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The perfect storm of regulation and economy on the Dutch residential rental market.

A study into the impact of regulation of the residential real estate rental market within the current economic context on the investment behaviour of institutional investors.

Abstract: The Dutch housing market is characterised by a housing shortage, mainly in the affordable segment. For this reason, the government has proposed and/or implemented several policy changes to alleviate this stress on the market. However, the Dutch economy is also in a downturn. This research explores how Dutch institutional investors in the rental housing market deal with changing policies in economically challenging times. The scope encompasses inflation and interest rate increases, as well as the Affordable Rent Act (WBH) and transfer tax (RETT). Previous research shows that rent control can have both positive and negative effects, and that increasing RETT affects property value and transaction volume. For this reason, it is worth investigating what the combination of these policy changes and an economic downturn does to the investment behaviour of institutional investors, to get an understanding of the effectiveness of the proposed policy changes. Through literature review and interviews with stakeholders, we find that there seems to be a 'perfect storm' hanging over the residential rental market that negatively affects the investment behaviour of institutional investors in the Netherlands. This would mean that implementing the proposed policy changes in the current context would be counterproductive, as it is, partially, up to institutional investors to fill the demand for affordable housing

Content

1. Introduction

1.1 Introduction

In the years since the GFC, the Dutch housing market has gone through a period of growth, according to statistics from the Dutch National Bank and the Central Bureau of Statistics. Since 2015, housing prices have been rising, whereas interest rates kept going down and eventually stabilised at a low point (De Nederlandsche Bank, n.d.). The Dutch residential real estate market has thus been an interesting market for (foreign) investors to invest in. The economic climate had been stable, and a shortage in the housing market had caused a high investment demand (Eichholtz et al., 2014).

At the moment, this shortage stands at 315 thousand dwellings (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2021). As a result the Ministry of the Interior and Kingdom Relations (BZK Dutch abbreviation) has the ambition to build 900.000 new dwellings before 2030 (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2020). The shortage of available housing has resulted in a notable increase in housing costs, with rents in de liberalised market increasing at a steep pace. As a result, a political discussion has emerged about whether or not the government should step in to alleviate the resulting inequality in housing due to affordability across the various tenures present in the Dutch housing market.

Minister Hugo de Jonge has proposed further regulation of the liberalised rental sector through the 'Wet Betaalbare Huur' (WBH), which focuses on curbing rents for mid-rental dwellings and moderating rent increases. Furthermore, as of the first of January 2023, the transfer tax on real estate has been increased to 10.4% for investors who will not be occupying the dwelling (Ermerins, 2023). In the Dutch residential market, three main types of landlords can be identified: housing associations, private landlords and institutional investors. This research focuses on the latter, Dutch institutional investors, which are defined as investors that manage funds on behalf of third parties (Chen, 2021), for example by operating in the Dutch residential housing market. A further definition of these parties and how they operate will be discussed in detail later in this thesis.

To moderate rent and rent increases, BZK proposed expanding the regulated rent system, the so called 'Woningwaarderingsstelsel' (WWS, Dutch abbreviation), via a letter to parliament in 2022. With the BZK proposal of moderating rent increases the mid-rent units that would become regulated would become a new 'social+' category. This proposal aims to protect middle-income households renting in the liberalised rental sector, and should lower the rent by €190,- for roughly 300 thousand dwellings (Ministerie van Algemene Zaken, 2022).

The proposed reduction in rent for tenants might reduce the profitability of investors' assets. Currently, rents in the liberalised market are often higher than the proposed cap of 1,100 euros under the expanded WWS. This means that the returns on properties subject to the expanded WWS (De Regt et al., 2022) will decrease. Consequently, the mid-rental segment may become unprofitable for investors, potentially leading to a decline in the supply of mid-rental properties if other investments become more attractive. This outcome would be opposite to the proposal's goal of providing enough mid-rental housing for middle-income households. Additionally, this could affect both new and ongoing developments and hinder the objective of building 900,000 homes by 2030.

In addition to the proposed regulation of the mid-rental segment, investors are also currently dealing with changing economic times that are putting pressure on the profitability of residential real estate. High inflation and interest rates have impacted the value of residential real estate as house prices show a drop for the first time in years. Furthermore, rising interest rates possibly impact the financing and re-financing of both new and standing investments. This, combined with the proposed policy changes, could lead to the scenario that investing in residential real estate becomes unattractive or less profitable for private landlords and institutional investors. Private landlords might sell their rental units, and institutional investors might seek other,

more interesting investments, ultimately yielding the exact opposite effect that these proposed regulations aim to achieve, which is providing sufficient mid-rental housing for middle-income households.

1.2 Research gap and relevance

Numerous reports and papers have analysed the expected impact of the proposed policy changes on the WWS, with consensus aligning with the findings of De Regt et al. (2022). These reports focus on the theoretical impact of expanding the WWS on the business case for mid-rent housing. Notable examples include "Consequenties huurprijsregulering. Analyse en doorrekening van mogelijke maatregelen" (Brink, 2021), "Advies regulering middenhuur, een balanceeroefening" (Brink, 2022), and "Impactanalyse regulering middenhuur" (CBRE, 2023). The main takeaway from these reports is that a significant number of dwellings will fall under new regulations, potentially affecting the value of the assets and the rents that can be charged. This could make investing in the mid-rent segment less profitable, even for institutional investors, raising concerns that the new law might reduce the supply of mid-rent housing.

Besides regulating the mid-rent market, the government has increased the transfer tax for real estate, further increasing pressure on the business case for real estate investments. By "business case," in this study, we mean the consideration made regarding the decision of whether to invest in a real estate asset. The IVBN has recently published an article about the impact of the previous increases in transfer tax from 2% to 8% on their members. According to existing scientific literature, raising the transfer tax leads to a decrease in the value of homes and standing investments and a reduction in transaction volume (Benjamin et al., 1993; Dachis et al., 2012; Dolls et al., 2021; Fritzsche & Vandrei, 2019; Kopczuk & Munroe, 2015). The article from the IVBN shows the same, whilst also combining it with the new WBH. In addition to the IVBN, the NVM and Loyens&Loeff also state in news posts on their website that the increase of the transfer tax could have consequences for the development of the necessary new homes (Ermerins, 2023; Van der Tempel, 2022). This is because the increase is also applicable to land that is purposed for housing development (Belastingdienst, n.d.-b). When purchasing such land positions, transfer tax represents a cost that cannot be underestimated, and investors will likely seek to recover these costs during the exploitation.

News articles and reports by CBRE (2023) and Brink (2021, 2022) highlight a withdrawal of foreign institutional investors like Canada's ERES and Sweden's Heimstaden, who plan to sell nearly 20,000 homes. Institutional investors own about 9% of the Dutch residential rental market. Minister De Jonge's plans rely on these investors to build a part of the 350,000 new mid-rent dwellings, of the total of 900,000 new dwellings, by 2030. Due to economic circumstances and policy changes, these assets are potentially less profitable, causing market participants to be more conservative in investing in them. This problem might be (partly) solved by a specific category of investors, namely those institutional investors who invest pension- and insurance money. They usually have an investment policy that is more socially (ESG) driven which could lead them to fill the gap.

Previous studies on regulatory topics as rent regulation and transfer tax increases (Fields & Uffer, 2016; Hahn et al., 2023; CBRE, 2023; IVBN, 2021; IVBN. 2022) do not seem to take into account how economic challenges also influence real estate investment. The current situation in the Dutch rental market presents an opportunity to investigate how policy changes impact this market during difficult economic times. This study will focus on institutional investors and how their investment behaviour in this specific market might be influenced by policy changes and economic challenges.

Scientifically, this study addresses the gap in understanding the combined impact of policy interventions and economic challenges on the market. It will analyse how arguments for the WBH and other regulatory changes, and mid-rent housing provision play out amid high inflation and interest rate hikes. As of yet, (academic) research into the combination of these two topics appears to be limited. This is a knowledge gap in the scientific literature that can be (partially) entered by this research.

The social relevance of this research is twofold. First, the relevance from the point of view of the real estate investor. This research aims to gain insight into how the introduction of the expanded WWS would affect the housing liberalised investment in the current economic context. Furthermore, it seeks to find a durable investment environment incorporating the rent regulation, in which BZK's goal of building 900,000 homes by 2030 would still be achievable and key parties such as institutional investors can contribute to this goal, whilst still achieving their own, as the government deems real estate developers and real estate investors of crucial importance (Kamerbrief Regulering middenhuur, 2022).

1.3 Main research question

Given the knowledge gap identified in the previous section, the main research question of this research focuses on the investment behaviour of institutional investors in the Dutch residential real estate market. The decision to focus on the subgroup of institutional investors in the Dutch rental market is due to their important role in addressing the shortage of mid-rent dwellings, as mentioned by Minister de Jonge (Kamerbrief Regulering middenhuur, 2022). Furthermore, housing corporations already primarily focus on regulated social housing and are therefore less affected by the expansion of the WWS. Of course, they are also influenced by the economic context and other regulations. However, as the effect of the WBH, and thus the expansion of the WWS, is a key aspect of this study, it was decided that focusing on housing associations would not be the most appropriate choice.

Many factors, of course, influence the investment choices of institutional investors. However, this research will focus particularly on the effect of changes in policy in the economic context at the time of this study (2023-2024). The 'current' context is characterised by aspects such as rising interest rates, inflation, building costs, transfer tax, and announced rent price regulation of the mid-rent segment. This has led to the following research question:

"*How does changing policy influence institutional investors' (residential) real estate investment behaviour within the changing economic context, and what are the expected impacts on standing and new investments in residential real estate?"*

This main research question is divided into sub-questions once the main actors are introduced in Chapter 2 and the theoretical framework is put forward in Chapter 3.

1.4 Reading guide

As stated in the previous section, in Chapter 2, a more elaborate description is given of the subgroup of investors that are the subject of this study: institutional investors. Furthermore, a differentiation is made between two types of institutional investors, and their interrelation is investigated. Chapter 3 then sets out the theoretical framework relevant to this study. Additionally, the impacts of the different concepts (economical and regulatory) are shown from a theoretical perspective using the DiPasquale & Wheaton (1992) model. This is done to establish a relationship between the concepts and to understand how they affect the real estate market. By doing this, we can form hypotheses about the effect of changes in these concepts on the real estate- and capital markets. Finally, chapter 4 will show a conceptual model that visualizes the relation between the concepts studied in this thesis.

