choices. Loan-to-value ratios, interest rates, and loan periods are only a little of the financing variables that have been calculated in connection with investment income. Factors including loan-to-value ratios and interest rate spreads were exposed to have a significant authority on residential property investment victory, according to research conducted by (Hromada and Krulický, 2021). Furthermore, (Jelonek et al., 2022) investigated the connection between mortgage financing and investment in commercial property and discovered that advantageous financing conditions may improve investment profitability. These results emphasize the relevance of finance arrangements in deciding the viability and profitability of a venture. This research gives a better knowledge of the effects of these factors on real estate investment profitability by doing a detailed literature review on them. Important trends, knowledge gaps, and research opportunity are highlighted, all of which ought to help real estate investors make better decisions and plans. The outcome of this literature study may facilitate real estate investors, developers, and politicians to make more conversant decisions on how to finest use their resources.

1.3. The Risks that might affect a Real Estate Investment

Investing in real estate exposes one to a diversity of market hazards, each one of which has the potential to affect one's financial achievement. These dangers are caused by external forces and the situation of the market. It is necessary for investors to have a solid understanding of the possible market hazards in order to assess the feasibility and potential for profit of their real estate savings. Real estate investments are vulnerable to a variety of significant market risks, counting but not limited to fluctuations in the wealth, changes in interest rates, increase supply and demand dynamics, and alter in regulatory policies. Real estate investments are topic to a substantial amount of market risk when there are variations in the wealth. Demand for real estate assets is sturdily impacted, both positively and negatively, by economic factor such as enlargement in GDP, rates of unemployment, and poise among consumers. Property prices and rental revenues are helpless to falling when the economy is in a recession because patrons cut down on their spending and business slow down their operation. On the other hand, capital pleasure and rental growth may occur through times of economic boom as a result of higher earnings and increasing insist for home (Garcia-Teruel, 2019). When trying to estimation market risk, it is essential to have a solid sympathetic of the cyclical nature of the economy as well as its pressure on the real estate markets.

Alterations in interest rates are one more significant risk factor for real estate investments. Variation in interest rates may have an effect on the quantity of affordable finance available for the acquisition of property. When interest rates rise, the cost of borrowing money also rises; this may limit the quantity of demand for real estate, which in turn can origin values to fall. A rise in interest rates may also affect an increase in the cost of current mortgages, which may have a harmful impact on the capacity of belongings owners to fulfil their financial tasks. On the other hand, a fall in interest rates brings to a reduction in the cost of borrowing money, which boosts the interest for real estate and may lead to an increase in prices (Greenhalgh and Campani, 2023). When scheming the market risk linked with real estate investments, it is fundamental to keep track of the actions in interest rates.

One such constituent of the market that poses a potential threat to real estate investments is Inflation. Over time, the value of one dollar will be value less and less as a result of inflation. There is a correlation among rising prices of products and services and a potential reduction in the value of real estate property. Real estate is often considered an avoidant against inflation owing to its latent for value appreciation; nevertheless, growing inflation may also contribute to higher building expenses, maintenance expenditures, and property taxes. Despite this acuity, real estate remains a popular investment choice (Heidari et al., 2021). In order to accurately estimate the level of market risk, it is necessary to have a solid clasp of the link that exists among inflation and the returns on real estate investments. The dynamics of supply and demand play an important part in determining the rank of market risk associated with real estate funds. Alterations in population growth, trends in urbanization, and the accessibility of housing may all have an effect on both belongings' prices and rental yields. A surplus of obtainable homes or apartments might consequence in higher rates of unfilled vacancy and put downward force on pricing. On the other hand, a restricted supply in attractive regions might lead to increases in property prices. It is essential to do a basic analysis of supply and demand in certain markets before conducting market risk analysis and making educated investment choices (Janoschka et al., 2020).

Alterations to regulations are yet another kind of *market risk* that may have an impact on real estate investments. The policies of the government, the zoning limitations, the tax laws, and the environmental system may all have a substantial control on the returns and prices of properties. Alterations to the policy may put a halt to development, drive up operating expenses, and interfere with the profitability of real estate investments. When difficult to estimate market risk, it is necessary to have a good grip of the regulatory environment and to keep side by side of any potential change (Katyoka, 2019). In conclusion, investments in real estate are vulnerable to a wide variety of market risks, such as fluctuations in wealth, changes in interest rates, inflation, supply and demand dynamics, and changes in narrow policy. It is important for investors to do risk assessments in order to make sure that they are making well-informed choices and protecting their capital. When investors take into relation these market risk variables, they are better able to consider the effect that the prospective alter may have on their real estate portfolio and alter their plan appropriately. When it comes to real estate investments, *financial risks* are important considerations to make because of the massive influence they may have on both the prosperity and sustainability of such operations. Real estate investments are inclined to a variety of financial dangers, together with but not incomplete to currency risk, credit risk, interest rate risk, leverage risk, and liquidity risk (Lamond et al., 2019). Real estate projects' performance and long-term viability are significantly influenced by financial risk. Investors must consider a variety of monetary issues when assessing the viability and danger of real estate investments. Currency risk is one of the monetary hazards connected to real estate investments. This risk develops when an investment involves currency exchanges. Exchange rate fluctuations, particularly for overseas real estate investments, might affect the returns provided by the investment. Since changes in rates of exchange can either enhance or reduce the value of the investment, currency risk can have an impact on both rental income and possible selling values (Taylor, 2020).

Credit risk is still another crucial factor. Investors in real estate are subject to the risk of borrowing failure since funding for real estate projects frequently involves loans or mortgages. The cash flow and profitability of the venture may be dramatically impacted if renters or property owners miss payments. Evaluating borrower creditworthiness and financial health is crucial to lowering loan risk. Interest rate risk is a significant financial risk associated with real estate investments (Taylor, 2020). The cost of borrowing money to purchase or refinance real estate can be greatly impacted by changes in interest rates. Rising interest rates can increase the expense of borrowing, this can affect the investment's value and profitability. Investors must monitor interest rate fluctuations and consider how they may impact cash flow.

Investors also need to be mindful of the risk associated with leverage. Using borrowed money to make real estate investments is common, which increases both rewards and dangers. While the market is favorable, leverage may improve profitability, but it can also raise costs when the economy is failing. High amounts of debt could render real estate assets increasingly vulnerable to fluctuations in the market and potentially put them in danger of going bankrupt if cash flows are not enough to cover debt obligations. When evaluating real estate investments, liquidity risk is a crucial factor. Real estate investments often have lesser liquidity than publicly listed assets. Especially in a downturn or a market with little liquidity, selling a home can be time-consuming and may not bring the intended price. Investors must be aware of the possible difficulties brought on by liquidity risk and take into account their money's time horizon and capacity for quick access to capital (Zuhroh, 2019). It is critical to consider these financial risks and gauge their possible influence on the investment when valuing profitability and risk. To understand how changes in factors like interest rates, exchange rates, or credit conditions might influence an investment's profitability and overall risk profile, investors frequently utilise sensitivity analysis and stress testing. Investors may make knowledgeable judgements and create effective risk mitigation strategies by taking these risks into account. In addition, real estate investments can benefit from risk management strategies including diversification, careful financing arrangements, and maintaining enough cash reserves (Zuhroh, 2019). Additionally, it's crucial for analyzing and controlling financial risks successfully to keep up with market trends, economic data, and regulatory developments.

The term *"leverage risk"* refers to the option of unfavourable outcomes that may affect financing real estate development with rented money. While leverage may augment profits during times when the market is trending upward, it can also enlarge dead during times when the market is trending downward. If property price fall or rental revenue falls, investors that depend primarily on debt finance may find it tricky to satisfy their loan commitments in the incident that one of these factors occur (Leskinen et al., 2020). The need for liable debt management and rigorous assessment of the possible hazards connected with leverage can't be shown in light of the fact that unnecessary levels of influence make real estate investments more susceptible to stand markets. Another kind of financial risk that strength has an effect on real estate investments is known as the *liquidity risk*. When compared to other types of financial vehicle such as stocks or bonds, real estate possessions are considered to be comparatively illiquid. The procedure of selling real estate may take a noteworthy amount of time, and it can be difficult to position acceptable purchasers ready to pay the prices that are wanted, especially when the market is in a slump. The inability of a banker to obtain funds or to quit an investment when obligatory may be caused by illiquidity, which can perhaps lead to financial restraints as well as lost opportunity. Evaluating the risk of liquidity is very necessary in order to guarantee an adequate amount of financial flexibility and to make preparations for unforeseen events.

Currency risk is especially significant to consider when making investments in real estate that span international limits. Changes in the value of a currency's value relation to another may have an effect on the income on an investment made in a currency other than the base money. Changes in the swap rate may have an impact on rental revenues, belongings prices, and the ability to repatriate cash (Kieltyka et al., 2022). Currency risk administration measures, such as hedging or diversify currency exposure, may assist limit the possible unpleasant impacts that currency fluctuations may have on real estate property. These effects might be unfavorable to the value of the property. In a nutshell, financial risks are very significant factors to take into account while investing in real estate. The financial presentation of real estate investments may be very much impacted by a variety of risks, counting leverage risk, liquidity risk, interest rate risk, credit risk, and currency risk, among others. In order for investors to guard their holdings and make the majority of their returns, it is fundamental for them to conduct thorough assessment of the risks involved and put suitable risk organization methods into action.

Investing in real estate exposes one to a diversity of *legal and regulatory hazards*, every one of which has the potential to radically affect one's level of success and financial routine. For investors to be able to make knowledgeable judgements and reduce the likelihood of expectations legal and obedience difficulties, it is essential for them to know and navigate these risks (Odilovich and Ilxamovich, 2022). Real estate funds are susceptible to a variety of legal and regulatory risks, such as those pose by zoning and land-use rules, environmental system, construction standards and permits, laws leading landlord-tenant relationships, and tax limits. Zoning and land-use rules represent an important and potentially damaging legal risk that might have a result on real estate investments. Zoning laws dictate the permitted uses of different types of properties within a given region. These laws describe rules and limits regulating the different categories of goods, the sizes of the buildings, and the behavior that are authorised. In order to prevent the prospect of facing legal repercussions or being enforced to alter the way a property is put to apply; investors have a responsibility to check that their considered use of a given piece of real estate is in agreement with the applicable zoning system. It is necessary to have knowledge of zoning rules and do exhaustive due research prior to investing in order to reduce the possible legal danger (Pain et al., 2023).

Environmental restrictions are an additional important source of potential legal risk for real estate transactions. In order to preserve natural resources and lessen the likelihood of contamination, environmental laws and regulations control how land may be used and developed. The possible environmental hazards that are linked with a property need to be evaluated by investors. These risks may include contaminated soil, dangerous chemicals, or protected ecosystems. Failure to comply with environmental standards may result in legal consequences, expensive cleanup operations, or use limits placed on property (Ma et al., 2021). It is essential, in order to effectively manage this legal risk, to carry out environmental evaluations and to obtain legal counsel. Real estate deals must take into account environmental constraints as well as potential legal issues. Environmental protection, pollution prevention, and ethical land use and development are the goals of environmental laws and regulations. To establish a property's worth and the degree of legal risk involved, investors must carefully consider any potential environmental risks connected to it. Conducting a Phase I Environmental Site Assessment (ESA) is one of the major components of analyzing environmental hazards. This evaluation includes a detailed analysis of the property's past and present usage, a review of the records that are readily available, and interviews with previous and present owners, renters, and governmental organisations. Phase I ESA's goal is to find any potential environmental issues or contaminants (Beylot et al., 2019).

A variety of factors are examined during the examination, including the presence of dangerous substances, storage tanks beneath the ground, the elimination of dangerous waste, emissions into the air, water pollution, and contamination of the soil. These environmental issues can be caused by a number of different things, such as the use of hazardous substances, improper waste management, and previous industrial operations. Additional research may be required if possible environmental concerns are found during Phase I ESA. Conducting a Phase II ESA, which entails soil and groundwater sampling and laboratory analysis, may be necessary. The outcomes of these tests give important data for risk evaluations and remediation plans as well as aid in determining the level and extent of contamination, if any. Investors ought to be aware of any relevant regulations or environmental laws that could have an impact on the property in addition to the evaluations (Joghee et al., 2020). These rules may include development limits close to water bodies or protected areas, wetland preservation, concerns for endangered species, and zoning restrictions. The profitability and feasibility of the investment may be affected by fines, penalties, or even legal action for violations of these regulations. Environmental risk reduction calls for proactive actions. Investors can, for instance, incorporate suitable clauses in purchase agreements to divide up liability for environmental risks between the buyer and seller. Another option for protection against future liabilities resulting from pollution or other environmental problems is environmental insurance. Investors can manage the difficulties of environmental risk assessment and compliance by hiring environmental consultants or specialists. These experts are qualified to evaluate environmental conditions, interpret laws, and, if required, offer advice on risk management tactics and remediation programs. It is essential to remember that environmental dangers are not just related to the property's current state. It is also important to consider potential modifications in environmental legislation or new dangers, such as the effects of climate change or changing contamination standards. Investors may reduce legal risks and guarantee the long-term viability of their real estate assets by being proactive and being updated about changing environmental standards and best practices(Ionascu et al., 2020).

Another kind of legal risk that may have an impact on real estate investments is that posed by building laws and permits. Properties are guaranteed to satisfy safety and quality requirements if they are compliant with applicable building rules. When building or remodeling properties, investors are required to secure the relevant permissions and comply to the rules that govern construction. The inability to obey building rules or to get the essential license may result in financial penalties, construction delay, or even the compulsory destruction of non-compliant construction. To productively handle this legal risk, it is fundamental to retain the services of skilled experts, such as architect and contractors, and to work together closely with local establishment. For real estate investors, particularly those investing in residential and profitable properties, landlord-tenant rules provide a considerable threat in the form of a legal risk. These laws regulate the rights and duty of landlords and renters, including the conditions of lease agreements, the amount of rent that may be exciting, the process for evicting tenants, and safeguard for tenants (Widagdo et al., 2020). To prevent legal conflict and guarantee that tenants are treat in a fair and lawful mode, investors need to be conscious of any compliant with any landlord-tenant legislation that may relate to their investments. In order to successfully manage this legal risk, it is necessary to consult with legal specialists and to keep oneself up to speed on applicable laws and regulations.