After the presentation of the concepts which are studied in this thesis, Chapter 4 gives an insight into the logic of inquiry of this research (Blaikie & Priest, 2018) and the methods used. In short, this research uses literature research and semi-structured interviews to answer the research questions. Further elaboration on the chapters following chapter 4 is given in section 4.4.

2. Institutional investors

2.1 Introduction

This research focuses on a specific category of investors operating in the Dutch housing market. The following section will explore the traits and definitions of, and relationships between, different institutional investors. As introduced in the introduction of this thesis, Chen (2021) offers a general definition of an institutional investor: an investor or organization that invests money on behalf of others. Another definition by Conijn and Papa (1988) defines institutional investors as: financial institutions that are primarily responsible for securing the disposal of funds, particularly for long-term investments (Conijn & Papa, 1988).

This study will distinguish two groups of institutional investors according to Chen's (2021) definition. The first group comprises pension funds and insurance companies, which align with Conijn & Papa's (1988) definition. The second group includes real estate funds operating as investment managers for pension funds and insurance companies. Although these funds align more with Chen's (2021) definition and less with that of Conijn & Papa's (1998), they do adhere to the long-term investment perspective outlined by Conijn and Papa (1988). Given the similarity in investment strategies between insurers and pension funds(van Loon & Aalbers, 2017), they are treated as one group in this study. The next two sections introduce both groups and explore their interrelationships.

2.2 Pension funds and insurance companies

A lot of people pay a monthly fee to pension funds and insurance companies to build up a pension or get insurance coverage in the event of an accident. This has resulted in pension funds and insurance companies becoming major players in the financial market (van Loon & Aalbers, 2017). Managing clients' funds, including insurance and pension building, is a principal responsibility for these institutional investors, as can be concluded from the definitions provided by Chen (2021) and Conijn & Papa (1988). Institutional investors manage these funds by investing in a variety of assets for their clients. Their objective is to fulfil their obligations to these clients, such as pension payments and insurance payments.

Customized asset and liability management (ALM) methods, also known as liability-driven investing (LDI), have been embraced by the pension fund sector in recent years. The goal of such methods is matching and exceeding a pension fund's obligations (in these models dubbed liabilities) such as pension payments and insurance payments. This is done with the returns from their assets, whilst taking national restrictions and regulations into account (Mitra & Medova, 2010). Stochastic models are often utilized to model the dynamic, and sometimes volatile behaviour of asset prices and liabilities. These models consider several risks, such as inflation risk, interest-rate risk, and the 'longevity risk' of the members/clients. (Mitra & Medova, 2010). In general, such models allow for simulating various scenarios to assess the impact on an investor's financial position.

Most of the assets of pension funds and insurance companies are comprised of stocks and bonds. However, the importance of alternative assets, such as real estate, has become more apparent over time (Andonov et al., 2013; Carlo et al., 2021). Research into the inclusion of such alternative asset classes shows that it is possible to develop effective investment portfolios that can help investors with composing optimal long-term horizon portfolios. From the perspective of institutional investors, real estate has become the cornerstone of the alternative asset class in their mixed-asset portfolios. Research by Carlo et al. (2021) shows how institutional investment in real estate has developed over the past three decades, which will be elaborated on in the next paragraphs. Furthermore, real estate has yielded consistent returns, with net returns that fall between bonds and stocks and gross returns like equities.

When an institutional investor decides to incorporate real estate into their mixed asset portfolio, several subsequent decisions must be made (Andonov et al., 2013). The investor first chooses between direct and indirect exposure to real estate. For direct exposure, investors can manage properties internally, or use external managers. Direct holding of real estate often means assets are on the balance sheet of the investor. For indirect exposure, pension funds

can invest in listed or non-listed real estate funds either in-house or by hiring external managers to handle the fund selection. Indirect investment options include publicly listed real estate, such as Real Estate Investment Trusts (REITs), or private real estate funds (Fields & Uffer, 2016).

Research by Andonov et al. (2013) indicates that globally, pension funds tend to invest more in direct real estate compared to indirect real estate. However, in the Netherlands, the trend appears to be the opposite, with many institutional investors investing through real estate funds. Furthermore, Carlo et al. (2021) expanded on the investment approaches illustrated by Andonov et al. (2013), showing that the private (unlisted) fund approach has been dominant over the past decades compared to the listed fund approach. They also revealed that, from 1990 to 2000, most pension funds had in-house real estate departments, but since 2000, the externalised approach has become more popular. Specifically, Van Loon & Aalbers (2017) found that Dutch institutional investors have shifted their real estate investment strategies from owning properties directly to acquiring property shares through real estate funds, for example, explaining the findings by Andonov et al. (2013).

Compared to their international counterparts, Dutch pension funds and insurance companies historically allocate a rather large part of their assets to real estate in general (De Wit, 1996). According to more recent data from the DNB, Dutch pension funds had a significant proportion of their invested assets allocated to real estate investments, with a total value of €158 billion at the end of 2022 which represents a sizeable 10.9% of their collective overall investments (De Nederlandsche Bank, 2023). From this, the share of real estate appears to have remained relatively stable compared to Bikker & Meringa's 2018 data (2023). The significant allocation to real estate shows the importance of this asset class for Dutch pension funds and insurers. Direct investments fulfil a total of €47 billion. Indirect real estate investments are held through domestic and foreign investment funds, and amount to €67 billion. Lastly, investments are also made through listed real estate, totalling €44 billion. This is also indirect investment, but a different type of real estate fund. Most of the real estate funds considered in this study are private real estate funds.

As previously noted, institutional investors must ensure that they maintain a consistent income over an extended period, utilizing the assets under their management to fulfil their obligations to pension holders and insured individuals. As these investors are generally risk-averse, they include real estate in their investment portfolios since it shows an attractive risk-return profile (Georgiev et al., 2003) and appears to have inflation-hedging properties (Amenc et al., 2009; De Wit, 1996), although the literature on the latter seems to be inconclusive (Le Moigne & La, 2008). De Wit (1996) highlights an interesting finding that real estate investments by Dutch investors are primarily motivated by its perceived ability to hedge against inflation These topics will also be addressed later in this study. Table 2.1 illustrates

Grootteklasse	Grootst	2	3	4	Kleinst	Totaal (mrd euro)
Vastrentend	46,3	59,9	59,1	61,2	60,4	708
Aandelen	30,1	30,2	29,1	31,0	31,7	411
Vastgoed	10,0	6,4	7,9	5,9	5,0	118
Private equity	7,0	2,6	2,1	0,9	0,5	68
Hedgefondsen	2,4	0,6	1,0	0,4	0,2	23
Goederen	4,1	0,5	0,7	0,5	0,6	36
Totaal (%)	100,0	100,0	100,0	100,0	100,0	
Totaal (mrd euro)	776	254	188	79	38	1336

Table 2.1: Distribution of assets by size classes, as percent, by pension funds (2018Q1) (Bikker & Meringa, 2023)

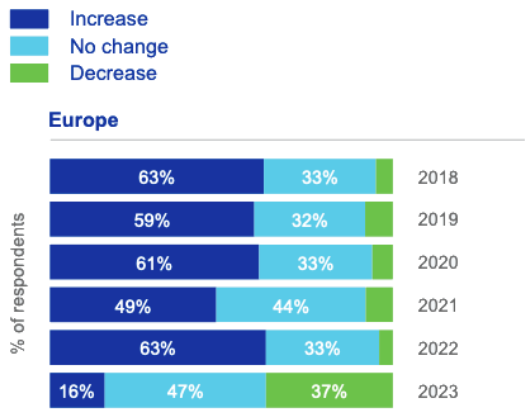

Figure 2.1: adjustments in real estate allocations of institutional investors (INREV, 2023)

the structure of their investment portfolios and the share of real estate in them. Additionally, institutional investors often have a distribution to the different real estate sectors within their real estate allocation. Previous research shows that housing is the most significant asset type, at about half of all real estate investments (Carlo et al., 2021; Conijn & Papa, 1988; Montezuma & Gibb, 2006). Furthermore, Montezuma & Gibb (2006) state that, for a real estate market to be an attractive investment option, a country's pool of available real estate assets must be sufficiently large to provide diversification benefits for the institutional investor. A more recent empirical analysis shows their real estate allocation (Table 2.1). In comparison with the 15% that was mentioned in the older study of Conijn & Papa (1988), Bikker & Meringa's data show a slight decrease in real estate allocation.

A recent survey conducted by INREV (2023) looked into the investment intentions of several European institutional investors. The survey suggests that some Dutch institutional investors, among other European institutional investors, have decided to adjust their current allocation to real estate downwards. The chart in Figure 2.1 shows that 37% of the respondents plan to reduce their real estate allocation, which is a significant increase from previous years. For real estate funds, which are discussed in the next section, this could lead to an increase in redemption requests. Redemption requests are requests of institutional investors who invest through real estate funds to redeem (a part of) their share in that fund. According to INREV, the reasons for this decision to reduce real estate allocation could be the denominator effect, the increased level of uncertainty due to rising inflation, interest rates, the aftermath of the COVID pandemic, and the war in Ukraine. The denominator effect is the phenomenon where significant drops in stock and bond values cause a mixed-asset portfolio's overall value to decline, leading to an over-allocation in real estate.