Tax rules are achieving the kind of legal risk that may have an effect on funds in real estate. The way in which income, capital gains, and deduction associated with real estate investments are taxed is determined by the laws leading to taxes. Investors are required to abide by tax rules and precisely declare their income and expenditure in order to avoid incurring fines and other legal repercussions. It is vital to have a solid sympathetic of the tax consequences, make use of any pertinent tax benefits, and labor with tax specialists in order to correctly manage this legal risk. In addition, changes in the legal and regulatory environment might bring up significant legal hazards for hoard in real estate (Pattiruhu and Paais, 2020). Property appraisals, operating fixed cost, and the overall viability of an investment may all be impacted by newly enacted laws, rules, or changes. Investors have a responsibility to be present on the latest legal and regulatory developments, to anticipate the option of changes, and to modify their plans suitably. The retention of legal advice and the performance of thorough legal due diligence before the creation of investment choices are very essential steps to take in order to mitigate the legal risks caused by the evolution of legal and narrow frameworks.

Environmental hazards are necessary factors in real estate investments because they have the possible to have long-term effects on the value of the possessions, the capacity for development, and the legal errands. Soil contamination, water pollution, concern with air quality, natural hazards, and climate change are several of the environmental risks that may affect real estate investments. Infectivity of the soil is an important environmental issue that might have an effect on financial funds in real estate. Historically, the land may have been tainted as a result of industrial activity, poor disposal of litter, or the presence of dangerous chemicals on the shell or below the ground. Contamination of the soil creates likely health problems and may result in costly events to remediate the problem as well as legal obligation for property owners. Before making an investment, it is essential to carry out exhaustive environmental studies and do due assiduousness, which should include analyzing the soil for any contagion hazards (Zuhroh, 2019).

Water pollution is another environmental anxiety that may have an effect on real estate investments. This is particularly true for properties that are located in close nearness to bodies of water or in regions that have groundwater systems that are at risk of contamination. The contamination of water sources as a result of runoff from industries, inapt waste disposal, or chemical spills may lead to rigid violations, health dangers, and a decrease in goods value. When analyzing the environmental risk that is allied with a piece of land, it is vital to estimate the quality of the water source as well as the possible sources of contamination. Real estate investments are vulnerable to being negatively impacted by evils related to air quality, especially in metropolitan regions that have significant levels of contamination or industrial action. The presence of poor air excellence may have a negative influence on the good looks of a site, as well as on the health and well-being of the tenant as well as the possibility for legal repercussion. In order to effectively run the environmental risk posed by air pollution, it is essential to have a solid sympathetic of the current state of air quality and to give some thought to potential alleviation techniques, such as the installation of air filtration tackle (Taylor et al., 2020). Investing in real estate in areas that are prone to natural disasters, such as floods and earthquakes, comes with a considerable quantity of environmental risk. This risk may have an effect on real estate investments. Properties that are located in high-risk locations are more likely to be question to possible damage, difficulties obtaining insurance, and lower promote demand. In order to efficiently manage this environmental risk, it is necessary to conduct an assessment of a property's susceptibility to expected hazards, have an awareness of the limits of insurance treatment, and put suitable mitigation measures into use. The effects of climate alter pose an increasing threat to the health and safety of persons who invest in real estate. Changing weather pattern, a rise in the frequency and severity of storms, and rising sea levels are all factors that may contribute to coastal erosion, flooding, and injure to property. Risks associated with weather change may have an impact on property price, the availability of insurance and long-term viability. evaluate the forecasts of climate change, thinking about adjustment techniques, and including sustainability events into the design and administration of a assets are all crucial steps to take in order to diminish this environmental risk. In addition, compliance with environmental principles is required if one wants to reduce the environmental hazards that are linked with real estate investments. Regulations at the local, state, and federal level supervise a variety of topics, including waste management, the conduct of hazardous materials, land use, and energy competence, among others. Should these standards not be followed, there may be legal repercussions, financial penalties, or use limits located on the property. In order to effectively manage the legal and regulatory components of environmental hazards, it is essential to be current on environmental rules, employ environmental consultants or legal specialists, and put suitable environmental management practices into place (Taylor et al., 2020).

To summarize, environmental hazards should be taken into serious account while making financial investments in real estate. There are numerous important environmental concerns that may have an effect on belongings value, legal responsibilities, and long-term viability, including soil contagion, water pollution, difficulties with air quality, natural disaster, and climate change. In order for investors to fruitfully analyze and manage environmental risks, it is vital for them to carry out in-depth ecological assessments, get an awareness of the environmental surroundings in the local area, and comply with all relevant environmental rules. Investors may protect their assets, reduce the likelihood of incurring possible liability, and make a contribution to the progression of sustainable development if they structure their asset strategy to include ecological risk management practices.

1.4. A unified framework for analyzing the effectiveness and risk of real estate investments

It is very necessary to have a uniform framework for analyzing the efficiency and risk of real estate investments in order to connect the various valuation techniques with the various risk assessment procedures. When these two factors are combined, investors are able to acquire a thorough picture of the prospective returns and accompanying risks that are linked with the choices they make about their investments. This subject has been the focus of a number of research, which has generated a variety of suggestions on how to arrive at a uniform framework for evaluating real estate investments. One such research was conducted by (Uchehara et al., 2020), and it was centered on the topic of integrating risk analysis approaches with discounted cash flow (DCF) valuation models. They suggested that conventional Sales approaches to valuation, such as the income approach and the sales comparison technique, often ignore the inherent risks that are involved with real estate investments. They developed a framework to solve this gap in the market by including risk assessment tools in the valuation process. Some of these tactics include sensitivity analysis, Monte Carlo simulation, and scenario analysis. This comprehensive approach helps investors to make choices that are better informed by evaluating the effect of various risk variables on investment performance. In a separate piece of research, conducted by (Uchehara et al., 2020), the authors highlighted the significance of incorporating real options analysis (ROA) with valuation methodologies when determining the potential for profit and loss associated with real estate investments. Traditional methods of valuation are expanded upon by real options analysis, which takes into account the adaptability of investment choices to be made in reaction to changing market circumstances. The authors stated that real estate investments had features similar to options owing to their tendency to be held for extended periods of time and the possibility that their value may increase in the future. When actual options analysis is included into the process of valuation, investors are able to examine the possible upside and downside risks associated with their investment strategies, allowing for more dynamic and well-informed decision making on their part. (Tien and Thuan, 2019), who were working in a separate area of study, came up with the idea for a framework that integrates appraisal-based valuation methods with risk assessment procedures, with a particular emphasis on the possibility of overvaluation. They suggested that conventional techniques of valuing real estate often fail to take into consideration the likelihood of overpaying for a property, which might result in increased investment risks. Their methodology employs measurements of downside risk in the form of anticipated shortfall (ES) and value at risk (VaR), both of which are included in the valuation process. The potential negative risks that are associated with overvaluation may be quantified, which enables investors to make investment choices that are more cautious and better preserve their wealth.

In addition, risk assessment models such as the capital asset pricing model (CAPM) and the Fama-French three-factor model have been used in conjunction with valuation methodologies in order to conduct analysis of real estate investments. For instance, (Sadhwani et al., 2019) evaluated the risk-adjusted routine of real estate investments by combining the Fama-French three-factor model with economical cash flow method. This was done in order to establish how well real estate investments performed. This framework offers a more thorough valuation of the efficacy and risk of investments by captivating into account a variety of aspects, counting market risk, size impact, and value effect. In a nutshell, the body of investigation emphasizes how crucial it is to have a united framework for evaluating the effectiveness and risk of real estate investments. This framework should incorporate valuation methodologies and risk assessment procedures in order to get optimal results. Several methods, such as the incorporation of real options analysis, the consideration of downside risks through measures such as VaR and ES, and the utilisation of risk assessment models such as CAPM and the Fama-French three-factor model, have been proposed as potential solutions. Other potential solutions include the integration of risk analysis techniques such as sensitivity analysis, Monte Carlo simulation, and scenario analysis. These integrated frameworks provide investors with a more complete knowledge of investment performance and risk, which enables them to make choices that are better informed within the dynamic and complicated real estate market.

1.5. Valuation and Profitability importance in Real Estate

According to Heidari, Zad and Rafatirad, (2021), various facets of society rely heavily on real estate. It is essential to the economy because it promotes employment, infrastructural development, and economic growth. Real estate serves as both a source of housing and a class of financial asset. Real estate development and ownership may also have a big social and environmental impact. Overall, the ability to supply basic human needs, stimulate the economy, and influence the material and social makeup of communities all depend on the availability of real estate. An important component of investment analysis is the estimation of profit and volatility in real estate investments. It entails evaluating the possible ROI and risk factors of putting money into a particular real estate project or property. When assessing profitability and risk, a variety of techniques and factors are taken into account. The income strategy, which calculates current value by capitalizing or applying a discount rate to estimated future cash flows, is frequently utilized. The market analysis aids in comprehending local market circumstances and trends, while financial analysis is crucial for determining the investment's prospective cash flow. To detect and reduce possible risks like market swings, economic downturns, or problems peculiar to a given property, risk assessment is crucial. Return indicators including cap rate, cash-on-cash return, and internal rates of return shed light on how profitable an investment is. The investment's resistance to changes in important factors is assessed using sensitivity analysis. To assure correct analysis of revenue and risk, real estate valuation is a complicated process that frequently calls for professional knowledge from evaluators or investment analysts (Heidari, Zad and Rafatirad, 2021).

1.6. Necessities on improving the reliability of Profitability and Risk valuation in Real Estate Investments

As per Lamond et al., (2019), it is crucial to concentrate on a few important areas to increase the accuracy and dependability of profitability and risk valuation in real estate investments. Businesses and real estate professionals should place a high focus on acquiring comprehensive and up-to-date market data. This may be achieved by carrying out in-depth market research, speaking with regional industry professionals, and utilizing technology-driven platforms that provide up-to-date market data. The use of current, trustworthy information on rental costs, vacancies rates, and trends in the market will increase the preciseness of revenue predictions and risk assessment. Second, standardized valuation models and procedures may considerably enhance comparability and consistency in real estate assessment via development and use. This entails using commonly accepted valuation techniques, such as the income method, but also taking into account property-specific considerations. Thirdly, by providing open and uniform legislation regulating property transactions and reporting, authorities may significantly contribute to enhancing the precision and reliability of valuation (Ullah et al., 2021). The reliability and dependability of valuation results can be improved by implementing standardized reporting standards, disclosure practices, and guidelines for appraisers. In order to improve the knowledge and competency of valuation specialists, authorities should also support the employment of professional appraisers and continuous education and certification programs. Modern analysis of information and technology implementation may also increase the accuracy and efficiency of valuation procedures (Lamond et al., 2019) To improve risk assessment, hone sophisticated modelling abilities, enable more precise estimates of future cash flows, big data analysis, artificial intelligence, and neural networks may be applied (Alzain et al., 2022).

1.7. Significance of understanding marketing trends in the local real estate market

According to Gillespie (2020), when determining the viability and danger of an investment, it is essential to comprehend the local real estate market. Market analysis entails assessing a range of variables that may have a big influence on the investment's prospective return. The dynamics of supply and demand in the market are one key factor. Determining the degree of competition and the possibility for rental or sale price rise by evaluating the present number of available real estate and contrasting it with the demand from prospective renters or purchasers. Insights regarding the market's capacity to absorb and the degree to that demand exists for rental properties may also be gained by studying vacancy rates. High vacancy rates might be a sign of oversupply or insufficient demand, which would be detrimental to the investment's profitability(Gillespie, 2020). The market's potential for rental growth is another important element to take into account. Investors can calculate the potential growth of rental revenue by analyzing previous rental trends and projecting future rental growth rates. Numerous variables, including population expansion, the state of the labor market, and regional economic indicators, have an impact on the rental increase. Assessing the potential profitability of the investment requires an understanding of these aspects and how they affect rental rates. An important factor in analyzing the actual estate market is market trends. Real estate investors may find development possibilities by recognizing trends like changes in customer tastes, demographic shifts, or rising sectors. A location where people are migrating or urbanizing, for instance, can signify higher demand for residential or commercial properties. Investors may discover regions with substantial expansion possibilities and orient their investments accordingly by maintaining awareness of these trends and adding them to the research.

Another crucial part of market analysis for real estate investing is comparative market analysis. Investors can evaluate the purchase's competitive positioning and possible profitability by looking at similar assets in the same region. When evaluating properties, factors including size, condition, location, and utilities should be taken into account. Investors can use this research to determine possible rental or sale prices and determine whether their investment makes sense given the current market circumstances. Finding reliable and current information on the market for local real estate requires rigorous market research. This research may entail compiling information from a range of sources, including industry journals, government publications, and real estate market studies, and engaging with local real estate experts. Investors may make educated judgments and reduce risks related to market volatility by being updated on market trends, economic data, and regulatory developments (Balemi, Fuss and Weigand, 2021).

Analysis of how market variables, including demand and availability, growth in rental rates, and market trends, affect real estate investments' profitability and risk.

As per Hromada and Krulicky, (2021), real estate investments' profitability and risk need a detailed understanding of economic fundamentals, particularly demand and supply dynamics, growth in rental rates, and market patterns. The interaction of supply and demand immediately impacts the possible return on the investment. When supply outpaces demand, it can result in more vacant spaces and a reduction in rent or sale prices, which might have an impact on the investment's profitability. Conversely, when demand exceeds supply, it can lead to a favorable market situation with higher rental or selling prices, increasing the profitability of the investment.

Another important aspect that is impacted by market dynamics is rental growth. Maximizing cash flow and long-term profitability requires the capacity to accomplish rental increases over time. Rental growth and the investment's revenue potential can be boosted by strong rental demand in a location with little supply. In contrast, rental growth may be constrained in a market with excess supply or sluggish demand, which might have an impact on the investment's efficiency and prospective returns. The earnings and dangers associated with real estate investments are both heavily influenced by market movements. Emerging trends can present possibilities or threats for investors, depending on how consumer tastes, demographic shifts, or new economic trends are affected. The desire for either residential or commercial property, for instance, may rise in an area where the population is growing as a consequence of immigration or urbanization, which might raise prices and rental costs. On the other side, a location that is experiencing an economic downturn or a fall in a certain industry might endanger the investment's revenues and rental demand. Finding possible dangers and possibilities related to certain property kinds or locations may also be assisted by analyzing market patterns. For instance, rising demand for energy-efficient structures may affect the appeal and rental potential of traditional residences due to tendencies favoring sustainable and eco-friendly housing. Similarly, to this, changes in neighborhood demographics or the construction of fresh infrastructure can have an impact on neighborhood property prices and rental demand (Hromada and Krulicky, 2021).Additionally, the effect of the market's conditions on risk and profitability might fluctuate across various real estate industries.