Institutional investors have several options for investing in real estate. As was highlighted by Andonov et al. (2013), one of these options is to invest in residential real estate funds, either private or listed. In the next chapter, these investment strategies will be briefly reviewed. For this research, it is crucial to consider assets owned through such funds, not just directly owned assets. Recent reports on the real estate allocations of pension funds and insurance

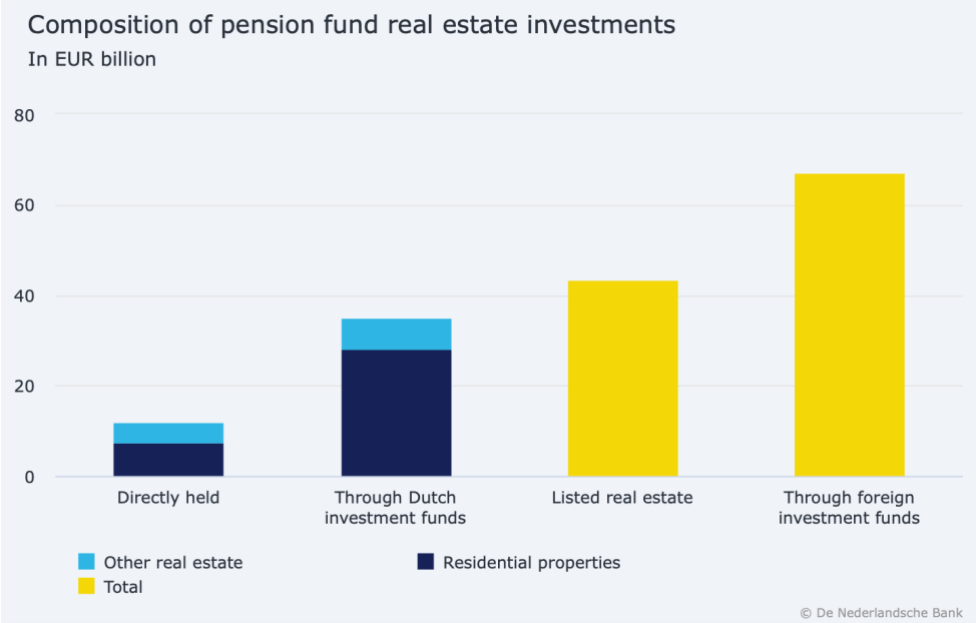

Figure 2.2: Composition of pension fund real estate investments (De Nederlandsche Bank, 2023)

companies show that pension funds now primarily invest in real estate through funds and listed real estate, with a significant focus on residential real estate within the Netherlands and on foreign listed real estate and investment funds (Andonov et al., 2013; Carlo et al., 2021; De Nederlandsche Bank, 2023; Klapwijk et al., 2017). This trend is illustrated in Figure 2.2. Additionally, Klapwijk et al. (2017) found that insurance companies mainly invest in direct Dutch real estate, unlike pension funds. Rousová and Giuzio (2019) noted that insurance companies focus primarily on residential real estate, with 9% of total assets allocated to this sector.

2.3 Real estate investment funds

Real estate investment funds can be divided into two main categories. Private- and publicly traded (or listed) real estate funds. DNB Data shows that a large proportion of property investments in the Netherlands, more specifically by pension funds, are made through property investment funds (Figure 2.2). Real estate funds, whether private or publicly traded, offer investors a way to diversify their portfolios by investing in real estate without the need to personally acquire, manage, or sell properties in different markets, each with unique market and political characteristics (Arnold et al., 2021). Consequently, these funds invest the capital entrusted to them in real estate to provide a certain return for their investors (Amvest Residential Core Fund Annual Report 2022, 2022; Vesteda Annual Report 2021, 2021). They do so either by direct investment, buying real estate, or indirect investment through other real estate funds (Klapwijk et al., 2017; van Loon & Aalbers, 2017). Pension funds and insurance companies can entrust their money to these funds by acquiring a share of these funds, but it is also possible for other (foreign) parties to invest in these funds.

Private real estate funds are those in which the investor does not control the (operational) management of the assets and does not hold a majority stake in the underlying asset (van Gool et al., 2018). Investing in private real estate funds can be viewed as taking part in a legal entity that makes direct real estate investments, and whose shares are not listed for public trading on a stock market. Some private funds have restrictions on the number of participants and, therefore, set a minimal limit on the capital to be contributed. Furthermore, the approval of other shareholders must often be obtained before a party can participate in a fund. Some private real estate funds also invest in other publicly traded funds, making them so-called Fund-of-funds. The fund manager decides on the strategy for the fund. However, this is often coordinated with the shareholders during the shareholders' meeting, and must meet determined conditions. these conditions often also apply to the secondary market where third parties can buy shares of shareholders looking to divest their share in a certain fund.

In the Netherlands, such private real estate funds are often structured as an FGR, or 'Fonds voor Gemene Rekening', roughly translating to a mutual fund. This fund structure is characterized by tax efficiency, as they are exempt from corporate income tax, making it an attractive option for pooling resources from multiple investors to collectively invest in real estate assets. The taxes are effectively transferred to the shareholders, eliminating the risk of double taxation. This structure is particularly beneficial for institutional investors seeking indirect exposure to real estate without being taxed double. Lastly, as is also mentioned by Andonov et al. (2013), externalising often leads to more management expertise, as these funds solely focus on real estate investment. Thus, an FGR serves as an effective fund structure for real estate investment, offering tax advantages, the possibility of easy diversification, and professional management expertise. Finally, larger funds, in general, show better returns and lower management costs due to the 'economies of scale' principle (Ambrose et al., 2005; Dyck & Pomorski, 2011; Malhotra, 2022)

When it comes to publicly traded real estate funds, Real Estate Investment Trusts (REITs) are much-used investment vehicles. The Dutch government adopted companies with REIT-like structures in 1969, just after the United States, to encourage real estate investments (Brounen, 2013). When an investor invests in a REIT, additional rules apply to these REITs or REIT-like structured organisations. For instance, most profits must come from real estate, and real estate assets must account for a specific percentage of total assets. Furthermore, a certain percentage of the profits must be paid as dividends to shareholders (Sotelo, 2013).

that investment funds that are publicly traded

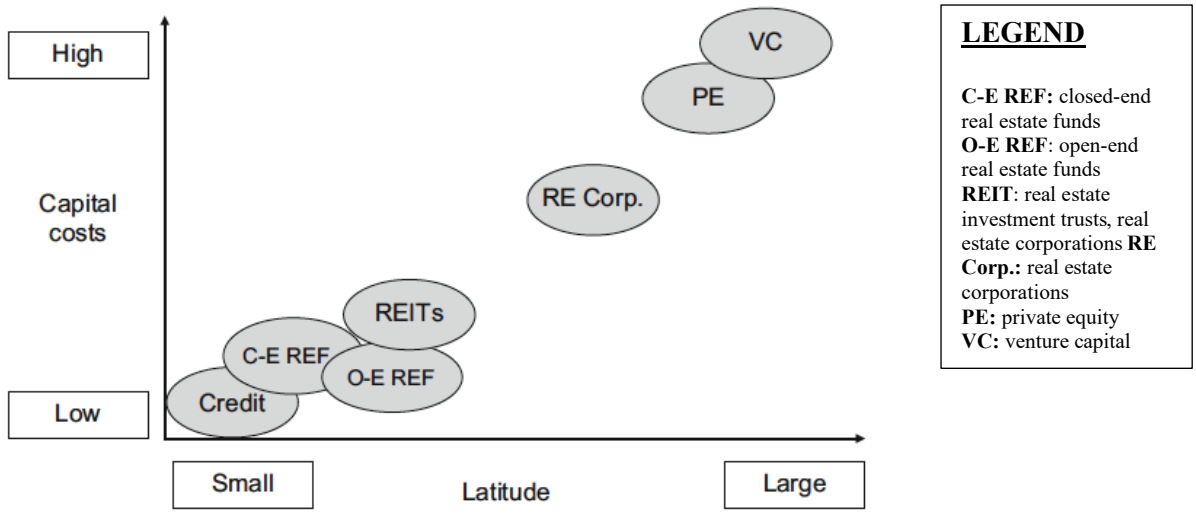

Figure 2.3: Latitude and capital costs of different real estate investment vehicles (Sotelo, 2013)

In the Netherlands, such real estate funds are termed 'Naamloze Vennootschap' (NV), which consequently makes them a 'Fiscale Beleggingsinstelling' (FBI) (Belastingdienst, n.d.-a; Brounen, 2013). This status exempts them from corporate income taxes (Belastingdienst, n.d.-a; Brounen, 2013). The additional rules mentioned that apply to such FBIs, mean that they must pay out 95% of the profits as dividends to their shareholders. In addition, it is noteworthy that these FBIs are also accountable to other requirements, such as debt thresholds, governance prerequisites, and shareholder obligations (Loyens & Loeff, 2018) . The Dutch REIT market has underperformed slightly compared to its European counterparts, yielding an average return of 5.5% in the 25 years of 1988 – 2013 (Brounen, 2013). Furthermore, as per the 1st of January 2025, FBIs may no longer directly invest in real estate in the Netherlands or abroad. The reason for this adjustment is that a tax leak may exist in situations where foreign investors invest in Dutch real estate through an entity claiming FBI-status. It is then possible that the Netherlands can levy neither corporate income tax nor dividend tax. Without further measures, existing real estate FBIs will become subject to corporate income tax as of January 1, 2025 (van Gijlswijk et al., 2022).

Publicly traded real estate funds do tend to be more vulnerable to fluctuations in interest rates, which can be attributed, in part, to their use of leverage when acquiring debt positions.(van Gool et al., 2018). Additionally, it is noteworthy often show a greater degree of correlation with the overall stock market in comparison to their private counterparts on the short term (Morawski et al., 2008). This implies that fluctuations in the stock market are more likely to affect the value of publicly traded funds as compared to private ones. However, it is important to mention that the extent of this correlation can vary based on the specific fund and other factors that are inherent to the real estate segment in which they operate. In the case of publicly traded real estate funds, similar to private funds, investors must comply with the fund's investment policy. The investment policy can be influenced by major shareholders and investors through the shareholders' meeting and other similar means.(van Gool et al., 2018).

For Dutch pension funds and insurers that have either private or publicly traded real estate, or both, on their portfolio, the main differences between both can be found in the liquidity (ease of trade) and the correlation to the stock market.

Another interesting notion to take into account when looking from the perspective of pension funds and insurers is the latitude and capital costs (return) of different real estate investment vehicles as discussed by Sotelo (2013). In essence, a vehicles latitude specifies the variety of options for the money that they receive. The latitude is typically quite restricted if a financier extends a line of credit to an institution because the credit contract explicitly specifies how credit is used. The relation with the capital cost, and thus the return, is an increasing degree of

insecurity with an increasing degree of latitude. Higher expectations for return on investment result from this uncertainty that stems from the latitude allowed, which is essentially independent of the risk due to the volatility of assets (Sotelo, 2013). Figure 2.3 shows this relation for both REITs and real estate funds. In this figure, the abbreviations stand for closed-end real estate funds (C-E REF), open-end real estate funds (O-E REF), real estate investment trusts (REIT), real estate corporations (RE Corp.), private equity (PE) and venture capital (VE).

2.4 Investment strategy

Lastly, in this section, we will look at the different levels of management that can be found in the literature. In this study, we look at the concept of the 'investment strategy' of institutional investors. For this reason, a further exposition of the various aspects of this concept will follow in this chapter. This chapter will investigate the definition of strategy, as well as discuss possible underlying motivations and potential strategy styles that appear in the literature. Finally, it will also link to the tactical level, as defined by Van Gool et al. (2018).

2.4.1 Strategic management

objectives by optimizing the composition of the fund's assets and liabilities, including its investments and (financing) obligations. Furthermore, it involves setting out a The definition of strategy as given by Van Gool et al. (2018) is as follows:

"*Plotting the approach for achieving the investor's long-term objectives.*" (van Gool et al., 2018, p. 157).

The strategic level of management is, as posited by Van Gool et al., often linked to the management of a fund as a whole. This involves achieving the fund's number of investment selection criteria regarding factors such as return requirements, risk measures, investment terms, ESG goals, financing, and social impact. More specifically for real estate as an investment, one might also think about the types of real estate to invest in, to invest direct or indirectly, and what markets/countries (Van Gool et al., 2018).

In the strategic asset allocation within a mixed asset portfolio, real estate is often included for several reasons. As previously mentioned, it has the potential to serve as an inflation hedge. Furthermore, as Umar & Olson (2022) state, real estate often shows superior performance in comparison to the more traditional financial asset classes of equities and bonds. That is, real estate provides comparable returns against lower risk. Furthermore, real estate is also often used to diversify the portfolio (Baum & Hartzell, 2021; Umar & Olson, 2022).

On the regard of investment strategy, Baum & Hartzell (2021) state that the objectives must be described in some form of statement, but that after a determined period, a performance appraisal must also be done as to find out how

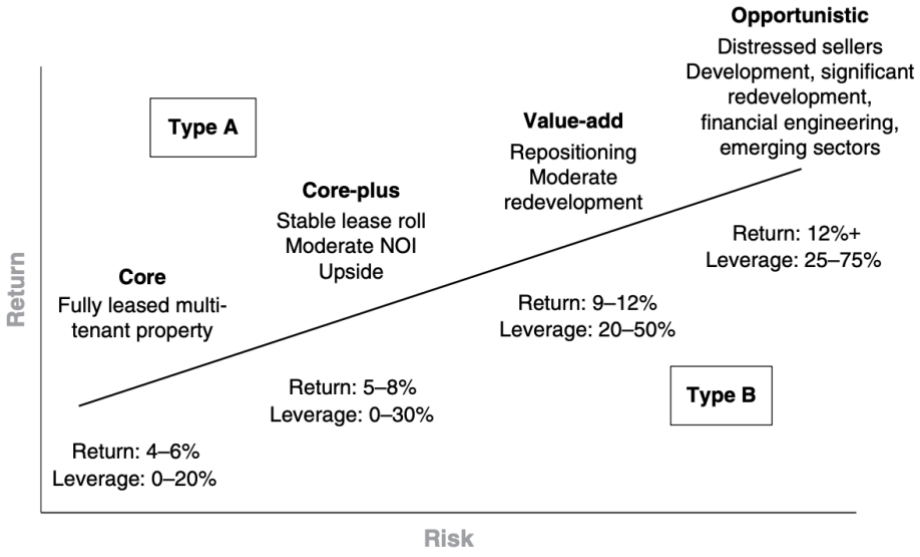

Figure 2.4: Different investment strategies based on risk-return ratio (Baum & Hartzell, 2021)

well the fund performed. This is often done by comparison to benchmarks such as MSCI.

2.4.2 Strategy styles

As mentioned, there are several reason to develop a strategy with regard to the construction of a real estate portfolio. To develop a strategy, clearly understood objectives must be stated, along with a time schedule when which objective must be achieved (Baum & Hartzell, 2021; van Gool et al., 2018). Possible strategies can differ significantly based on factors such as time horizon, risk-return expectations, and the character of the investor.

Four distinct real estate investment strategy styles, delineated by their risk-return profiles, are commonly mentioned within the literature. These strategies span a spectrum ranging from 'opportunistic' investments characterized by higher risk and potential returns, to 'core' investments typified by lower risk and more modest returns (Baum & Hartzell, 2021; Bollinger & Pagliari, 2019; O'Roarty, 2009) (Figure 2.4). Moreover, the opportunistic approach frequently involves a greater use of leverage.

In terms of property types, location, and investment horizon, the core strategy, also recognized as "buy and hold," focuses on the acquisition of high-quality, modern, and strategically well-located real estate assets capable of generating consistent annual income returns over the long term. Conversely, the opportunistic strategy may involve ventures such as new property development or extensive revitalization efforts, including refurbishing existing structures or expanding them with additional floors, followed by repositioning in the market. Additionally, opportunistic strategies often target emerging markets rather than well-established ones, to maximize rental and capital growth within a relatively short timeframe, thus enabling owners to capitalize in a rather short period of time.

D'Arcy & Lee (1998) reviewed diversification by country, city and type as a basis for the development of a real estate investment strategy. Several other authors have also suggested an investment strategy based on geographic diversification and found that (global) diversification offers significant benefits (Hasting and Nordby, 2007; Lim et al. 2008; Hoesli et al. 2002)

2.4.3 Tactical management

On the tactical level, defined by van Gool et al. as:

"*elaborating the strategic policy in concrete terms, by explicitly defining the paths through which the investor's objectives can be fulfilled, whereby certain activities can be instigated or alleviated*" (van Gool et al., 2018, p. 157)

the investment decision (whether to invest in residential real estate or not) is also influenced by the economic context and policy/regulation. Farragher & Savage (2008) have done a survey among institutional investors about their real estate investment decision-making processes, in which their respondents state that searching for investment opportunities, forecasting and/or modelling expected returns and reviewing that forecast are the most important steps in the decision-making process. furthermore, they also indicate that project-specific factors are more important than the strategic and/or overall portfolio-related factors when making the investment decision. To give an example: most of their respondents include operating costs, but a very small part includes refinancing costs.

In conclusion, this study distinguishes between two groups of institutional investors: pension funds and insurance companies, and real estate funds. The former, often considered the prototypical institutional investors, manage diverse portfolios to meet their long-term liabilities, such as pension and insurance payments. The latter, real estate funds, manage investments on behalf of entities like pension funds and insurance companies, focusing specifically on real estate assets. This broader definition aligns with Chen's (2021) perspective that any organization managing money on behalf of others qualifies as an institutional investor. The interconnection between these two types highlights the integral role real estate funds play in executing the investment strategies of traditional institutional investors, and thus in institutional real estate investment

3. Literature review

This chapter shows a theoretical exploration of this research's relevant concepts and definitions. The literature is synthesised to develop a conceptual framework that displays all the pertinent concepts and their relationships. First, the workings of the (Dutch) residential real estate market will be examined, based on the DiPasquale & Wheaton (1992) model. Additionally, different aspects of the economic context that are the subject of this study are touched upon; the inflation and, linked to that, the increased interest rates. The mechanics behind these aspects, how they relate to each other, and their current status and developments are explored. Lastly, several policies impacting the Dutch residential real estate market, which may undergo changes soon or have already undergone recent changes will be delved into. This is done to find how institutional residential real estate investors in the Netherlands react to these (upcoming) changes and adjust their investment behaviour accordingly.

3.1 Modelling the real estate market

This study will investigate how certain factors, the economic context and changing regulation, influence the real estate market and how institutional investors that operate in the real estate market react to these factors. DiPasquale & Wheaton's (1992) four-quadrant model can be used to understand the relationship between the market situation and the influence of the economic context and policy. It is a widely used model to map the relationship between the space market and the financial market, in which the effect of different 'interventions' can be tested. The effects of changing economic circumstances and policies in the Dutch housing market are argued based on the mechanics of the DiPasquale & Wheaton (1992) model. Doing so allows us to draw expectations on the impact of these changes on the Dutch housing market. The DiPasquale & Wheaton model (Figure 3.1) works as follows.

The model splits the real estate market into two parts - the physical/spatial aspect on the right and the asset/financial aspect on the left. When the market is in balance, an equilibrium can also

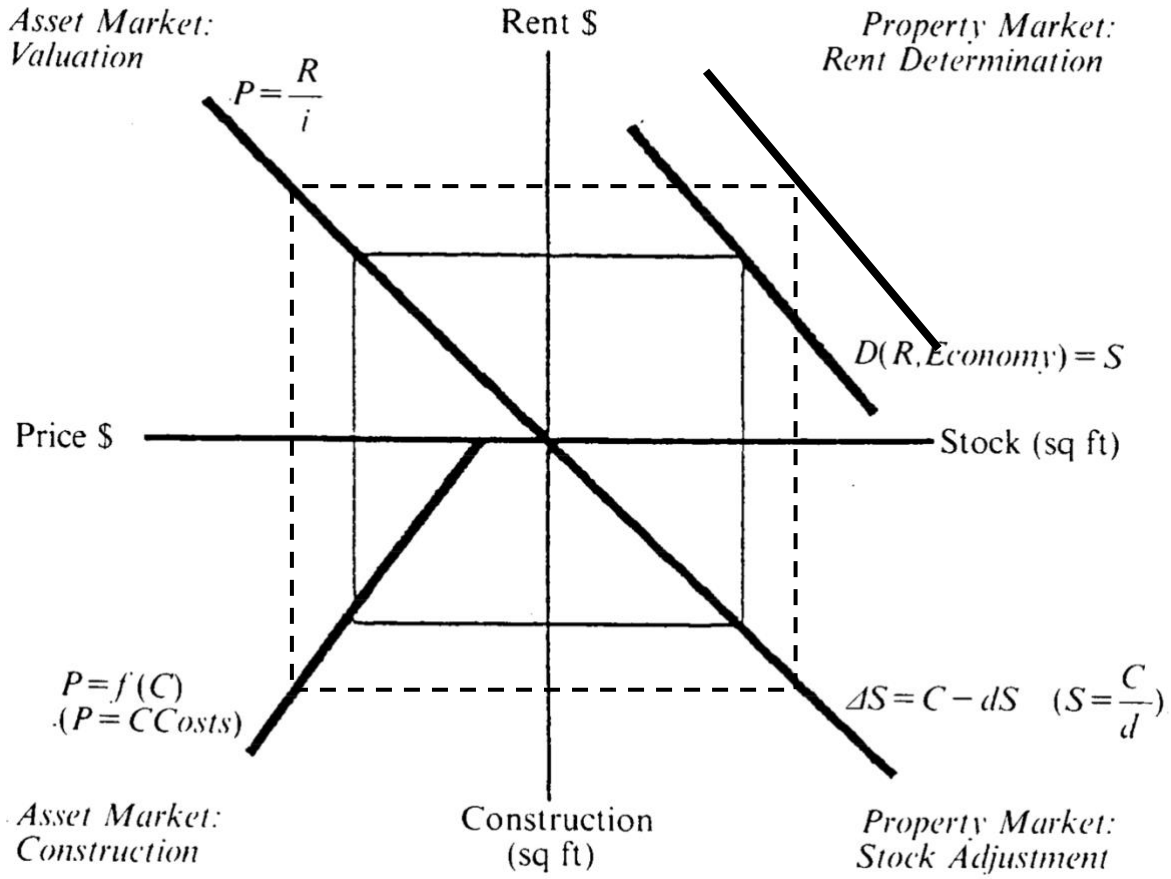

Figure 3.1: Four-quadrant model of the real estate market (DiPasquale & Wheaton, 1992)