Population growth, household formation, and affordability are all variables that affect residential properties, whereas employment market circumstances, industry developments, and consumer spending are elements that affect commercial assets. To effectively assess the investment's prospective return and risk profile, it is crucial to assess the particular dynamics within each industry.

Investors and real estate specialists should undertake in-depth market research, consult with regional industry leaders, and keep an eye on pertinent economic data to analyze the effects of market dynamics (Ullah et al., 2021). Checking prior data, checking market reports, and maintaining current regulatory changes or upcoming events that may affect both demand and supply dynamics are all important components of this study. Investors may increase profitability and lower risk linked to real estate investments by regularly monitoring market trends and dynamics. This allows investors to make knowledgeable decisions, reduce risks, and uncover investment possibilities that are in line with market circumstances. The return on investment and risk of real estate investments are substantially impacted by market variables, particularly demand and supply factors, rental growth, and market trends. Investors may evaluate the possible return on their investments, detect dangers, and seize opportunities by thoroughly understanding these dynamics. Investors may make well-informed decisions that maximize profitability and minimize possible risks in the changing real estate market by maintaining knowledge and modifying tactics based on market circumstances (Baum, Crosby and Devaney, 2021).

1.8. Internal Rate of Return and its Relationship with the Profitability of real estate investments

As per Wijburg, (2019), taking into account both the cash flows and their timings, and the Internal Rate of Return (IRR), a commonly used financial statistic, determines the rate of return anticipated to be produced by a real estate investment during its holding duration. It is an effective method for determining an investment's long-term profitability. The original investment cost, following cash inflows from rental revenue, and the duration of those cash flows, including potential capital gains at property sales, are all taken into consideration by the IRR. Investors may figure out the rate of return that aligns the current value of the money coming in with the initial investment cost by reducing the proceeds back to their present value using the IRR. The investment is more appealing since it has a bigger potential return when the IRR is higher. Investors can assess and rank real estate projects according to their anticipated profitability by contrasting the IRR of various investment options. To make wise investment selections, it's crucial to keep in mind that the IRR is only one statistic and should be paired with additional economic metrics and risk evaluations. It is also critical to thoroughly examine all presumptions and inputs utilized in the IRR's computation because of how sensitive it is to the timing and size of cash flows. Complex cash flow patterns may exist in real estate assets with extended periods of holding or those requiring considerable capital expenditures, which may affect the IRR calculation. Additionally, since the IRR does not take inflation or changes in market circumstances into account, it is crucial to interpret the IRR in combination with a complete market study. The net present value (NPV) and cash-on-cash return are two additional financial metrics that should be used in conjunction with the IRR to fully comprehend the risk and return profile of an investment (Pattiruhu and Paais, 2020).The IRR offers insightful information into the possible profitability of a real estate investment. Investors may prioritize opportunities, make educated judgments, and evaluate long-term profitability by using the IRR analysis in the investment evaluation process.

2. METHODOLOGICAL FRAMEWORK

2.1 Aim, model & hypothesis of the research

Aim of the study

The research aims to review and analyze real estate investment valuation and examine different elements of valuation methodologies including rental revenue, capital appreciation, market circumstances and available financing, all to highlight the relation between valuation of profitability and risk of real estate investments. The purpose of the research will be to estimate the market risk, assess financial, legal, regulatory, and environmental risks to predict how different type of risk can affect real estate investment, only to propose a unified framework in making the most out of effectiveness of real estate investments with focus on valuation of profitability via countering different risk factors.

Research model for empirical research study

The research has implored a mixed-method research approach using a combined model of qualitative survey and qualitative interview as well as secondary data analysis. Combination of all types of data has allowed to benefit from both the methods to generate detailed contextualized insights of quantitative data and secondary interpretation, leading up to generalizable data sets and formulating valid insights in regard to the subject matter (Paoletti *et al.,* 2021). As the research addresses the link between evaluating profitability share margins and assessing risk factors of real estate investments, the research was supposed to address elements of market dynamics, economic indicators, financing choices and effective risk management strategies.

Incorporating all these distinct elements in the following research has allowed the researcher to present an opportunity in developing a methodological structure representing the complexities that the researcher has had to go researching on the subject matter (Peel, 2020). Following the empirical evidence aiming to investigate associating link between real estate investment valuation, different valuation methodologies and risk assessment techniques in regard to real estate investments has only been possible because of the research approach to combine strengths of qualitative research method and interview assessment in providing stronger evidence at the end of the research work.

Research hypothesis based on research objectives with identified variables and their reliability

The researcher has had to involve in a combined measurement of directional hypothesis and causal hypothesis to predict the direction of the relationship between independent and dependent variables identified in the research work and then propose a cause-and-effect interaction between the two research variables. The approach of such a research hypothesis has allowed the researcher to develop a rational conclusion based on both prior knowledge and basic observation via interview assessment in suggesting how changes in a particular one variable can result in a change to another variable. Based on the research objectives, the research hypothesis has developed specific variables and their reliability in the research context -

H1: Finding direct association between real estate investment valuation methodological approach and distinct risk assessment techniques.

Justification for developing the first hypothesis: Considering risk of real estate investment as an independent variable, valuation of profitability through real estate investment has been regarded as a dependent variable in the research paper. Trying to understand the relationship between risk and return has been developed in the paper to highlight how the more risk an investment could have, the higher the return an investor can expect to compensate for the risk.

H2: Finding association between various elements of real estate investment valuation impacting potential profitability.

Justification for developing the second hypothesis: Critical factors of rental revenue, capital appreciation, market circumstances and financial statements have been continued to become important factor for profitability in real estate investment because the research hypothesis addresses how evolving over the investment period ownership can be dependent on financing during the purchase listing, price investment analysis, insurance and taxation, all of which are dependent on real estate valuation to reshape real estate profitability.

H3: Estimated risks affecting real estate investment opportunities.

Justification for developing the third hypothesis: The cause-and-effect research relationship hypothesis has been developed on the basis of how market fluctuations and financial challenges due to financial constraints, legal, regulatory, and environmental risks can affect property values, rental income including limited liquidity and generating challenges within financing.

H4: Approaching a unified framework to analyze the effectiveness of real estate investment valuation countering probable risks combining valuation methods with risk assessment strategies.

Justification for developing the fourth hypothesis: Another major development in the research phase has been to include property-specific risk such as structural or environmental issues to highlight how lack of proposing effective real estate investment valuation can yield risks which can vary significantly depending on location, property type and market conditions, redefining valuation of profitability.

2.2 Organization and instrument of the research study

Research design

To identify the appropriate research design in the study, the researcher has opted for a descriptive research design because descriptive research design aims to describe research population in the context of a research situation and particular research phenomena to answer ‘what’, ‘where’, ‘when’ and ‘how’ questions, using a wide variety of research methods to investigate more than two variables (Levitt, 2021). In the backdrop of the suitability of descriptive research design, the following study perfectly fits into this standard, letting the researcher take a descriptive research approach combining qualitative data collection and interview analysis methods to gain comprehensive understanding of the research topic (Siedlecki, 2020).

The research has focused on understanding implications of dealing with several regulatory risk frameworks that can appear within real estate investments to find out how valuation of profitability can vary depending on the risk factor to examine the key research patterns and themes from multiple angles and perspectives. Furthermore, the secondary research approach has provided an additional opportunity to the researcher to go through a thorough desk research involving compiling existing data sourced from a variety of reliable channels, online databases, and library resources to provide a sequential method in flexibly approaching the research topic. Also, the approach of the descriptive research design has enabled the researcher to collect both types of data while avoiding the limitations of either approach alone to expect best possible research outcomes.

Research strategy

The research paper has implied a mixed-method research strategy from the beginning to the end in expectation of using a diversity of methods combining inductive thinking, positivist research philosophy and descriptive research design to offset limitations of mono-research approach. The approach of a mixed-method research strategy has helped the researcher exclusively maximize the strength of each data type deriving from qualitative data analysis and interview analysis to facilitate a more comprehensive work (Hong *et al.*, 2020). Combination of the strengths of different research methods has allowed the paper to look for detailed insights and find specific data into valuation of profitability and assessment of risk factors in real estate investments instead of settling with generalizable data of research.

Following the complexity of the research topic, the approach of a mixed-method application strategy has permitted the researcher to address complex research questions, which were set earlier in the research phase, better. All the critical questions could not be answered only with a single method, instead, the approach of different methods has helped the researcher triangulate results into real estate investment opportunities effectively, enhance validity of findings, provide a more comprehensive understanding into the research problem, and improve flexibility to adapt to changes in different stages of the research work in accordance with the research quest.

Research approach

In terms of selecting the right research approach, the researcher decided to work with an inductive research approach. Inductive research approach is considered a research method that involves collecting data, analyzing the data to identify specific patterns, and developing a theory based on the identified patterns to explain the research context (O'Kane, Smith & Lerman, 2021). The following research has been following the framework of a mixed-method research analysis; therefore, the choice of inductive approach has been important for the researcher to conduct analytical research and develop a new approach based on the sample data to formulate new research hypotheses at the end of the research work.

Selection of an inductive approach has been well-suited to measure, interpret and analyze interview data. For the part of interview analysis, the application of inductive approach has allowed the researcher to look for patterns to find out critical valuation techniques in real estate valuation, implications of real estate investment trust (REIT) in real estate valuation, find out rental growth rates as well as risk evaluation for average return of rate in real estate investment. The inductive method also helped the paper to deeply assess legal and regulatory risks in real estate investment cycle impacting opportunity funds, develop automated valuation framework for prediction-oriented quantifications in real estate investment, only to connect all the links in providing a direction for the research.

For the part of secondary data analysis, the application of inductive approach has helped the researcher collect relevant data from reliable and trustworthy secondary resources, analyze data broadly to look for patterns and conduct scientific research work in preparing research hypothesis addressing the requirement for a balanced relation between addressing risk of real estate investment and look for valuation growth to enhance profitability valuation.

Research philosophy

The researcher has opted for a positivism research philosophy because considering positivism as the core research philosophy has been appropriate in the following study to provide a scientific framework, allowing the researcher to develop critical research hypotheses based on the collection of empirical evidence (Al-Ababneh, 2020). As the research has been developed on the mixed-method research application, the researcher required such a research philosophical stance which could provide a systematic approach to the research work through which the researcher could systematically investigate important research phenomena emphasizing replicable experiments on observation-based evidence (Panya & Nyarwath, 2022).

The research has been developed on the structure of objective measurements which has allowed the paper to collect quantitative data using objective research methods of survey, on the other hand interview sessions on covering specific patterns of behavior within the real estate market. Furthermore, the approach of positivism has allowed the researcher to specifically assess the laws that govern human behavior corresponding to the theory of truth in finding out how the field of real estate works in approaching profitability and countering risks (Junjie & Yingxin, 2022). This approach of inspecting real estate investments thoroughly via a positivist approach has provided significant opportunity in the study to focus on identifying core themes and patterns from objective spectrum and scientifically measure critical research variables, only to provide statistical, mathematical, and numerical analysis in precisely discussing the research context in detail.

2.3 Respondents selection for interview with research instruments

Sampling method and sample size for interview

Following the basic requirements in the research procedure, the researcher has decided to work with a purposive sampling technique for the research paper. Based on the important selection criteria for deciding to finalize a sampling technique such as sample size population, possibility of sampling error, sampling bias, sampling frame, requirement for cost and time, the researcher has decided that purposive sampling technique would be the best-fit approach in the study (GHR & Aithal, 2022). Because purposive sampling has been a non-probability sampling method, this technique has allowed the researcher to involve selecting respondents based on their knowledge and ability who could become useful to pass relevant and critical information important for the research context (Pace, 2021).

Following the approach of purposive sampling has allowed the paper to conduct an accurate and cost-effective interview with minimum probability of biased answer, selecting only those people who would be relevant in terms of their knowledge and experience to the real estate industry. The purposive sampling has also been proven to be better matching of sampling to support key objectives of the research work which has improved the rigor of the study and trustworthiness of the data and results (Pace, 2021). For survey around 50 responded had been chosen with random sampling process. For the interview analysis, the researcher approached 5 interested participants and asked them 10 open-ended interview questions to get to know their individual perspectives into the research topic. Three of the research participants have been real estate investors, whereas the rest of the two respondents have been real estate professionals with experience of investing in real estate for about 10 years.

Research questionnaire and types of questions

The research questions have been developed with clarity in research theme based on which segmented into relevant sub-questions or themes to opt for open-ended questions allowing the researcher to elicit deeper insights from the response of the interviewees. The questionnaire framework has been maintained in such a way to be valid, reliable, clear, and interesting based on which the researcher could have developed the conceptual framework and be prepared for the responses from the respondents. All the 10 questions have been put in a meaningful order and format that focused on a single phenomenon to find out relation between profitability and risk within real estate investments. All the questions have been developed to make sure that the interviewees could feel connected answering the open-ended questions, formulating individual opinions based on which the researcher could find links between the answers in developing a final diligent answer into the research theme.

2.4 Limitations of the research

The primary two research limitations would be the challenge of countering time constraints and keeping balance within resource-intensive methods to conduct a comprehensive work throughout. Particularly the limitation of the research should be in regard to interview analysis because the opinion of individuals could still vary which can be unintentionally biased to some extent, which can demerit the quality of the overall work. Biases in skewing interpretations into the research can limit accessibility and more things could be challenging because of the requirement of the research paper to be submitted within a scheduled time period, which is bound to limit the research scope and only work with qualitative data which could be easily found instead of time-taking identification of reliable resources.

2.5 Research methodology importance to the present study with theoretical evidence

The existence of a chapter on research methodology has provided a clear roadmap for the researcher highlighting how the researcher has planned the entire research process to ensure that the studies can be conducted in a systematic, rigorous, and objective manner. The existence of a research methodology chapter has allowed the paper to look for well-defined research approaches because without any well-defined planning it could become difficult for the researcher to obtain accurate and reliable results (Pandey & Pandey, 2021). The proposed approach as suggested in research methodology highlights how all the steps have allowed the study to organize the research phases in such a way to draw meaningful conclusions and contribute to the body of knowledge efficiently. For instance, at one stage interpreting the interview data, the researcher found out how amenities and location of real estate property could be one aspect of driving current market valuation of real estate properties, which indicated how fluctuations in rental pricing and market volatility as financial risk could create complexities in actual measurement of profitability in the context of real estate investment. This particular finding has been possible because of proper scheduling, planning and management of tasks which has allowed the researcher to think of which step to follow first and then which steps to follow after another.