be found in the model, represented by a square. In this equilibrium, the Real estate market supposedly is also in balance. Upon observing the top right quadrant, it becomes clear that the demand (D) is equal to the supply (S), in the case of an equilibrium. The demand is a function of factors like rent (R) and the economic climate in this model. The rent can be determined using this demand line. Going up from a particular level of stock (on right the horizontal axis), one can determine the rent (often per m2) by moving left to the vertical axis upon intersecting with the demand curve. Using the capitalization rate (short Cap Rate), this rent can be translated to a price (often per m2) on the left horizontal axis. This is done by dividing the rent by the cap rate, as seen in the upper left quadrant. Here the line, and more specifically the steepness of the line, represents the cap rate.

In the bottom left quadrant, the curve represents the replacement cost of a real estate object per unit. This model assumes that the construction cost per unit goes up if there is more construction activity, based on limited construction capacity within a market. Furthermore, a minimum price is required to get some level of construction; this is where the curve intersects with the price axis. Based on the construction cost curve, the price is converted to a certain amount of construction.

In the final quadrant, the difference in stock is calculated by subtracting the demolished/transformed assets (*dS*) from the newly constructed assets *C*. To assess how factors of the economic context influence this model, these factors must first be defined. This study will look into the effect of the recent surge in interest rates and inflation. Furthermore, several regulation changes also impact the real estate market. The next step is to translate these findings to the DiPasquale & Wheaton model to assess how they might influence.

3.2 The Dutch housing market

The focus of this study is on recent economic and regulatory developments in the Dutch housing market. In the Dutch housing market, 43% consists of two main categories of rented dwellings (Centraal Bureau voor de Statistiek, 2023): the social rented sector and the liberalized rental sector. Of this 43%, 71% is owned by housing associations and 29% by investors. As stated in the introduction, the Dutch housing market has become an attractive market for investors. However, this has not always been the case.

In the previous 10 years, the Dutch government has implemented various interventions in the housing market. In response to the global financial crisis of 2008, new regulations were announced to rebalance the Dutch housing market (Eichholtz et al., 2014). A more conservative government made up of the liberal VVD and the social democrats (PvdA) formulated a landlord levy in 2012 (Priemus, 2014). The landlord levy, or "verhuurderheffing," is a tax on the rental income landlords receive in the Netherlands. The levy came into power in 2013 and applied to all regulated rental properties. Private landlords with more than 10 properties were also subject to the landlord levy. The tax revenue generated by this levy contributed to almost 1.7 billion per annum (Eerste Kamer, n.d.; Hoekstra, 2017; Priemus, 2014). The levy was introduced so that housing associations could continue raising rents with increases above inflation. However, the levy affected not only housing associations but also private- and institutional investors in the regulated rental sector (Hoekstra, 2017; Priemus, 2014). Thus, it was a topic of debate, with some arguing that it discouraged investment in the housing market, given that the law would result in a less favourable investment climate for foreign investors. Consequently, the landlord levy was abolished on the first of January, 2023, with the goal of giving housing associations more means to develop affordable housing (Eerste Kamer, n.d.; Hoekstra, 2017).

Institutional investors were, however, permitted to raise rents in the liberalised rental sector. BZK was very proactive towards potential purchasers about this rent difference. Stef Blok (VVD) served as housing minister from 2012 to 2017, and in that period made a great effort to persuade (international) institutional investors to purchase homes from financially troubled housing associations to facilitate the liberalised rental sector. Before that period, in 2007, the IVBN had filed a complaint with the European Commission concerning the aid granted to housing associations because they also developed housing for the liberalised sector and for sale, while having state guarantees for loans. The European Commission then determined

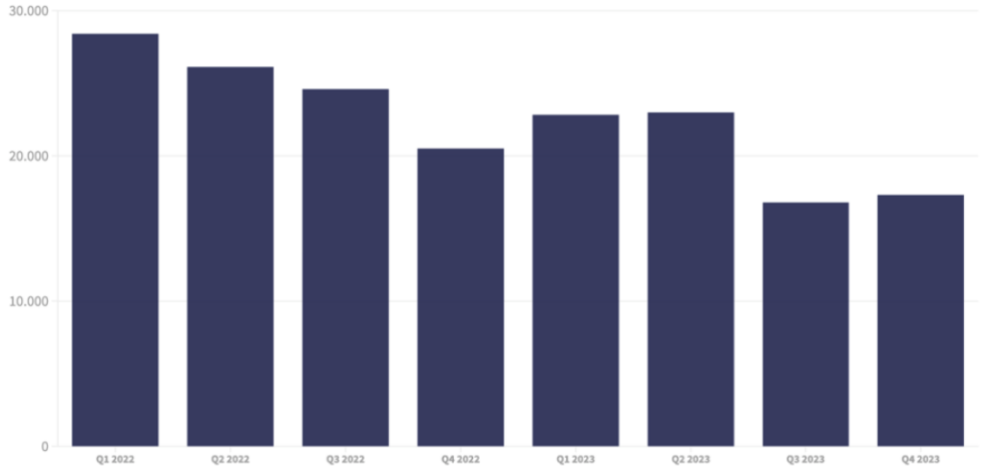

Figure 3.1: Houses becoming available for new tenants in the Netherlands (Pararius, 2023)

that to distinguish between regulated and liberalised rent clearly, there must be a maximum income restriction so that social housing would only be for disadvantaged groups. Those not belonging to such groups would no longer be eligible for social housing. Eventually, this led to housing associations being driven from the liberalised rental segment and people who earned too much for social housing had to rely on the liberalised rental market.

At the same time, changes in the buying sector have made owning a home more financially attractive than renting (Bosma et al., 2018). Specific fiscal measures were implemented to encourage homeownership, such as allowing higher loan-to-value or loan-to-income ratios and a mortgage interest deduction. In the Netherlands, mortgages exceeding 100% of the property value were not uncommon (Wind, 2017). Additionally, the mortgage interest deduction on taxes essentially subsidized those buying a house with a mortgage. This increased the purchasing power of Dutch (potential) homeowners, enabling them to take on larger mortgages and driving up house prices at a relatively steady rate (Figure 3.3) (Wind, 2017). However, recent regulations have tightened mortgage rules, and mortgage rates have risen sharply in the past two years, making it harder for first-time buyers to access the market. Consequently, demand in the rental sector has increased.

As mentioned in section 1.1, the Netherlands is currently facing a housing shortage of 315,000 dwellings (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2021). To combat this, the country has set an ambitious goal of building 900,000 new dwellings by 2030 (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2020). Unfortunately, this shortage has also affected the liberalised segment, which, coupled with the growing demand for dwellings, has resulted in significant pressure on that particular market. The number of rental dwellings in the liberalised rental segment that become available to new tenants has shown a downward trend over the past 2 years (Figure 3.2). On the other hand, the number of responses to these available dwellings has shown an increase in general over the past 2 years, suggesting that demand remains high. For institutional investors, a shortage in the Dutch liberalised segment can be a positive indicator to invest in that market, as was also mentioned by Eichholtz et al. (2014) in their post-GFC analysis of the Dutch residential market as an investment opportunity for institutional investors.

The preceding paragraphs show that the Dutch housing market, and particularly the liberalised segment, is facing a number of challenges. Due to the policies of recent years, more and more people seem to be relying on the liberalised rental segment. This while, as Pararius' rental monitor (2023) shows, the supply of vacant rental housing is shrinking (Figure 3.2). This situation in the Dutch housing market is only made more complex due to sudden economic changes, and a higher degree of uncertainty due to a potential reform of the WWS, and an increase in real estate transfer tax. These factors will be touched upon in the following sections.

3.3 Inflation

Starting with the economic changes, we will first investigate inflation since interest rates, which are also taken into consideration in this research, are often increased in response to battle surging inflation. In this section, we will look at recent developments of inflation in the

Dutch economy, and its relation to real estate. After this section, the link to interest rates will be elaborated upon.

Recently, inflation has risen due to the war in Ukraine and subsequent sanctions on Russian oil and gas. The European Central Bank has stated that half of the recent rise in inflation has been due to higher energy prices, which are timed with the recovery of European economies after the COVID-19 outbreak (Prohorovs, 2022). Afunts et al. (2023) establish that the invasion immediately manifested in higher projections for both short- and long-term inflation. In Germany (the focus of their research), the impact on short-term inflation predictions was an increase of roughly one percentage point. In contrast, long-term inflation forecasts increased by only 0.4 percentage points. In the Netherlands, inflation has also risen due to the war in Ukraine and COVID-19. Data from the CBS on year-on-year CPI development as presented in Figure 3.3 show a very significant spike in the aftermath of the war in Ukraine. However, the figure also shows that inflation has almost returned to pre-Ukraine levels. It must be noted that, per definition, the CPI is not exactly the same as inflation. However, it is a very important indicator, and they often move accordingly. The DNB stated that the inflation will fall from 4.1% in 2023 to 2.9% in 2024, coming closer to the goal of 2% from the European Commission. In 2023, the HICP (Harmonized Index of Consumer Prices) measured inflation at 4.9%, and it is expected to be 3.3% in 2024, according to the European Commission. This index is used to compare inflation rates between different European countries. It differs from the CPI in terms of the commodities and services used to calculate the index. Housing is a component in both indexes, but the HICP only considers rent-prices, while the CPI considers both rent and imputed rent (rent one would pay for the home they own). Therefore, this study will utilize the CPI as it more comprehensively represents the cost of housing compared to the HICP. However, the expected development shown by the HICP supports the inflation expectations based on the CPI, showing a similar trend.

Upon charting the CPI in comparison to the house price index and rent increase development (both percentual), an interesting trend seems to emerge (Figure 3.3). The graph suggests that the increase in housing costs remains stagnant or even becomes negative when purchasing power declines due to rising inflation (CPI). This could be explained by the increased cost of borrowing due to a sharpened monetary policy by central banks. The interest rate increase and its dynamic with inflation will be elaborated on in the next section. Contrary to that, the development of the average rent increase in the Netherlands seems to move relatively similarly to the CPI, albeit less erratic. Dias & Duarte (2019) discovered a comparable pattern in their investigation, which

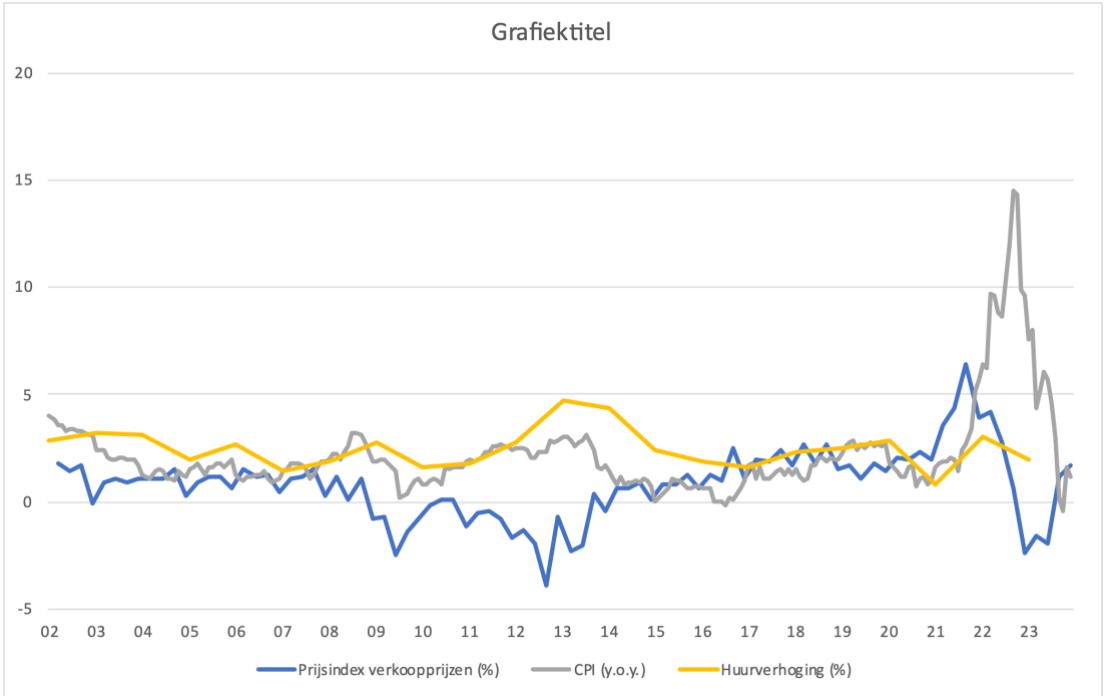

Figure 3.3: Development of CPI, home prices and rent increase (CBS)

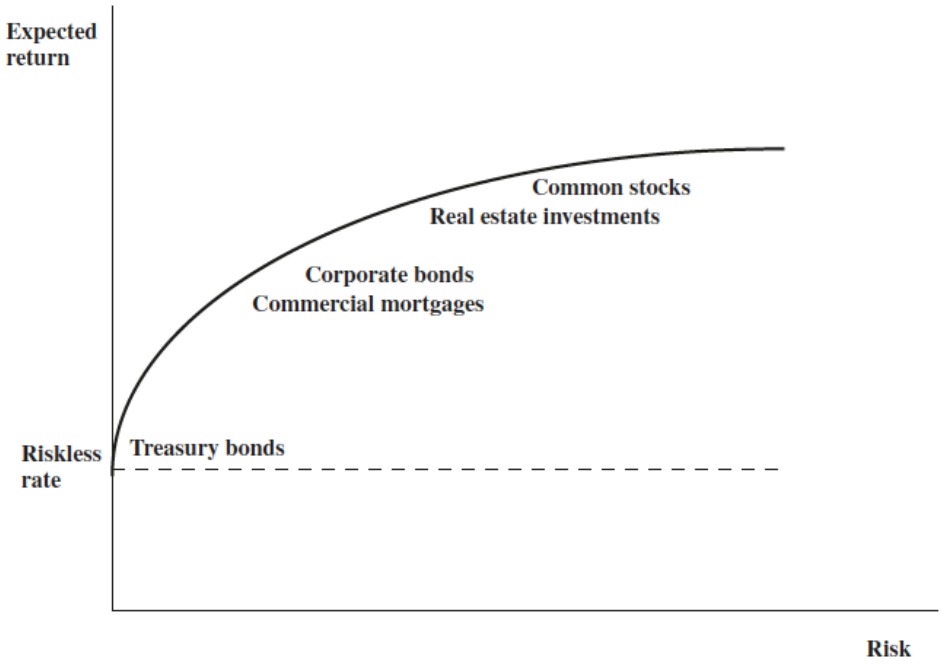

Figure 3.4: Risk and Return Trade-off by Type of Investment (Brueggeman & Fisher, 2011)

demonstrates that, in contrast to housing costs, rents increase accordingly to monetary policy shocks. Their outcomes additionally show that, following a monetary policy shock, there is a decrease in rental vacancies and the rate of homeownership. This suggests that money-related policy may impact decisions regarding housing tenure, specifically the decision to either buy or rent, with increased cost of financing, pushing people to the rental market.

Furthermore, besides the housing costs, according to Musarat et al. (2020), inflation and the prices of building materials are also significantly and positively correlated. This relationship potentially results in cost overruns in building projects, rendering them unfeasible for developers, and dampening the number of (successful) projects. Consequently, many such projects may be postponed until building material costs stop increasing and feasibility improves.

As has been stated before, previous research suggests that real estate exhibits inflation-hedging characteristics against both expected and unexpected inflation on the long-term horizon (Amenc et al., 2009; Huang & Hudson-Wilson, 2007; Le Moigne & La, 2008; Lee, 2003). According to Leombroni et al. (2020), inflation has a significant impact on the value and capital (or indirect) return of existing real estate assets, making it an attractive investment option. Residential real estate specifically shows strong inflation-hedging characteristics according to Huang & Hudson-Wilson (2007). Interestingly enough, this is not due to the direct income from rental income. In the Netherlands, such cash flows that come from rental income are typically indexed annually with CPI along with an additional predetermined percentage. Huang & Hudson-Wilson find that for residential real estate, the inflation hedging ability primarily comes from the capital return. The impact of inflation on real estate returns is relatively modest, indicating the inflation-hedging characteristics of real estate as an asset class. Nevertheless, there are additional mechanisms through which inflation influences real estate.

Revisiting the previously mentioned rent (or direct return) and asset value (or indirect return), for an investor, the value of a real estate object is often derived from the discounted

$$DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \frac{CF_n}{(1+r)^n}$$

CF_1 = The cash flow for year one

CF_2 = The cash flow for year two

CF_n = The cash flow for additional years

r = The discount rate

Formula 3.1: DCF calculation

value of the rental stream produced by the asset (Pagourtzi et al., 2003). Within the income-based valuation methods, Brueggeman & Fisher (2011) distinguish between three different sub-approaches: gross income multiplier, discounted present value and direct capitalization methods. The first method is based on developing Gross Income Multipliers, which depict the relationship between gross income and sale prices for all comparable properties. Thus, this can be seen as a mix between the two other approaches.

The discounted present value is based on the notion that the value of an object is the present value of all future net operating income (NOI) streams. Forecasting the NOI is done based on information and expectations of market supply and demand, lease terms, revenue, expenses and a possible exit value of the property. For the income and expenses, an estimation must be made of the yearly growth of these streams. Furthermore, based on the risk of that object compared to risk-return profiles of other possible investments and other capital market benchmarks (Opportunity Cost of Capital, or OCC) (see Figure 3.4), a discount rate for all NOI cashflows is estimated. The worth of the object (or the discounted cash flow or DCF) is calculated with formula 3.1. The discount rate mentioned in formula 3.1 represents the time value of money or the decrease in the value of money over time. This discount rate thus positively correlates with inflation (Bradley, 1989), as the definition of inflation in the economic sense is the fall of (purchasing) value of money. Looking at formula 2.1 we can see that when inflation, and thus the discount rate, rises, the current value of future income decreases. This, then, can have an impact on the value of investors' assets. Furthermore, the NOI's could decrease if costs increase more than the income.

Additionally, Dewilde (2018) notes that the inflation of house prices within the buying sector, among other factors, has resulted in decreased affordability for young and/or low-income households. Consequently, this has led to an increased demand for the private rental sector, which as mentioned earlier, has become a necessity for these households, as they are often not eligible for social housing. This can also be seen in the development of private market rents, showing a steady upward trend over the past 8 years (Figure 3.5), which suggests that there has been a strong scarcity in the private rental sector in recent years.

It's important to note that the rise in market rents may not be immediately apparent in all rental contracts. This is because most contracts have a pre-agreed annual rent increase for the duration of the contract. In the liberalised segment, the lowest percentage of wage (CAO) growth or inflation guides the maximum rent increase. To the lowest percentage, landlords are allowed to add 1%. The inflation rate (CPI) from December 2022 to December 2023 was 4.5%. The CAO wage trend from December 2022 to December 2023 is 5.8%. Therefore, the lower inflation rate will be used as a base for the maximum rent increase in 2024, which will thus be 4.5%.