Starting with conducting a mixed-method research approach up until ensuring data reliability and validity has been important for the research methodology in this paper which has helped the researcher establish data collection methods to be consistent, accurate and capable of producing dependent results. Apart from providing a roadmap for the researcher, the chapter of research methodology has also been vital because of allowing the paper to look for a comprehensive market analysis via maintaining all the ethical standards through keeping confidentiality and anonymity of the research respondents.

3. EMPIRICAL INVESTIGATION

The purpose of the empirical research result and analysis chapter is to interpret first-hand information regarding risk and profitability in real estate investment. A total of three real-estate investors and two real-estate professionals were included in the research study and the interview transcripts will be recorded for identifying qualitative articles based on four research hypotheses.

3.1. Qualitative and secondary data findings on “Valuation of Profitability and Risk of Real Estate Investment”

Interview transcript findings and interpretations

Interpretations from the interview transcripts of five interview participants (3 real-estate investors and 2 real-estate professionals)

Interview Participant 1

From the responses of Interviewee 1, it can be interpreted that property quality, high tenant demand, and rental market dynamics can drive the valuation of real-estate investment. Discounted Cash Flow analysis can be used to anticipate future valuation of real-estate investments by determining the Net Present Value (NPV) of real-estate property. In the DCF analysis, gross rental income and net operating income are used to determine the total income generated from the real-estate properties. Capital appreciation of real-estate properties is dependent on the location and the rental revenue of the real-estate properties. Additionally, it is further interpreted that environmental permits, land zoning laws and land-use rules impose legal and regulatory threat to the market valuation of real-estate investments.

Interview Participant 2

From the response of second interview participants, it can be interpreted that amenities and location of real-estate property drive the current market valuation of real-estate properties. Fluctuations in the rental pricing and market volatility are identified as financial risks that can create difficulties in the actual measurement of profitability in real-estate investment. The second interviewee agreed with the statement of the first interviewee based on the usage of DCF analysis to predict future cash flows. It can be further interpreted that imposed environmental sanctions on the real-estate properties can cause legal repercussions for builders and real estate investors.

Interview Participant 3

From the responses of the third interview participants, it can be highlighted favorable market circumstances and perfect timing are the key drivers for builders and investors in the real-estate industry. Unlike the above interviewee participants, the third interviewee opined that DCF analysis is highly useful in anticipating future market valuation of real-estate properties by including external elements such as land re-adjustments, rent growth and volatile economic conditions. Capital appreciation in real-estate investment depends on the transport network of the real-estate properties and the fluctuations in the economic indicators such as interest rates, GDP, inflation rate can reduce capital appreciation of real-estate properties. On the other hand, it is also interpreted that the presence of high rental revenue and available financing can effectively increase the profitability of real estate investment.

Interview Participant 4

From the responses of the fourth interview participant, it can be interpreted that the presence of economic indicators, fluctuating tenant demand and market circumstances can effectively lead to wrong valuation of real-estate investment. Guaranteed financial returns and high growth potential in real-estate properties drive the investing decision of property buyers and real-estate regulators. These interview participants also agreed with the opinion of the above interview participants on the usage of DCF valuation technique in order to measure future growth in the valuation of real-estate measurement. However, legal repercussions can be faced by real-estate professionals because of poor relationships among tenants and landlords and it has a huge threat on the valuation of real-estate investment.

Interview Participant 5

It can be interpreted that DCF analysis is used by Real Estate Investment Trust because it has a high success rate in determining the correct valuation of real-estate properties. The sensitivity evaluation on real estate investment can be performed by using DCF analysis and income approach methodology. The fifth interviewee highlighted that traditional sales comparison methods cannot be used in long-term perspective because each real estate property has different amenities, and it can be highly challenging to compare the sales prices of similar nature of real estate properties. It can be further interpreted that environmental sanctions on real estate properties near water bodies, wetland preservation can cause regulatory and legal risk to the valuation of real-estate investment.

3.2. Secondary qualitative analysis based on themes and research hypotheses

Table 1

Secondary qualitative findings based on research hypothesis

Research hypothesis	**Themes**	**Author Name**	**Keywords**	**Relevance to the topic**
Research hypothesis 1: There is a direct association between valuation methodologies of real estate investment and risk assessment techniques.	Real estate valuation methodology: a Novel method	(De Paola, 2024)	Real estate valuation, entropy, maximize entropy	This article is relatable to the research topic because it discusses real estate valuation methodology.
	DCF valuation techniques in the real estate valuation	(Vayas-Ortega *et al.*, 2020)	Cash flow, private equity, enterprise value	This article is related to the present study because it helps to understand the DCF, one of the widely used valuation techniques in the real estate business.
	Implication of RETI in the real estate valuation	(Capellán et al., 2021)	Real estate trust investment, public policy	This research paper is effective to get in depth knowledge regarding REIT in real estate valuation
Research hypothesis 2: Rental revenues and capital appreciations influencing Real estate investment finances within market circumstances.	Impact of investment decisions on the financial investment companies based on the market environment	(Abdul kareem et al., 2023)	Investment, decision tools,	This article is related to the current study because it helps to understand the proper decision making process in the financial investment companies
	Impact of rental revenue and capital appreciation in	(Zhao & Liu, 2023)	Policy, renter investment, housing	This article is effective to understand the rental revenues

	their real estate investing process			in the real estate business which is beneficial for this research.
Research hypothesis 3: Estimated Financial, legal, regulatory & environmental risks affecting real estate investment opportunities.	Impact of environmental and climate change risk into the investment of the real estate market.	(Giglio, 2021)	Climate change, rental growth, discounts rates, housing markets	The major relevance between this article and this study is that it defines the major effect of the climate and environmental changes and their impacts on the investment opportunities.
	The way legal and regulatory risks affect the opportunities of funds in the real estate investment.	(Badura, 2024)	legal risks, investing funds, real estate, investment, rental	This article is related to the study as it evaluates the impacts of the legal and regulatory factors on the investment and funds opportunities.
Research hypothesis 4: A unified framework directly influences the effectiveness of real estate investment valuation countering probable risks by combining valuation methods with risk assessment strategies.	An Automated valuation framework to identify risks related to prediction-oriented quantifications in Real estate investment	(Pollestad, Næss & Oust, 2024)	Uncertainty Quantification, Automated Valuation Model, Explainable AI	AVM is the mathematical and statistical modelling helps in calculating risks and real-estate values.
	Real Estate Returns by Strategy: Have Value-Added and Opportunistic Funds Pulled Their Weight	(Mete, Guler & Yomralioglu, 2021)	Risk-Adjusted Performance, Core Funds, Opportunities, High Risk/High Returns and Low Risk/Low Returns.	The Value-added and opportunistic approach is where the operator purchases the in-place cash flows that are not operating at their

				full potential.
	The 3D Real Estate Valuation Model Using BIM and GIS	(Pagliari, 2020)	BIM, IFC, GIS, real Real-Estate Valuation, Property Valuation and 3D Valuations	In 3D real estate causation modelling while using BIM and GIS the internal and external criteria helps in performing 3D property valuations.

Theme 1: Real estate valuation methodology: a Novel method.

Valuation of property is an important aspect in the real estate business because based on that they develop different types of investment strategies**.** Furthermore, with high differentiation in property and dynamic characteristics of the real estate market, it is important to adopt an effective valuation process in order to identify a suitable investment process. In the past, the traditional method of real estate valuation totally depended on historical data but in the present time the business market has changed rapidly and because of that new technique has been implemented (De Paola, 2024). In this regard, the ***maximum entropy principle with a Lagrange Multiplier*** helps to determine the probability distribution. This valuation procedure is beneficial to understand their fluctuation rate of proper and helps real estate companies to establish proper investment strategies for the business growth. This methodology is implemented to obtain probability distributions that maximize uncertainty and identify specific restrictions. Without making needless assumptions, the MaxEnt Principle seeks to provide objective estimates of probability distributions which is beneficial for real estate companies. Therefore, it has been accumulated that real estate firm's adobe different type methodology and techniques based on their business adaptability to calculate valuation of properties and develop investment plans.

Theme 2: DCF valuation techniques in the real estate valuation

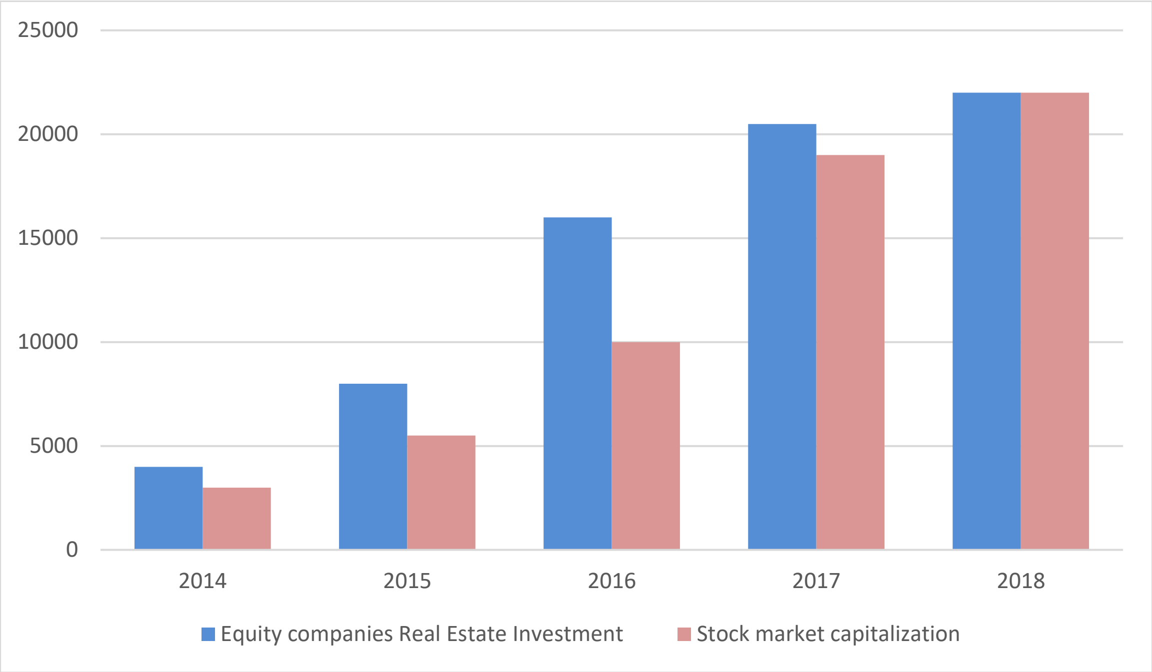
Discounted cash flow (DCF) is a popular real estate valuation technique that is used to determine the preset value of future cash flow of any property. This technique has the potential to calculate different types of aspects such as ***net operating income***, ***gross rental income*** and ***expense escalation*** in the real estate business (Vayas-Ortega et al., 2020). In this business field, companies focus on understanding the market condition and project rent growth along the specific property characteristic to invest their money on it. In this regard, DCF is one of the effective processes that help to calculate total income generated by property. Net operating income has been determined by subtracting the operation expenses from total income generated by property. Identification of this aspect is helpful to understand which property is suitable for long term investment and which is only for short time investment. In the real estate business, determining the preset property value and its future valuation is important. DCF technique is profitable to understand this type of characteristic of property and real estate organizations develop their investment plan based on that. However, the implication of DCF in the property valuation has some limitations that a real estate firm should consider before applying it. Some aspects that need to be considered during calculation valuation with the help of DCF are accurate cash flow projection and proper assumption regarding future market condition. Sensitivity evaluation based on the effective assumption decision is important to get the best result for this method. WACC (Weighted Average Cost of Capital) has been determined with the help of DCF based on the customer aspect. Therefore, it has been accumulated based on the above information that real estate companies use DCF technique to determine the valuation of property.

Theme 3: Implication of REIT in the real estate valuation

The main aim of Real Estate Investment Trust is to create opportunities for real estate property for rent. It has been reported that in the period from 1999 to 2007, the historical investment record achieved its highest point in terms of transactions and profits. These investment funds and real estate investment companies that work in the real estate market have two ways to turn a profit: either by managing real estate rentals, primarily in the form of homes, buildings, offices, and shopping centers, or by reaping the rewards of owning shares in development firms that build and sell homes. This REIT technique helps to determine the tax regulation and implication in rental property. It has been observed that the government has implicated different type of policies and regulatory on the international real estate organizations who invest their money in the commercial properties and in the stock market (Capellán et al., 2021).

Figure 1

Real estate investment and stock market capitalization.



Source: (Capellán et al., 2021).

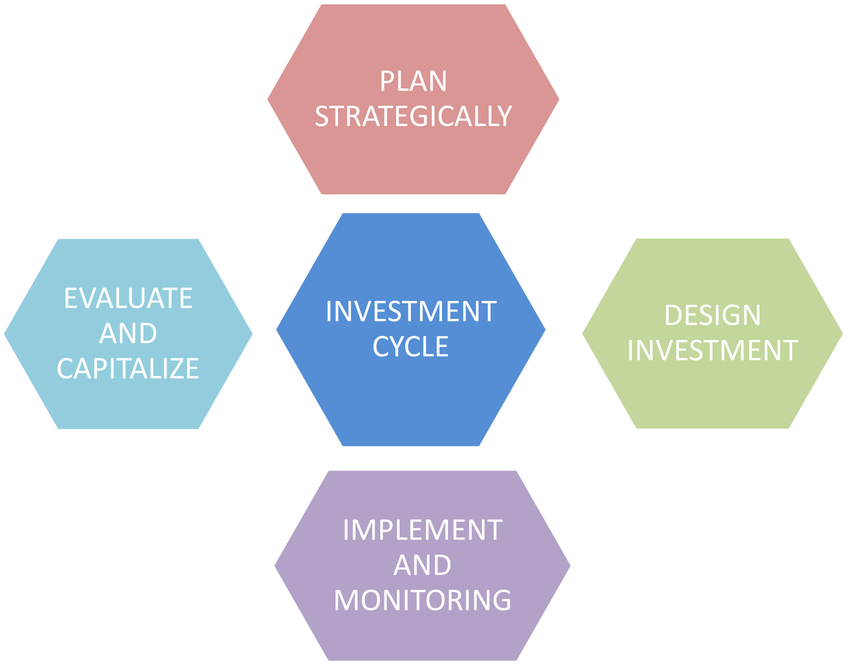
Based on the above figure (Figure 1) it has been observed that in 2016, the valuation in the stock market capitalization was down compared to real estate investment. It reflects that real estate markets mainly focus on investment in the property. However, Liquidity of REITs has a direct impact on the real estate total market liquidity. The increase in liquidity negatively affected the property valuation which created risk for the real estate companies. Therefore, it has been identified that the activity of REITs influences the condition of the real estate market and wrong assumptions made by real estate companies effectively increase the chance of loss in the future.