Later in this chapter, we will discuss a proposed regulation by Minister De Jonge aimed at curbing the inflation of rental prices. The literature on the effectiveness of rent controls is divided. On one hand, O'Toole et al. (2021) found that overall rent controls can have a positive impact, with rental inflation rates in their study dropping by about 1-2 percentage points after the introduction of regulations in Ireland. As can be seen in figure 3.5 the rent prices have grown virtually with inflation over the past years, resulting in high average housing

Figure 3.5: Rent development per square meter in private rental market (NVM, n.d.)

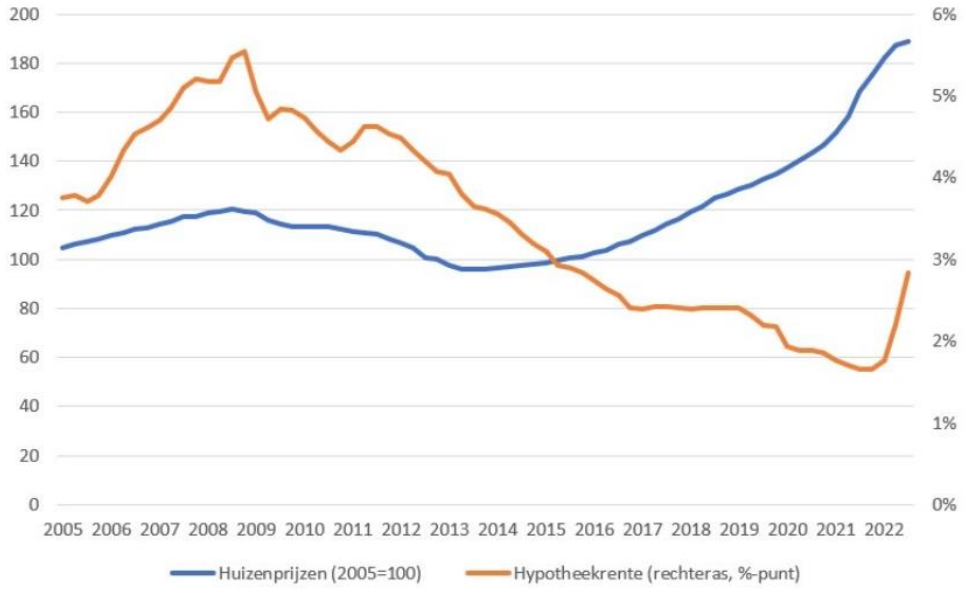

Figure 3.6: relation between interest rates and house prices (De Nederlandsche Bank, n.d.)

costs, which are also taken into consideration when determining the CPI.

3.4 Interest rates

In this section, the interest rates are discussed. A couple of topics are considered: the risk-free rate and its relation to inflation, and the solvency regulation for insurers, that regulate the lending of money by insurers. The latter is less of importance to the model of DiPasquale & Wheaton. However, it is very much influenced by interest rates and is thus an interesting topic to look into in this chapter

3.4.1 Risk-free rate and inflation

The inflation rate in the Netherlands has shown a significant peak over the past years, surpassing the target of 2% (Centraal Bureau voor de Statistiek, n.d.). The Dutch National Bank (DNB) and the European Central Bank (ECB) have predicted that this trend is likely to continue and inflation will remain slightly above the target of 2% (De Nederlandsche Bank, 2023a; European Commission, 2023). In response, the Governing Council of the European Central Bank (ECB) has implemented a stricter monetary policy to bring inflation back to the target of 2% (European Central Bank, 2023). This policy involves an increase of 50 basis points in the three key ECB interest rates, including the interest rate on the main refinancing operations, the interest rate on the marginal lending facility, and the deposit facility rate (European Central Bank, 2023).

The deposit facility rate refers to the interest rate that banks receive for depositing funds with the central bank overnight, while the marginal lending facility rate is the rate at which banks borrow money overnight. The main refinancing rate is the interest rate at which banks can borrow money from the central bank for a week (European Central Bank, 2023). With these key interest rates, the ECB possesses the necessary instruments to curtail purchasing and lending power and thereby mitigate inflation through implementation of a stringent monetary policy. The elevation of the key interest rates will effectively increase the cost of borrowing and restrict the supply of money, thereby curbing inflation.

The Taylor Rule describes how central bank policy rates are related to inflation and economic growth (Taylor, 1993). Although Taylor based his rule on the policy of the American Federal Reserve, it is also often used in relation to other central banks when assessing their monetary policy or defining determinants for the interest rate setting (Gross & Zahner, 2021). The rule prescribes a higher federal funds rate when inflation is above the inflation target and a lower one if inflation is below the inflation target. The Taylor Rule formulates the connection between the central banks' interest rates and inflation as follows:

$$r = p + 0.5y + 0.5(p - 2) + 2$$

Where:
r = nominal funds rate
p = the rate of inflation
y = the percentage deviation between the current real GDP and the long-term linear trend in GDP

Formula 2.2: Taylor Rule

The equation for the ideal federal funds rate takes into account both the inflation rate (p) and a fixed value of 2% above inflation. This equilibrium serves as a baseline, and the federal funds rate is expected to fluctuate by half the difference between targeted and actual inflation. Overshoots in inflation will cause the rate to increase, while undershoots will lead to a decrease.

To combat inflation, the European Central Bank (ECB) has the tools to tighten monetary policy and reduce purchasing power and lending capacity. This is achieved by increasing key interest rates, making borrowing more expensive for both individuals and organizations. In this situation, banks can deposit money with the ECB at a higher rate, driving up interest rates for loans to individuals and organisations, due to their higher presumed risk. The cost of borrowing from the ECB or other central banks also increases, leading to higher borrowing costs for banks, and consequently for individuals and organisations. As shown in Figure 2.5, this has resulted in a rise in mortgage rates, which has slowed the growth of housing prices.

These high mortgage rates affect the real estate market by directly influencing the financability of real estate. Higher interest rates influence the amount an investor can borrow to invest in real estate. Especially if the income does not rise accordingly to cover extra debt services. Furthermore, higher interest rates also mean that buyers generally have more difficulty qualifying for a loan (Brueggeman & Fisher, 2011), which can cool down the market, lowering real estate prices. This phenomenon has also been visible in the Dutch market in recent months. Since the peak in 2022, the growth of housing prices has slowed down substantially (De Nederlandsche Bank, n.d.). This relation also becomes visible in Figure 3.6, showing that since Medio 2009, mortgage rates have gone down, and house prices have gone up. In 2022, mortgage rates went up quickly, which led to a slowing down of house price growth.

It is worth noting that such developments can have a substantial impact on the risk-free rate, which is often employed as a fundamental basis for estimating the anticipated rate of return for any given investment. The risk-free rate represents the interest an investor would expect from an absolutely risk-free investment over a specified period of time (Hayes et al., 2023). However, as investing is never risk-free, such a product does not exist and thus government bonds are often used to determine the risk-free rate. In this study, the risk-free rate that will be used is the Dutch government bond with a 10-year maturity, as real estate calculations are often based on a 10-year holding period, and thus the 10-year government bond is often used (Cheng et al., 2010; Hutchinson et al., 2011). As can be seen in Figure 3.7, the Dutch 10-year government bond yields have increased drastically over the past two years. As a result, it implies that the necessary rate of return for real estate investments increases proportionately (also see Figure 3.4). This is because it is generally believed that the required return is made up of two components; a risk-free rate and a risk premium that reflects the typical risks associated with that particular investment (Hutchinson et al., 2011). This increase in the required return can further be translated into a higher cap rate that is being used in practice, leading to lower valuations of standing and new real estate investments.

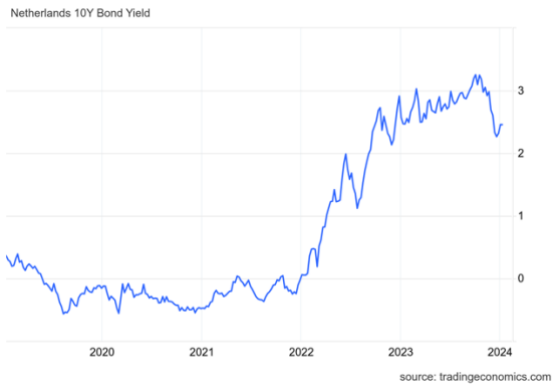

Figure 3.7: Development of Dutch 10yr bond yields

Finally, the rising risk-free rate also influences investor sentiment in the market.

3.4.2 Solvency

An important metric for insurers that relates to the interest rate developments, is the Solvency regulation. Although these regulations have not undergone any drastic changes, it plays an important role for insurance companies. Under the Solvency regulation, insurers are obligated to maintain a certain level of financial health. The Solvency II regulation is build up in three pillars (De Nederlandsche Bank, 2016):

1. Pillar 1 focusses on the quantifiable risks and the related provisions and capital requirements.
2. Risk- and operational management
3. Disclosure of information requirements and supervisory reporting.

The first pillar focuses on the calculation of capital reserves insurers must maintain. It sets out the standard valuation method for their liabilities and the capital requirements that correspond to the risks that come with the liabilities. To calculate the needed capital reserves, it also offers a standardized formula that takes into consideration all risk types. The required capital to be held by insurers is known as the Solvency Capital Requirement (SCR). Besides the standard formula provided by the regulator, the SCR can be calculated by using the standard model partially combined with an internal model, with organisation-specific parameters, with simplifications, or a fully internally developed model approved by the regulator.

The second pillar focuses on the management of risks and governance. Insurers have to do an Own Risk & Solvency Assessment (ORSA), meaning they must assess their risk and solvency positions under normal and severe stress scenarios. This means analysing all foreseeable quantifiable risks that could affect an insurer's ability to meet its obligations. Examples of such risks include underwriting, market, operational and counterparty risks.

The third pillar requires firms to produce two key reports each year: the Solvency and Financial Condition Report (SCFR), and the Regulatory Supervisory Report (RSR). The first is to be made public each year, whereas the second is to be submitted to the regulator.