Theme 4: Impact of investment decisions on the financial investment companies based on the market environment.

In the real estate business, making effective decisions regarding the investment is an important aspect through which they grow their companies. Investors and real estate agencies mainly focus on the wealth maximization criteria. However, it has been identified that making a proper decision regarding capital appreciation is influenced by several factors in the real estate business (Abdul kareem et al., 2023). These aspects are identified operating profits and net investment amount through which they can identify the total cash flow in the future. It is important to evaluate the present condition and develop assumptions regarding the future in the real estate market. Making proper decisions regarding any investment based on the characteristics of property is important to make maximum profit.

Figure 2

Investment cycle.



Source: (Abdul Kareem et al., 2023).

Based on the above figure (Figure 2), it has been identified that investment cycles have 4 main components such as ***plan strategically***, ***design investment***, ***implement and monitor***, ***evaluate and capitalize***. It has been reported that due to the implication of strategies, plans based on the market circumstance and other crucial factors can be beneficial if they have all the resources to make it happen. On the last stage of the investment cycle, evaluating all the profits and capitalizing it to get the total revenue are essential factors.

Theme 5: Impact of rental revenue and capital appreciation in their real estate investing process

Rental revenue and capital appreciation are two main factors that influence return on investment in the real estate business. Rental revenue is the safest and most effective way for property owners to make money. When assessing the worth of the property that generates money, rental income is the crucial component that helps to determine the value of property. It has been identified that gross rent multipliers or capitalization rate have a great impact on determining the rental revenue.

On the other hand, capital appreciation is described about the value of any property and its growth rate through time (Zhao & Liu, 2023). It has been reported that the cyclic nature of the real estate market directly impacts capital appreciation. Through time, they have periods of growth, stability and falling which are also a major opportunity as well as risk for real estate investors. Grabbing the opportunity and avoiding any risks are two major capabilities that an investor should have. Apart from that, property owners, who have real estate properties and get rental revenue annually also need to know about the property value that increases their rental income based on that. Therefore, it has been identified that rental revenue and capital appreciation are two main factors for investors and property owners.

Theme 6: Rental growth rates as well as risk evaluation in average return of rate in real estate investment

According to Giglio et al., (2022), the rental growth rates and the risk evaluation have the ability to affect the valuation of the total investment in the real estate market. Rental growth rates are a key process which can evaluate the financial value of real estate investment. This can be helpful for real estate investment as it can enhance the idea about the valuation of the investment and their growth rates. The exposure of climate risk is related to the rental growth rates for its average return rate policy in real estate investment. The risk related to real estate investment can be difficult to resolve as it can be correlated with more rental growth rates in the market (Giglio et al., 2022). There are various types of factors with the help of which the rental growth rates can be measured for the investment.

The "market-extension and band-on extension method" are the two major methods that can evaluate the risk in average return rate in real estate investment. Climate risk can also be one of the major reasons for the housing challenges in real estate investment which can also affect the rental growth for the market. As per the view of Chambers, Spaenjers & Steiner (2021), in real estate investment, the investment in housing is one of the less effective and profitable factors for people. The acquisitions can be helpful to maintain the rental growth in real estate investment which can match the proper transaction. The rental growth rates can be statistically significant at the time when the risk factors fixed its issues in the market. The return of investment (ROI) is also related to the rental growth and its investment practices in the real estate market.

Another major risk that can be evaluated for the betterment of the real estate market is that the decline in rental growth can be the reason for decreasing rates and discounts in risky investments. It can cause financial shock in the real estate business market and because of this the rates of discounts are decreasing from the investments. It can be evaluated that the disaster probability is rising because of the factors related to the rental growth in the industry. On the other hand, the disaster probability in the climate changing nature can be another effective reason behind the risk evaluation in the average return of rates in the real estate industry. This climate disaster probability can increase with the development of the risk related to the rental growth rates which can be a factor of challenge in real estate investment.

Theme 7: Legal and regulatory risks in real estate investment impacting its opportunity funds.

As per the opinion of Badura (2024), in real estate investment, the “legal exposure, development tax, and investment competitors are the major factors that can be correlated with the investment process in the market. Additionally, these major factors can also have the ability to impact its funds opportunity as these are the related factors with the legal and regulatory risks. The concept of legal and regulatory risk is mainly associated with the financial losses which also can affect the competitiveness and the investment policies of the market. Legal and regulatory risks are based on the operational risk for the investment policies which can impact the investment funds in the same industry with their valuations. One of the major challenges of this legal and regulatory risk is that it can be connected with the major losses in the investment policies of people in the real estate market (Badura, 2024).

It also can be the reason for reputational risk in society as it is related to the regulatory approaches for the investors. Legal and regulatory risks also can reduce the competitiveness as well as the effectiveness of the investment that investors can make in the industry. Moreover, it also can decrease the efficiency in the performance of the investors which can make the investment less important for the market and can be the reason for major losses. According to the view of Hoesli, Milcheva & Moss (2020), the insufficient and improper investment can make the growth legally separated from the market and can make the reason behind the loss of the revenue for the market. It also can make the investment separate from its funds, which can make the investment less essential in the market as well as less effective. A proper legal and regulatory policy can make the investment and funds more competitive in the investment market.

One of the major external risks that can affect the investment and its opportunity for funds is the “legislative risk” which can reduce the opportunity of funding for the investors in the real estate industry. The legislative risk is one of the effective subcategories of the legal and regulatory risk which can have its negative impact and can decrease the positive opportunity of funds. After the outbreak of COVID-19 pandemic, the major effective risks that can impact on the opportunity of funds in real estate investment is the regulatory policies reduction in the market. It can be the reason for misinterpretation of investment data which can affect the legal and regulations act for the investment policies in the real estate industry. These issues can happen because of the incorrect implementation of proper rules and regulations for the investment practices and can reduce the opportunity for funds.

Theme 8: Automated valuation framework to identify risks related to prediction-oriented quantifications in Real estate investment.

The study introduces a novel framework where Quantifying predictions have been used through the Automated Valuation Model which is diagnosed as the crucial tool in Real Estate Financing. With the help of the model the predictions uncertainties decrease reliability and practical utilities. The Automated Valuation Model has gained significant importance in the real estate industry due to its diversified applications. The AVMs outperform the traditional appraisal approach, especially in the commercial real estate sector. The AVM is used in mortgage lending, mortgage-backed securities and analyzing property tax assessments. The additional usage of AVMs in real-estate companies applied in insurance and portfolio risk assessment, land re-adjustments, and real estate investment with its negotiation margin. The linear nature of the variable and its relationships with traditional hedonic price models which is based on multiple linear regression. The analytical expressions exist with computing prediction intervals. The non-linear AVMs lack effective methods that are useful for Quantified uncertainty assessments. The uncertainties associated with the predicted prices of individual dwellings and this evaluation method are known as Automated Valuation Model Uncertainties. This model helps in comprehensively assessing uncertainties and significantly contributes to the reliability and robustness of the AVM in real-estate valuations and related fields. AVMs are more efficient and consistent than Human appraisers and some of the AVM commercial platforms are Mac, Equifax, CoreLogic and Freddie which also provides free customer sites Zillow and Trulia (Pollestad, Næss & Oust, 2024). The AVM models can make calculations and comparisons in seconds. The Major AVM providers use the model effectively where the property stock is generic. Till now AVMs have not supplanted human valuation estimates not just because most lenders need a customized appraisal of the property but because it is carried out by a person who is a certified appraiser. The model helps to understand how the technology and the data analytics work together precisely in property value assessments in transformations of real estate transactions. The AVMs included the hedonic pricing, machine learning, and automated mass appraisal in calculating the valuation methods in the real-estate transactions. On one hand, traditional appraisals provide thorough assessments, on the other hand AVM provides speed and efficiency. Automated Valuation Models enhance decision-making, home equity assessment and due diligence. Appraisal adheres to regulatory standards often required by lenders and mortgage transactions. Appraisal conducts physical inspections and considerations in determining the value of the properties.

Theme 9: Strategies framework to evaluate return on profit for real estate investments.

The private market real-estate strategies broadly aligned themselves with the risk and return continuums. In this scenario, the “core” funds represent low-risk/low-return investments and the “Opportunities” represent high-risk and high-return investments. In this context, many of the largest institutional investors allocate their resources privately such as venture capitals, leveraged buyouts, hedge funds and infrastructures. Re-balancing the revenue margin from the high-risk/high-return strategies is considered the most politically delectable approach in the short run while comparing it with alternative seeking funds from the legislative bodies. The private real estate fund defines three major strategies and the risk-adjusted with the value-added and opportunistic real-estate funds. The risk-adjusted returns can be analyzed through historical performance, market volatility and the risk factors associated with each class asset. For instance, last year the real-estate investments showed an average annual return of 6% with an annual deviation of 4%. The Risk adjusted measurements can be calculated by estimating core funds leverage ratios, estimating leverage spreads, estimating the terms of maturities and the terms of maturities with the unleveled returns. Based on the study shows that in seventeen years of return on value-added funds substantially under-performed in the indexes of the core funds (Pagliari, 2020). There are very few alphas and few instances of value-added funds that produce positive results. The risk-adjusted performance of the non-core funds is exacerbated by the risky factors where the investors are poorly diversified for both the non-core strategies. The value-added opportunities funds generally failed to generate excess risk-adjusted returns. The article depends on the standard asset pricing models which highlight two factors: the total risk used in the cost of borrowings while the leverage increases and the first departure of investments put substantive effects and the second departure of investments estimating the underperformed non-core funds.

Theme 10: Real estate valuation model framework using BIM as well as GIS.

The real estate values are calculated in financing, engineering, and financing operations. The Geographic Information System, Building Information Modelling and the real-estate values can be assessed on geo-spatial three-dimensional model analysis. New property sets, their features, and attributes with the data types in the IFC schema and property values are assessed by using holistic models. The property valuation frameworks can be used in referencing value-based applications, urban renewal, and land share calculations. In Real Estate Valuation Modelling the Land Administration consists of the land tenure, land use, land value and the people related to land development (Mete, Guler & Yomralioglu, 2021). Land Valuation Information Modelling is increasingly used in City Buildings and 3D Modelling is produced by Building Information Modelling and Geographic Information Systems. Property valuations are the significant components that need to be carried out with a wide range of information from real estate properties. The information differs from physical qualities, locations, and environmental attributes. The Building Information Model (BIM) obtained an openness of the views that determine the value of the properties, and the Geographic Information System (GIS) allows users to model, store, analyze and visualize the geo-referenced spatial features that better manage the built environment. The real estate valuations can be classified into two groups: internal and external. BIM can be represented as 3D models of buildings which can be updated in real-time, and changes can be visible in forming renovations or repairs. BIM also helps in representing the design and construction of roads, bridges, and airports. On the other hand, GIS, integrated into acknowledging various datasets, helps in creating dynamic visualization and helps in patterns, relationships, and trends through the visualized data. Real Estate Valuation is the preliminary work in the valuation process. Real estate valuations can be varied by their importance to the person.

3.3 Discussion of overall interview and secondary data analysis based on research objectives.

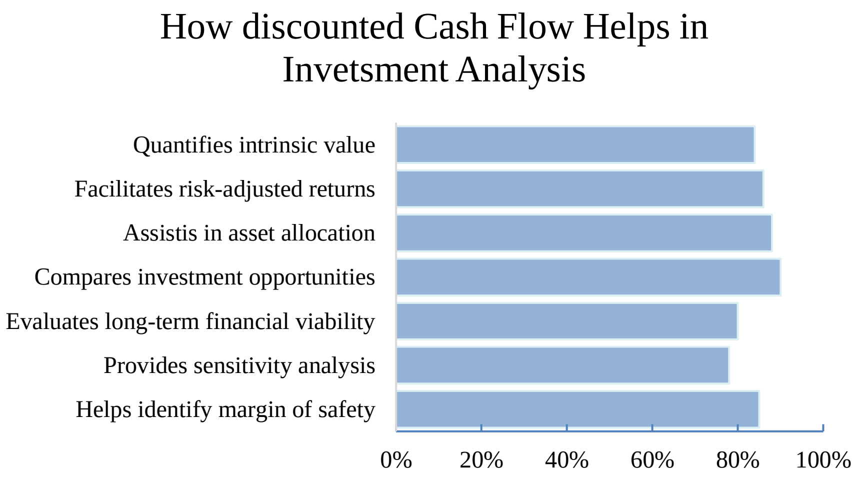
3.3.1 Analyze existing literature on real estate investment valuation, examining different valuation methodologies and risk assessment techniques employed

The valuation of real-estate properties depends on multiple factors and amenities such as location, structural issues, low possibility of good returns on investment and market circumstances (Bello, Adetoye & Durosinmi, (2020). From the literature review chapter, it can be highlighted that the ***traditional sales comparison method*** is used by real estate investors to determine the profitability in the valuation of real estate properties by comparing the sales price of a property having similar characteristics such as square foot measurements, location, and basic amenities (Tajani et al., 2020). However, the fifth interviewee participant opined that, "*No, I will not use the sales comparison method to measure property worth because it is highly challenging to discover real-estate investments having similar characteristics and amenities*". It can be interpreted from the above statement, that making adjustments in the profitability calculation of real-estate investment by using a sales comparison method can be highly challenging.

Alzain et al., (2022) suggested that the sales comparison method has limited usage in residential real estate properties, as a result, the traditional methodology is replaced by ***direct capitalization method***. In this method, the future cash flow of real estate investment can be anticipated by using operating income and Discounted Cash flow analysis (Chizmar et al., 2020). In the thematic findings, Vayas-Ortega et al., (2020) also demonstrated the application of ***Discounted Cash flow analysis and Net Present Value*** by using rental income, net operating income and net growth in future expense of real-estate properties. The key benefit of using this real estate valuation technique is that it includes external factors such as maintenance costs, location, rental prices, resale value and market circumstances to project the future cash flow of real estate properties. A published report by Invensis (Figure 3) highlighted that nearly 90% of real-estate investors and property dealers use DCF analysis to compare investment opportunities (Invensis, 2023). Additionally, it is also used for asset allocation and for risk-adjusted returns.

Figure 3

Application of Discounted Cash Flow Analysis



Source: (Invensis, 2023)

When the interview participants were asked whether they will use DCF analysis to determine whether to invest money on real-estate properties. Interviewee 1 stated, "*As already stated, Discounted Cash Flow is commonly used by Real Estate brokers, investors and property dealers to predict the future valuation of properties*.'. Interviewee 2 stated, "*Yes, Discounted Cash Flow is commonly used by property dealers and builders to predict the valuation of real-estate investment*.".

From the literature review findings, it can be highlighted that ***GIS and spatial analysis*** uses predictive modelling technology to anticipate market trends and uses geographical data to make cost assumptions for real estate investors (Morena et al., 2021). The data-driven decision-making using GIS and spatial analysis helps to anticipate real-estate values. In the literature review chapter, Beylot et al., (2019) suggested the usage of ***GIS and spatial analysis*** to provide detailed insights on the real estate investment valuation based on location-specific characteristics. On the other hand, from the thematic findings, the research study identified that real estate investors and builders use the findings of ***Real Estate Investment Trust*** to determine the profitability of real estate investments such as shopping malls and office buildings. From the thematic findings, it can be highlighted that the ***Automated Valuation Model*** is used by real-estate investors to anticipate and identify market risks, legal risks and regulatory risks in property tax assessment and mortgage lending activities. The literature review chapter highlighted that the findings of REITs are also used by real-estate investors to anticipate market competitiveness of real-estate investment and

3.3.2 Evaluation of rental revenue, capital appreciation, market circumstances, and available financing, impact the potential for a real estate investment to generate a profit

From the literature review chapter, it can be highlighted that rental revenue is considered as the safest way to earn profitability from real estate investment. In the measurement process of the worth of real-estate property, rental revenue has the biggest share in uplifting the market valuation and profitability of the real-estate property (Büyükkaraciğan, 2021). The above statement is also justified by the findings of Zhao & Liu, (2023) and the interview participants were also asked regarding the contribution of rental revenue to the valuation of real-estate property. Interviewee 1 stated, "*Yes, capital appreciation of real estate properties situated near transport hubs is high and it also increases the rental revenue and financing of real estate investment. The factors, rental revenue, capital appreciation and available financing increase the profitability of the investment*". Interviewee 2 stated, "*I think high rental revenue and capital appreciation of real-estate properties can increase profitability, unlike available financing*.". In the literature review chapter, Gillespie (2020) suggested uncertainties in the market demand and changing preferences of tenants can increase the high vacancy rate of real estate properties and its negative impact on both rental revenue and profitability of the real estate investment. A published study conducted by Statista highlighted that there is an increasing demand for rental and leasing services in the real estate industry and it positively contributes to high return on investment for builders as well as property dealers (Statista, 2023).

Capital appreciation of a real-estate investment grows with time, as a result, it can be considered that a real-estate investment which has capital appreciation has better chances to provide high return on investment for builders and real-estate regulators. The above statement can also be justified by the findings of Abdul Kareem et al., (2023) which highlight that capital appreciation of a real-estate property can effectively increase the future cash flow of the investment by wealth maximization. The investors looking for high profitability get influenced by real-estate properties and investments which have high rental revenue and capital appreciation (Hromada & Krulický, 2021). From the literature review, it can be highlighted that market circumstances have a direct influence on the Internal Rate of Return.

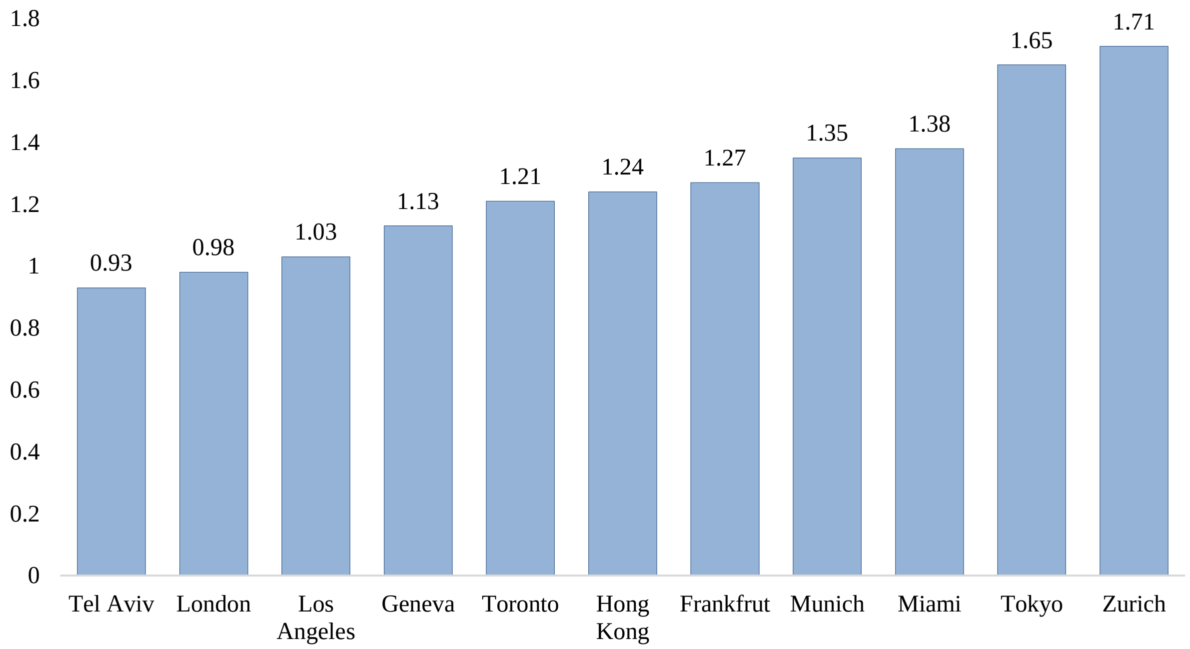
For example, low market demand of real-estate properties can effectively reduce the Internal Rate of Return on the investment and by holding such investment for a longer period can lead to negative cash flow in future. Pattiruhu and Paais, (2020) suggested that cash-on-cash return and NPV can be used a suitable financial matrix to examine the impact of market circumstances on the net IRR of the real-estate investment. The research study has identified that available financing has a positive impact on the profitability of the real estate investment. The above statement can be justified from the responses of interview participants. Interviewee 1 stated: *The factors, rental revenue, capital appreciation and available financing increase the profitability of the investment*".

3.3.3 Estimation of market risk, finance risk, legal and regulatory risk, and environmental risk that might affect a real estate investment

Economic fluctuation and demand and supply in the market are two import market risks that effectively influence real estate investment. Based on the information accumulated from literature reviewed, it has been identified that the real estate market is cyclic in nature. As a result, ups and downs work in this market is common and it is important for real estate investors to understand the present situation of the market to invest for the future. Interviewee 5 stated that *"Yes, factors, market circumstances and market demand have a strong influence on the current valuation of real-estate investment"*. In order to support the above statement, Lausberg et al. (2019) stated that, evaluation of present and future market demand and changing marketing solution regarding any property is an improvement to make current real estate investment.

Figure 4

Global real estate bubble risk.



Source: (Statista, 2023)

Based on the above statistical information (Figure 4), it has been identified that global real estate bubble risk is high in Zurich and London score 0.98 in this aspect. However, governments frequently change the investment regulation based on the business environment and economic condition of the country. It is difficult for real estate inverters to change their strategy accordingly. Based on the thematic analysis, Badura (2024), stated that legal exposure and development tax is correlated with the investment process that an investor can consider for their profit. Therefore, it has been accumulated that market risk along with regulatory and environmental risks are essential factors for real estate investors.

3.3.4 Proposing a unified framework for analyzing the effectiveness and risk of real estate investments by combining valuation methods with risk assessment strategies

Based on the literature review, Wijburg, (2019), stated that Internal Rate of Return (IRR) is a common factor that can be considered in the time of investment. Real estate companies have followed different types of mythology like discounted cash flow and net present value to calculate the valuation of the property. Each methodology has its own risks and opportunities. For example, in order to implement discounted cash flow techniques, real estate companies need to consider all the variables in the market and develop the right assumption regarding the future valuation of properties. On the other hand, in the net present value calculation, the discount rate of any property is constant but in reality, this variable can be changed based on the market fluctuation, economic situation and characteristics of the property. Interviewee 1 stated that "*I think both of them have high utility in calculating realistic valuation, however, in my personal opinion, I would prefer an income approach methodology*". It reflects that income approach methodology is better compared to the direct capitalization method in order to calculate valuation of any property. Based on the thematic analysis, Pagliari (2020), stated that real estate investors need to evaluate all the positive and negative aspects of any methodology to adobe any particulate to mitigate risks in the investment process.

3.4 Data analysis.

Data Analysis refers to the procedure of applying statistical techniques for describing, analysing, and evaluating the available data. In order to conduct the overall data analysis, this research study includes some useful statistical techniques such as descriptive statistics, Correlation, and regression analysis.

Descriptive Statistics

The descriptive statistics is acknowledged as a set of statistical techniques which is used for summarising and describing the key features of the concerned dataset such as variability, central tendency, and distribution (Abu-Bader, 2021).

Figure 5

Descriptive Statistics

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
What is your age (in years)?	51	4	1	5	3.12	1.125	-.065	.333	-.644	.656
What is your highest level of education?	51	4	1	5	2.80	1.114	.224	.333	-.885	.656
What is your current occupation?	50	4	1	5	2.98	1.059	-.066	.337	-.654	.662
Accurate valuation of real estate investment is essential for making informed investment decisions.	51	4	1	5	2.94	1.207	.401	.333	-1.068	.656
The incorporation of financial models such as CAPM and DCF is crucial for accurately valuing real estate investment.	51	4	1	5	2.86	1.265	.206	.333	-1.086	.656
A comprehensive assessment of the ongoing trend makes the investors confident to evaluate the risk related to the real estate investment opportunity.	51	4	1	5	2.67	1.125	.529	.333	-.456	.656
The future development substantially influences the decision of the invest in a particular real estate property.	51	4	1	5	3.51	1.347	-.456	.333	-.996	.656
Accurate valuation of the real estate investment is fundamental for maximizing the profitability and return on investment.	51	4	1	5	3.25	1.309	-.050	.333	-1.247	.656
The location of the real estate property significantly impacts its profitability margin and risks.	51	4	1	5	2.88	1.321	.116	.333	-1.304	.656
Seeking professional advice from financial advisors and real estate experts is critical before making significant real estate investment decisions.	51	4	1	5	2.27	1.282	.764	.333	-.485	.656
Valid N (listwise)	50									

Source: Created by author using IBM SPSS

In the above figure (Figure 5), the descriptive statistics include various statistical elements such as “Minimum”, “Maximum”, “Range”, “Standard Deviation”, “Mean”, “Skewness” and “Kurtosis”. The “mean” value indicates the average value that is the certain dataset which is equal to the sum of all the values within the dataset diving by the number of values. The “Standard Deviation” is recognized as the measure of the level of dispersion within data comparing to the mean value. The “Maximum” value is considered as the maximum or the largest value of the variable. On the other hand, the “Minimum” value is the lowest or the smallest value of the variable. The “Range” is referred to as the difference between the highest and the lowest value (Watkins, 2021). The overall descriptive statistics show that the respondents are falling within the middle range of age, occupation and educational level. Skewness and Kurtosis indicate that slight divergence from the normal distribution. The evaluation of confidence in real estate investment varies significantly, however, it underlines the significance of accurate valuation, seeking professional advice and future development.

Correlation

The correlation analysis addresses the relationship among the variables used in the research. Confidence in real estate investment evaluation highlights the weak correlation with the current occupation. It indicates that individuals in some occupations who prioritises the accurate valuation tends to higher level of confidence.

In the figure below (Figure 6) Seeking professional advice underlines the negative correlation with confidence evaluation representing that those who rely on professional advice might feel less confident in the investment evaluation. There exists a significant lack in the correlation between the future development and confidence evaluation on the ongoing trend. It suggested that these factors might not directly influence the confidence level within the sample.

Figure 6

Correlation Analysis.

Correlations

		What is your current occupation?	A comprehensive assessment of the ongoing trend makes the investors confident to evaluate the risk related to the real estate investment opportunity.	The future development substantially influences the decision of the invest in a particular real estate property.	Seeking professional advice from financial advisors and real estate experts is critical before making significant real estate investment decisions.	Accurate valuation of the real estate investment is fundamental for maximizing the profitability and return on investment.
What is your current occupation?	Pearson Correlation	1	.250	.092	-.356*	.285*
	Sig. (2-tailed)		.080	.524	.011	.045
	N	50	50	50	50	50
A comprehensive assessment of the ongoing trend makes the investors confident to evaluate the risk related to the real estate investment opportunity.	Pearson Correlation	.250	1	.167	-.032	-.226
	Sig. (2-tailed)	.080		.241	.822	.110
	N	50	51	51	51	51
The future development substantially influences the decision of the invest in a particular real estate property.	Pearson Correlation	.092	.167	1	.126	-.086
	Sig. (2-tailed)	.524	.241		.379	.546
	N	50	51	51	51	51
Seeking professional advice from financial advisors and real estate experts is critical before making significant real estate investment decisions.	Pearson Correlation	-.356*	-.032	.126	1	-.209
	Sig. (2-tailed)	.011	.822	.379		.140
	N	50	51	51	51	51
Accurate valuation of the real estate investment is fundamental for maximizing the profitability and return on investment.	Pearson Correlation	.285*	-.226	-.086	-.209	1
	Sig. (2-tailed)	.045	.110	.546	.140	
	N	50	51	51	51	51

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Created by author using IBM SPSS

Regression Analysis

Table 2

Dependent and Independent Variable.

“Variables Entered/Removed[a]”			
“Model”	**“Variables Entered”**	**“Variables Removed”**	**“Method”**
1	“What is your current occupation?”, “What is your highest level of education?” “What is your age (in years)?[b]”	.	Enter
a. “Dependent Variable: A comprehensive assessment of the ongoing trend make the investors confident to evaluate the risk related to the real estate investment opportunity.”			
b. “All requested variables entered.”			

Source: Created by author using IBM SPSS

The above table (Table 2) shows the dependent and independent variables which are used for conducting the regression analysis. In this research, "**A *comprehensive assessment of the ongoing trend make the investors confident to evaluate the risk related to the real estate investment opportunity*"** is considered as the dependent variable. On the other hand, "Age", "Occupation" and "Education Level" is considered as the independent variables which influence the dependent variable substantially.

Table 3

Model Summary

"Model Summary"				
"Model"	"R"	"R Square"	"Adjusted R Square"	"Std. Error of the Estimate"
1	.362[a]	.131	.075	1.090
a. "Predictors: (Constant), What is your current occupation? What is your highest level of education?, What is your age (in years)?"				

Source: Created by author using IBM SPSS

The above table (Table 3) provides the insights into the overall model summary. The above table showcases that the "R" value is 0.362, the "R square" value is 0.131, the "Adjusted r square" value is 0.075 and the "Standard error of the estimation" is 1.090. "Age", "Education level" and the "Current Occupation" are the main predictors in this analysis.

Table 4

ANOVA.

"ANOVA[a]"						
"Model"		"Sum of Squares"	"df"	"Mean Square"	"F"	"Sig."
1	"Regression"	8.262	3	2.754	2.319	.088[b]
	"Residual"	54.618	46	1.187		
	"Total"	62.880	49			
a." Dependent Variable: A comprehensive assessment of the ongoing trend make the investors confident to evaluate the risk related to the real estate investment opportunity."						

b. "Predictors: (Constant), What is your current occupation?, What is your highest level of education?, What is your age (in years)?"

Source: Created by author using IBM SPSS

"ANOVA" or the "Analysis of Variance" is recognised as the statistical test which is used for evaluating the distinction between the means of more than two groups (Bertinett *et al.* 2020). The outcome of the ANOVA table (Table 4) shows that the regression model is not statistically significant as the "F" value is 2.319 and the value is 0.088 while the accepted region of the "P" value is 0.05. This result suggests that the "age", "occupation" and "education level" might not be the strong predictors of the confidence in this context.

Table 5

Coefficients.

"Coefficients[a]"							
		"Unstandardized Coefficients"		"Standardized Coefficients"			
"Model"		"B"	"Std. Error"	"Beta"	"t"	"Sig."	
1	"(Constant)"	1.355	.615		2.203	.033	
	"What is your age (in years)?"	.283	.151	.284	1.872	.068	
	" What is your highest level of education?"	-.018	.145	-.018	-.127	.900	
	"What is your current occupation?"	.166	.156	.155	1.059	.295	
a. "Dependent Variable: A comprehensive assessment of the ongoing trend makes the investors confident to evaluate the risk related to the real estate investment opportunity."							

Source: Created by author using IBM SPSS

The above table (Table 5) appears in the form of a regression analysis which underscores the prediction of confidence in evaluating the risks related to the real estate investment depending on occupation, education level and age. Here "B" signifies the change in the dependent variable. The able table indicates that age has a positive relation which indicates that if age increases, the confidence in evaluating the risk associated with the real estate investment leads to an increase. The occupation also underlines the positive relation which suggests that some of the occupation contributes to the higher confidence in evaluating real estate investment risks. On the contrary, the education level shows a negative relation which although not statistically significant indicates a slight impact on the confidence level. The constant term indicates the expected value of the dependent variable when all the predictors hold zero value.

Discussion about the analysis

In analyzing the statistical results of research on real estate investment valuation, the correlation and regression analyses offer significant insights that directly address this research aims to estimate market risk and assess various factors influencing profitability and risk management. Descriptively, the data demonstrates a range of responses with a skewness and kurtosis that indicate slight departures from normal distribution, suggesting that investor confidence in real estate valuation is not uniformly spread. This variability in confidence levels underscores the need for a robust framework to assess and counterbalance risk factors effectively.

The correlation analysis indicates a weak relationship between confidence in investment evaluation and current occupation ($r = 0.155$), and a slightly negative correlation with reliance on professional advice ($r = -0.018$). These results suggest that investor confidence may not be significantly swayed by professional advice or by the investor's occupational background. This observation could imply a gap in the current advisory practices or a possible underestimation of personal judgment and informal knowledge networks in investment decisions. Furthermore, the regression analysis reveals an R-square of 0.131, indicating that only 13.1% other variability in investor confidence can be explained by the model involving age, occupation, and education. This relatively low explanatory power and the non-significant F value ($F = 2.319$, $p = 0.088$) from the ANOVA test suggest that additional factors not included in the model may play a critical role in influencing investment confidence. This implies that the current model of evaluating real estate investment risks and profitability might be missing critical variables that could provide a more comprehensive understanding of the market dynamics.

Given these findings, there is a clear indication that while traditional factors like age, occupation, and education level do impact investment confidence to some degree, they are insufficient alone for predicting and effectively managing the complex nature of real estate investment risks. This aligns with research purpose to develop a unified framework that not only focuses on traditional valuation metrics such as rental revenue and capital appreciation but also integrates nuanced considerations of market circumstances and available financing options to enhance the effectiveness and profitability of real estate investments.

CONCLUSION AND RECOMMENDATIONS

In conclusion, statistical analysis highlights the need for a more sophisticated, multi-dimensional approach to real estate investment valuation, emphasizing the integration of diverse risk assessment methodologies to cater to the complex, varied investor profiles and market conditions. From this study it can be seen that while traditional factors such as age, occupation, and education level do have some influence on investor confidence in real estate investment valuation, they are not sufficient on their own to account for the full spectrum of risk and profitability considerations. The statistical analyses indicate that these variables explain only a small portion of the variability in investment confidence, highlighting the need for a more comprehensive approach to understanding and managing real estate investment risks. findings underscore the necessity of developing a unified framework for real estate investment valuation that goes beyond simple numerical metrics. This framework should integrate a more nuanced understanding of market conditions, financial structures, legal and regulatory considerations, and environmental impacts. Such a framework will enable investors to assess and mitigate risks while maximizing profitability more effectively. Therefore, the research advocates for an enhancement of current valuation methodologies by incorporating advanced risk assessment tools and broader market analysis. This approach will better equip investors to make informed decisions that account for the complex interplay of various risk factors, ultimately leading to more successful and sustainable real estate investment outcomes. Investigating the topic has revealed a comprehensive understanding of complex dynamics of the real estate business and its atmosphere of financial methods. The existing literature is further coupled with gathered insights from professionals of the industry and enhanced the growth of comprehending valuation methodologies and risk assessment strategies. The study emphasizes the central role of the factors played by the factors such as rental revenue, conditions of market change in trends and different regulatory landscapes that help in shaping different outcomes of real estate business.

Conclusion Addressing Objectives

Objective 1: Reviewing and analyzing existing literature.

The first objective was to review and analyze existing literature on real estate investment valuation and to examine various valuation methodologies and risk assessment techniques. The findings reaffirmed traditional practices and identified gaps necessitating further exploration. Notably, the study emphasized the significance of methods such as the discounted cash flow (DCF) and net present value (NPV) analyses, which incorporate external factors like maintenance costs, location, rental prices, and market circumstances to project future cash flows of real estate properties.

Objective 2: To evaluate various elements.

The second objective was to evaluate how elements such as rental revenue, capital appreciation, market circumstances, and available financing impact the profitability of real estate investments. The research identified that rental revenue and capital appreciation significantly enhance profitability. It was highlighted that properties situated near transport hubs generally exhibit higher capital appreciation, thus increasing rental revenue and financing opportunities. The findings also indicated that market conditions have a direct influence on the internal rate of return (IRR), underscoring the importance of understanding market dynamics for making informed investment decisions.

Objective 3: Interpret information regarding risk and profit.

The third objective involved estimating various information regarding risks and profit that might affect real estate investments, including some risks such as market risk, financial risk, legal and regulatory risk, and environmental risk. The study found that economic fluctuations, demand and supply dynamics, and regulatory changes are significant market risks impacting real estate investments. For instance, inflation can lead to higher building costs and property taxes, affecting the value of real estate properties. Financial risks such as currency fluctuations and credit risks were also identified as critical factors influencing the long-term viability of real estate projects.

The research culminated in a comprehensive model integrating valuation methodologies with advanced risk assessment tools like sensitivity analysis and scenario analysis. This framework allows investors to better assess and mitigate risks while maximizing profitability. The inclusion of real options analysis (ROA) further enhanced the adaptability of investment decisions to changing market conditions.

In final conclusion, the study successfully bridged gaps in existing valuation methodologies and provided practical implications for both policymakers and potential investors. By achieving the outlined objectives, the research not only contributes to academic knowledge but also offers a robust framework for effective decision-making in real estate investments. This integrated approach is poised to equip investors with the tools needed to navigate the complex interplay of various risk factors, ultimately leading to more successful and sustainable investment outcomes.

Linking Objectives with Findings

The section parallelly defines the pre proposed objectives of the research with the respective findings, providing a link between intention and realization. The first objective prioritizes reviewing existing literature and methods in valuation of real estate business. The finding not only reconfirms practices built earlier but also covers the areas necessitating exploring further. Secondly, evaluating impacts such as rental revenue, capital appreciation and potential financing revealed interplay and highlighted its significance. The third objective, assessing market legal, financial, and environmental risks revealed the different nature of risks involved in the course.

Enhanced Data integration**:** implement a more enteric data integration strategy that combines with metrics of traditional quality and emerging qualitative factors. approach can be advantage in using the data analytics, AI, and machine learning to have a comprehensive data base. Incorporation of alternate data resources, as social trends, technological advancements, stakeholders make informed and effective decisions and sail through the evolving complex structures of real estate investments.

Interdisciplinary Collaboration**:** Encouragement of interdisciplinary collaboration among different agents, experts, technology experts and experts of environments. A collaborative framework that integrates different insights from various fields and impoverished a more holistic and diversified understanding of risk and profits. The cross disciplinary approaches provide a prospective of factors like environmental sustaining , and technological disruptions and shifts which enable the stake holders to actively predict and act according to change in dynamics.

Continues Professional Development**:** Advocating for ongoing professional development with the real estate industry. Given sudden change and developments in technology, finance and environmental concerns, professionals should engage in continuous attain knowledge and training programs the active approach ensure that stake holders stay ahead of emerging trends, redefining valuation methods , and adopts innovative strategies to manage risks.

Recommendations

In the study, it is recommended that real estate investment plan can be further stretched, and potential investing opportunities can be gained if the business explore the untouched segments of the market. The use of AI and blockchain can be done to elastically adjust and bring relevance in the company’s operations. Different approaches can be taken, and digital part is not if untouched should be implemented so that replacement is according to the new age generation methods and techniques . To enhance real estate investment decisions, it is recommended that investors and analysts adopt a more comprehensive valuation framework that incorporates not only traditional factors like age, occupation, and education but also deeper analyses of market conditions, financial options, and regulatory landscapes. The integration of advanced statistical tools and risk assessment models will facilitate a better understanding of the multifaceted nature of real estate investments. Investors should also seek to leverage technology and data analytics to gain real-time insights into market trends and potential risks. Finally, ongoing education and professional development in emerging real estate market dynamics and investment strategies are essential for maintaining and enhancing investment proficiency and success.

Limitations of the research

The vast area of knowledge is accompanied by several drawbacks. The research encounters limitations that call for acknowledgement to enhance transparency and to guide in future inquiries. First, study relies at the interview and statistical analysis introducing potential for partial response and limitation in data. The mannerism and nature of participant resources may influence results, and scope of stats may not capture all aspects. Additionally, the research focuses predominantly on the established segments of markets and may not explore the dynamics of the emerging and untouched markets. The generalization of findings to diverse real estate scenario should be targeted with respective criteria. Time constraints possess another limitation, impacting the depth of exploration into evolved risk factors.

Future Scopes of the Research

The limitation created a road map for the potential and substantial research that a can build upon the addressing the time constraints. Firstly, a more extensive and diversified data collection approach, includes longitudinal studies and globally expensive market analysis, which enhances the centric approach of the findings. Incorporating technologies like blockchain, AI they present a promising avenue for exploration. Future aspect research could dive into evolved and emerging changes of the landscape of potential investing, considering the impacts on both profitability and potential risks. Exploring the coordination between financial patterns and real estate investment could offer insights for effective decision making. The dynamic regulatory environment warrants continue observation, and research further coil focuses on forecasting sudden changes on real estate investments. Studies in long term track the evolution of risk factors and materialization over the time could enhance some proactive models.

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SUMMARY IN ENGLISH

VALUATION OF PROFITABILITY AND RISK IN REAL ESTATE INVESTMENTS

VRAJ PATEL

Master Thesis

Finance and Banking Programme

Faculty of Economics and Business Administration, Vilnius University

Supervisor Prof. Dr Jelena Stankevičienė

Vilnius, 2024

85 pages, 5 tables, 6 figures, 78 references.

The research is focused on gathering the findings and gaining insights about the valuation methodologies and risk assessment strategies, which offers a thorough understanding of their effectiveness on the real estate venture and its business outcomes. Mainly, contributions are inclusive of summary of contemporary literature, empirical data from survey and questionnaire with experts of industry, a tough mixed methods and different approaches of the study revels crucial factors which influence further the profitability and the risk range from the environmental and legal considerations. Different parameters such as economic, financial and market trends have been used to analyze the rewards and barriers lying in the profitability model. Different approaches and theories have been used in the study to evaluate the risk and opportunities. The approach followed in the study is qualitative and involves a sampling and questionnaire method of collecting accurate data and potential results. Different economic indicators such as capital appreciation and rate of return are employed with analyzing swings in the market trends. Withstanding, using different approaches and different methodologies different graphs and different figures are also being used. The significance of the study lies in the ability to gap fillings in present knowledge sources, providing practical tools for informed decision making. As thesis archives its goals, it not just advances the academic uneven but also provides actionable recommendations for regulations and its investors.

SUMMARY IN LITHUANIAN

INVESTICIJŲ Į NEKILNOJAMĄJĮ TURTĄ PELNINGUMO IR RIZIKOS VERTINIMAS

VRAJ PATEL

Magistro baigiamasis darbas

Finansų ir bankininkystės programa

Vilniaus universiteto Ekonomikos ir verslo administravimo fakultetas

Darbo vadovė prof. dr. Jelena Stankevičienė

Vilnius, 2024

85 puslapiai., 6 paveikslai, 5 lentelės, 78 literatūros šaltiniai.

Tyrimas yra orientuotas į pelningumo vertinimo metodikų bei rizikos vertinimo strategijų detalią analizę, kuri leidžia išsamiai suprasti investicijų į nekilnojamąjį turtą efektyvumą, pelningumo ir rizikos sąsajas bei jų poveikį investicijų rezultatams. Darbe analizuojama naujausia mokslinė literatūra investicijų į nekilnojamąjį turtą pelningumo ir rizikos vertinimo tema. Remiantis empiriniais duomenimis iš rinkos ekspertų apklausos, pasitelkus mišrius tyrimo metodus, atskleidžiami esminiai veiksniai (nuo aplinkosauginių iki teisinių), darantys įtaką nekilnojamojo turto pelningumui ir rizikai. Įvairūs parametrai, tokie kaip ekonominės, finansinės ir rinkos tendencijos, buvo naudojami analizuojant pelningumo modelyje slypinčius privalumus ir trūkumus. Tyrime buvo naudojami įvairūs metodai ir teorijos investicijų į nekilnojamąjį turtą rizikai ir investicinėms galimybėms įvertinti. Tyrime taikytas kokybinis tyrimo metodas. Sukurtas klausimynas ir rinkos ekspertų apklausa leido surinkti empirinius duomenis bei išanalizuoti gautus rezultatus. Analizuojant rinkos tendencijų svyravimus naudojami įvairūs ekonominiai rodikliai, tokie kaip kapitalo prieaugis ir grąžos norma. Tyrimo rezultatai pateikiami grafikose ir lentelėse. Dabas pasižymi praktine reikšme – pateikti investuotojams į nekilnojamąjį turtą praktines priemones ir rekomendacijas pagrįstiems sprendimams priimti.

ANNEXE

Annexes 1: Interview Questionnaire and Survey Questionnaire.

Interview Questionnaire

1. For how many years have you been working in the real estate industry?
2. What according to you are the driving factors in evaluating the real estate valuation by builders, regulators, and investors?
3. Did you feel any difficulty in calculating the Valuation of Profitability in Real Estate Investment?
4. What according to you is the best approach to examine the valuation of Profitability in Real Estate Investment?
5. Do you feel market demand and market circumstances play a crucial role in the valuation of Real Estate Investment?
6. Does capital appreciation, available financing and rental revenue play a role in influencing the profitability of real estate investment?
7. Do you believe that Discounted Cash Flow (DCF) analysis can predict the future valuation of real-estate investment to reduce financial risk?
8. What kind of legal, environmental, and regulatory risks can negatively impact the market valuation of real estate investment?
9. Do you feel sales comparison methods can be used to determine the property worth in the real-estate industry?
10. What is your opinion on the usage of the direct capitalization method and income approach methodology in determining the realistic valuation of real-estate investment?

Survey Questionnaire

1. What is your age (in years)?

- Under 20
- 21-30
- 31-40
- 41-50
- 51-60
- Above 60

2. What is your highest level of education?

- High School or lower
- Some college
- Bachelor's Degree
- Master's Degree
- Doctorate or higher.

3. What is your current occupation?

- Student
- Employed - Private Sector
- Employed - Public Sector
- Self-employed
- Retired
- Unemployed

4. Accurate valuation of real estate investment is essential for making informed investment decisions.

- Strongly agree.
- Agree
- Neutral
- Disagree
- Strongly disagree.

5 .The incorporation of financial models such as CAPM and DCF is crucial for accurately valuing real estate investment.

- Strongly agree.
- Agree
- Neutral
- Disagree
- Strongly disagree.

6. A comprehensive assessment of the ongoing trend makes the investors confident to evaluate the risk related to the real estate investment opportunity.

- Strongly agree.
- Agree

- Neutral
- Disagree
- Strongly disagree.

7. The future development substantially influences the decision to invest in a particular real estate property.

- Strongly agree.
- Agree
- Neutral
- Disagree
- Strongly disagree.

8. Accurate valuation of the real estate investment is fundamental for maximizing the profitability and return on investment.

- Strongly agree.
- Agree
- Neutral
- Disagree
- Strongly disagree.

9. The location of the real estate property significantly impacts its profitability margin and risks.

- Strongly agree.
- Agree
- Neutral
- Disagree
- Strongly disagree.

10. Seeking professional advice from financial advisors and real estate experts is critical before making significant real estate investment decisions.

- Strongly agree.
- Agree
- Neutral
- Disagree
- Strongly disagree.

Annexes 2: Interview Response

Interviewee 1 (Real Estate Investor)

1. **For how many years have you been working in the real estate industry?**

   I have spent nearly 3 and half years in the real estate industry and I also make few investments in buying properties.

2. **What according to you are the driving factors in evaluating the real estate valuation by builders, regulators and investors?**

   I think rental market dynamics, property quality, residential rental revenue and tenant demand are the key driving factors for investors, builders and real estate regulators.

3. **Did you feel any difficulty in calculating the Valuation of Profitability in Real Estate Investment?**

   Yes, I do feel difficulty in determining the right value of the assets and it negatively impacts profitability calculation because of capital appreciation and volatile market demand of real estate properties.

4. **What according to you is the best approach to examine the future valuation of Profitability in Real Estate Investment?**

   According to me, Discounted Cash Flow analysis can be used to anticipate future changes in the profitability in Real Estate Investment by analyzing the present cash flow.

5. **Do you feel market demand and market circumstances play a crucial role in the valuation of Real Estate Investment?**

   Yes, I do feel that fluctuations in market demand for real estate properties have a direct influence on the net profitability of the Real Estate investment.

6. **Does capital appreciation, available financing and rental revenue play a role in influencing the profitability of real estate investment?**

   Yes, capital appreciation of real estate properties situated near transport hubs is high and it also increases the rental revenue and financing of real estate investment. The factors, rental revenue, capital appreciation and available financing increase the profitability of the investment.

7. **Do you believe that Discounted Cash Flow (DCF) analysis can predict the future valuation of real-estate investment to reduce financial risk?**

   As already stated, Discounted Cash Flow is commonly used by Real Estate brokers, investors and property dealers to predict the future valuation of properties.

8. **What kind of legal, environmental and regulatory risks can negatively impact the market valuation of real estate investment?**

   I think land-use legal rules, zoning laws, and not getting environment permits can effectively reduce the profitability and valuation of real estate investment.

9. **Do you feel sales comparison methods can be used to determine the property worth in the real-estate industry?**

   No, I would prefer a traditional income approach and Monte Carlo simulation instead of a sales comparison method as risk assessment tools.

10. **What is your opinion on the usage of the direct capitalization method and income approach methodology in determining the realistic valuation of real estate investment?**

    I think both of them have high utility in calculating realistic valuation, however, in my personal opinion, I would prefer an income approach methodology.

Interviewee 2: (Real Estate Investor)

1. **For how many years have you been working in the real estate industry?**

   For the last 10 years, I have been investing in different real estate properties.

2. **What according to you are the driving factors in evaluating the real estate valuation by builders, regulators and investors?**

   As per my best knowledge, I think the location and amenities of the real estate properties drive the real estate investment for regulators and builders.

3. **Did you feel any difficulty in calculating the Valuation of Profitability in Real Estate Investment?**

   Yes, I have faced difficulties in accurate measurement of real estate valuation because of market volatility and fluctuations in rental prices.

4. **What according to you is the best approach to examine the valuation of Profitability in Real Estate Investment?**

   I think cost techniques can be highly useful in the calculation of profitability and cash flow in Real Estate Investment.

5. **Do you feel market demand and market circumstances play a crucial role in the valuation of Real Estate Investment?**

   Yes, I do feel low market demand and unfair market circumstances can effectively reduce real-estate evaluation.

6. **Does capital appreciation, available financing and rental revenue play a role in influencing the profitability of real estate investment?**

   I think high rental revenue and capital appreciation of real-estate properties can increase profitability, unlike available financing.

7. **Do you believe that Discounted Cash Flow (DCF) analysis can predict the future valuation of real-estate investment to reduce financial risk?**

   Yes, Discounted Cash Flow is commonly used by property dealers and builders to predict the valuation of real-estate investment.

8. **What kind of legal, environmental, and regulatory risks can negatively impact the market valuation of real estate investment?**

   Environmental sanctions on the usage of land can effectively reduce the market value of a real estate investment.

9. **Do you feel sales comparison methods can be used to determine the property worth in the real-estate industry?**

   Yes, I do feel sales comparison methods can be used by real-estate investors to include amenities, location demand and square footage while determining the property's worth.

10. **What is your opinion on the usage of the direct capitalization method and income approach methodology in determining the realistic valuation of real-estate investment?**

    I would prefer a direct capitalization method instead of an income approach methodology.

Interviewee 3: (Real Estate Investor)

1. **For how many years have you been working in the real estate industry?**

   I have been into housing property dealerships in the real estate industry for the past 5 years and also started to invest in real-estate properties.

2. **What according to you are the driving factors in evaluating the real estate valuation by builders, regulators, and investors?**

   I think timing and market circumstances are the drivers for real estate valuation for property dealers, builders and real-estate investors.

3. **Did you feel any difficulty in calculating the Valuation of Profitability in Real Estate Investment?**

   No, I rarely faced difficulty in measuring profitability in the real estate valuation because I mostly used DCF analysis to anticipate any changes in the market circumstances.

4. **What according to you is the best approach to examine the valuation of Profitability in Real Estate Investment?**

   As stated above, DCF is the best approach to measure property valuation in real-estate business.

5. **Do you feel market demand and market circumstances play a crucial role in the valuation of Real Estate Investment?**

   Yes, I do believe that changes in market demand and market circumstances can create fluctuations in Real Estate valuation of investments.

6. **Does capital appreciation, available financing and rental revenue play a role in influencing the profitability of real estate investment?**

   I think all of the above factors do play a role in creating uncertainty in the valuation of real estate investment.

7. **Do you believe that Discounted Cash Flow (DCF) analysis can predict the future valuation of real-estate investment to reduce financial risk?**

   Yes, DCF can anticipate the future valuation of real-estate investment by using net present value of the investment.

8. **What kind of legal, environmental and regulatory risks can negatively impact the market valuation of real estate investment?**

   Poor relationships with landlords and tenants can result in legal and regulatory repercussions for the real estate investor.

9. **Do you feel sales comparison methods can be used to determine the property worth in the real-estate industry?**

   No, I would prefer discounted cash flow and digital capitalization methods instead.

10. **What is your opinion on the usage of the direct capitalization method and income approach methodology in determining the realistic valuation of real-estate investment?**

    I believe methods, the income approach and the direct capitalization method can be used by real-estate investors to determine realistic valuation of properties.

Interviewee 4: (Real Estate Professionals)

1. **For how many years have you been working in the real estate industry?**

   I am very new in this industry as I started investing in real-estate properties last year.

2. **What according to you are the driving factors in evaluating the real estate valuation by builders, regulators, and investors?**

   I think the potential to invest, and guarantee returns from real-estate investment drives investors, builders, and regulators.

3. **Did you feel any difficulty in calculating the Valuation of Profitability in Real Estate Investment?**

   Yes, I frequently faced difficulty in calculating the profitability of my investment because of the wrong valuation of real-estate properties.

4. **What according to you is the best approach to examine the valuation of Profitability in Real Estate Investment?**

   As I have limited experience on real estate valuation measurement techniques, I think the sales comparison method is an easy and highly prominent technique.

5. **Do you feel market demand and market circumstances play a crucial role in the valuation of Real Estate Investment?**

   Yes, I have experienced negative changes in my investment valuation when the market demand reduced.

6. **Does capital appreciation, available financing and rental revenue play a role in influencing the profitability of real estate investment?**

   Among the above three factors, I think high rental value can reduce capital appreciation of real estate properties. However, I am not sure about the other two factors.

7. **Do you believe that Discounted Cash Flow (DCF) analysis can predict the future valuation of real-estate investment to reduce financial risk?**

   I have heard that DCF and NPV methods are widely used by real-estate professionals to predict the future valuation of present investments.

8. **What kind of legal, environmental and regulatory risks can negatively impact the market valuation of real estate investment?**

   I think frequent changes in Government land regulations can negatively impact the current valuation of real estate investment.

9. **Do you feel sales comparison methods can be used to determine the property worth in the real-estate industry?**

   Yes, I am highly confident that sales conversion can be explicitly used by less experienced real-estate investors to calculate property worth.

10. **What is your opinion on the usage of the direct capitalization method and income approach methodology in determining the realistic valuation of real-estate investment?**

    Because of having low familiarity with the direct capitalization method, I would prefer the income approach methodology.

Interviewee 5: (Real Estate Professionals)

1. **For how many years have you been working in the real estate industry?**

   Yes, for the past 10 years, I have been advising real-estate property dealers and builders to make high-return investments.

2. **What according to you are the driving factors in evaluating the real estate valuation by builders, regulators, and investors?**

   I think a high return on investment and profitability can attract builders and investors to buy real-estate properties.

3. **Did you feel any difficulty in calculating the Valuation of Profitability in Real Estate Investment?**

   No, I rarely faced any difficulty in calculating the valuation of real-estate properties because I anticipate market fluctuations by using DCF analysis.

4. **What according to you is the best approach to examine the valuation of Profitability in Real Estate Investment?**

   As stated above, DCF analysis has a higher success rate in determining the market valuation by using expense, gross rental income and net operating income.

5. **Do you feel market demand and market circumstances play a crucial role in the valuation of Real Estate Investment?**

   Yes, both factors, market circumstances and market demand, has a strong influence on the current valuation of real-estate investment.

6. **Does capital appreciation, available financing and rental revenue play a role in influencing the profitability of real estate investment?**

   I think high available financing and rental revenue can effectively increase the net profitability in real estate investment.

7. **Do you believe that Discounted Cash Flow (DCF) analysis can predict the future valuation of real-estate investment to reduce financial risk?**

   Yes, DCF analysis helps to project growth in rental revenue, net operating income and escalation of properties expense.

8. **What kind of legal, environmental, and regulatory risks can negatively impact the market valuation of real estate investment?**

   The environmental restrictions on the nearby areas of wetland preservation, water bodies and zoning restrictions can pose a regulatory threat to real estate investment.

9. **Do you feel sales comparison methods can be used to determine the property worth in the real-estate industry?**

   No, I will not use the sales comparison method to measure property worth, because it is highly challenging to discover real-estate investments having similar characteristics and amenities,

10. **What is your opinion on the usage of the direct capitalization method and income approach methodology in determining the realistic valuation of real-estate investment?**

    I think either the income approach methodology and direct capitalization method can be used for a realistic valuation of real-estate investment.