In the SCR models, the interest rate risk is also taken into consideration, (Gatzert & Martin, 2012). The interest rate risk can be defined as: the risk that when a company has a low interest cover and is heavily leveraged, a rise in interest rates could have a major negative impact on profitability (Morris et al., 2009). In most standard and internal models to calculate the SCR, this interest rate risk is part of the market risk, one of the quantifiable risks that are considered in the SCR formula. Other risks that are taken into consideration are for example underwriting risks (insurance underwriting is defined as the process of agreeing to bear the financial risks inherent to an insurance contract), and credit risks, operational, and counterparty risk

3.5 Changing regulations

In this research, several regulatory changes are taken into consideration. These are mostly changes that affect the exploitation of residential real estate and will thus mostly impact the real estate fund group. However, this means that, albeit indirectly, insurers and pension funds will also have to deal with the consequences. In this paragraph, we will briefly go by these regulations, and what the changes are.

3.5.1 Transfer Tax

As of January 1st, 2023, the real estate transfer tax (RETT) rate in the Netherlands has increased from 8% to 10.4% for the acquisition of real estate (or a share in a real estate entity), except for owner-occupied homes. This marks a significant change from the previous rate of 6% in 2020. However, there is an exemption in place to protect those who are new to the housing market. Individuals aged 18 to 35 who purchase a home for less than €440,000 are exempt from paying transfer tax. This exemption provides a valuable advantage to first-time homebuyers who would otherwise be subject to the additional expense of transfer tax during the bidding process. However, the same rate applies to real estate investors, which does impact their business case for new acquisitions and standing investments.

Several studies show that a rise in transfer tax negatively impacts house prices (Benjamin et al., 1993; Dachis et al., 2012; Dolls et al., 2021). Dolls et al. discovered that for every 1%

increase in transfer tax, property value decreases by 3%. Similarly, in their Toronto experiment, Dachis et al. (2012) noted a decline in housing prices that was approximately equal to the increase in transfer tax. Although the extent of this effect may vary across different markets, it is evident that increasing the transfer tax generally results in a decrease in property value. Furthermore, empirical research from Germany, Canada, and the United States shows that an increase in transfer tax also negatively impacts the number of transactions in a real estate market (Benjamin et al., 1993; Dachis et al., 2012; Dolls et al., 2021; Fritzsche & Vandrei, 2019; Kopczuk & Munroe, 2015). Interestingly enough, a peak in transactions is often observed in the month(s) leading up to the actual change in transfer tax. The Toronto case shows that this increase in transactions in the greater Toronto area was a month prior to the introduction of transfer taxes.

When it comes to real estate investing, the duration of ownership is affected by the implications of transfer taxes. Cheng et al. (2010) state that a longer holding period mitigates the effects of transfer costs for real estate, of which transfer taxes make up a significant portion. Suggesting that an increase in transfer cost would lead to a longer holding period for the real estate assets. As Cheng et al. also state, when an object is sold critically affects the expected overall return in that object, as it often provides the largest positive cash flow in a DCF calculation.

Looking at the most basic real estate exploitation calculation, we can see that an increase of the transfer tax has a possible impact on the purchase price in the beginning of the exploitation or on the exit value of the asset at the end of the exploitation. This both has to do with the increased cost of purchasing a real estate asset. The party that buys the property has to come up with more money, if the property is sold for the same price, because the RETT is calculated over the purchase price. The other option is that the buyer cannot come up with more money, and negotiates a lower purchase price, to stay within budget. For the current owner/investor, this would mean a lower exit value, or in the case the price remains the same, for the new owner/investor this would mean a higher initial investment. If all stays the same, both of these scenarios lead to a lower ROI.

3.5.2 Expansion of the WWS

This section will address the expansion of the WWS as proposed by De Jonge (Kamerbrief Regulering middenhuur, 2022). In urban areas, there is a shortage of rental housing options for middle-income earners, which is a cause for concern. This shortage could make these areas unavailable to those who need affordable housing, among which those who work in socially relevant professions. These professionals are vital to the functioning of the community and for that reason they must have access to affordable housing in the current tight housing market.

With a proposed expansion of the WWS regulations, De Jonge aims to find a balance between improving accessibility to mid-rent dwellings while maintaining a steady supply of mid-rent dwellings. This is done by focusing on four main pillars:

1. Protection of the tenant
2. Enough affordable dwellings
3. Maintaining investors' willingness to invest
4. Stimulating sustainability of rental housing.

To do so, the WWS will be expanded so that mid-rent houses will also become regulated. The upper limit will be 187 points, which corresponds with a rent between €1,000.- and €1,250.-. This will be applicable for new contracts for the non-DAEB. Furthermore, it is a temporary regulation that will be in effect as long as necessary. To do so, the WWS will be mandatory. If landlords charge excessive rents for properties that fall into the regulated segment, they risk a fine. The annual rent increase will be maximized following the CAO wage development + 0.5%, as opposed to the now much used CPI. The complete draft of the regulation of the mid-rent segment is outlined in Table 2.1.

With regard to planned and new development, De Jonge aims to commit to building more houses. Within the ambition to build 900.000 houses by 2030, the goal is that roughly 40% fall within the affordable segment (rent or buy).For investors, they must be assured that their investment can yield a certain return.

Element	Elaboration
1. Max. regulated middle rent	Up to 186 points (approximately €1,123 in 2023). The WWS is indexed annually with inflation and is expected to reach about €1,100 when the law comes into effect.
1.1 Scope	Regulation of mid-rent segment will apply to new contracts.
1.2 Duration	The regulation applies temporarily as long as there is scarcity in the mid0rent segment and is periodically evaluated for necessity. Towards the elaboration of the bill, the indicators for this will be specified. On this basis, it can be determined whether the legislation is still necessary under changing circumstances.
1.3 Modernization of the WWS	• Maximization of the WOZ-value in the WWS will apply from 187 points, which means that for houses above this limit the WOZ-value may provide a maximum of 33% of the total number of WWS points. This will prevent dwellings from being liberalized solely because of a high WOZ value. • Heavier weighting of energy labels: good labels will be valued even more than is currently the case and bad labels (E, F and G) will lead to a deduction of points. • Outdoor spaces are better valued. As a result, there will be a difference in the rating of outdoor spaces up to 25m2.
2. Annual rent increase	The annual rent increase will be maximized according the CAO wage development +0.5%
3. Allocation to middle-income households.	For allocation, the current possibilities offered by the Housing Act 2014 are followed. This allows municipalities to set rules whereby middle rental housing can be allocated with priority to middle-income housing seekers. However, the definitions of middle rent and middle income will soon be laid down by law. Municipalities will retain the option of expanding the segment for which they want to set allocation rules.
4. Agreements between municipalities and developers	The premise is that regulation will apply to both existing construction and new construction. Discussions will be held with municipalities, investors and developers about what this means for projects they have already agreed on. As part of a transitional regime, De Jonge wants to allow - precisely to avoid delaying construction production of projects that are currently being designed - a temporary price surcharge for new construction projects that are delivered after January 1, 2024, and whose construction started before January 1, 2028. This surcharge on the maximum rent according to the WWS is 10% for 20 years.

Table 3.1: Elaboration on key elements of WWS expansion bill (Kamerbrief Regulering middenhuur, 2022)

Of the 350.000 dwellings in the affordable segment (40% of 900.000), 300.000 must be realized by market parties. This means that socially engaged investors are necessary. De Jonge states that pension funds and institutional investors are pre-eminent parties to fulfil this role. These parties have committed to exert themselves to realise 50.000 mid-rent houses.

Several reports have been written in response to De Jonge's proposition. These reports provide a good initial interpretation of the consequences of these proposed policy changes. According to CBRE's report (Westerhof & Verwoerd, 2022), approximately 327,500 rental properties will be affected by the new policies. The new policy will significantly limit the rent that can be charged, resulting in an average rent reduction of 26%. However, the impact of the new policy will vary depending on the characteristics of the dwelling. For instance, smaller homes with low energy labels will be hit the hardest, whereas dwellings with good energy labels will be rewarded more. Moreover, the location and the

Figure 3.8: Minimum GBO for new-build homes to be rented out in the liberalised sector (Westerhof & Verwoerd, 2022)

WOZ value also impact the number of points. This is particularly impactful for new residential units. Figure 3.8 shows the minimum floor space that must be built to exceed the liberalization threshold, based on the same internal quality and the average WOZ value in that city. It can be seen from the figure that the WOZ value, especially in Amsterdam, Haarlem and Utrecht, has an important share in determining the number of WWS points. This also implies that if more points can be gained from the WOZ value, the share of points from usable area (GFA) is lower, and therefore new flats in these cities can be smaller and still come out above the liberalisation threshold. Lastly, the reports mention that real estate developers will seek more frequent cooperation with housing corporations to realize housing in the middle segment. The extent to which institutional investors will be active in this segment depends on the level playing field on which institutional investors and housing corporations can compete. So far, the level playing field between these parties seems insufficient to assume a major role for institutional investors in this new regulated middle segment.

More recently the Council of State has also written a piece of advice concerning the new bill (Raad van State, 2023). They state that making the WWS point system mandatory contributes positively to the social sector. For a good flow in the housing market, there must, however, also be a sufficient supply of affordable rental housing in the liberalised rental sector. The Council of State comments that, in the bill, the government pays insufficient attention to the causes of scarcity in the market and the interaction between the social sector, the owner-occupied market and the liberalised rental sector. Lastly, they also express the concern that regulation of the free rental sector opposes the risk that property owners and institutional investors are no longer willing to invest in the rental market and withdraw, leading to an even smaller supply.

3.6 Hypotheses based on DiPasquale & Wheaton model

To hypothesize how different aspects of this study intervene with the model of DiPasquale & Wheaton (1992), and thus what their expected influence is on the real estate market, we will now go by each aspect and highlight how they affect the model. Each aspect, the expected changes and the consequences will also be visualized in the original model of DiPasquale & Wheaton (1992).

3.6.1 Interest rates

In this study, the impact of fluctuations in interest rates on real estate determinants is examined in DiPasquale & Wheaton's model of the real estate market. The real estate determinant from the DiPasquale & Wheaton model affected by interest rates is the cap rate. The cap rate is the ratio of a property's net operating income (NOI) to its market value. It is used to estimate the potential return on investment for investors. According to Sivitanides et al. (2001), cap rates, which are represented in the top left quadrant by the factor 'i' in the price equation, are also influenced by capital markets and policy factors such as interest rates, expected inflation, or tax regulation. Low interest rates tend to decrease cap rates, leading to higher demand for real estate and increasing property values, as mentioned by Conner & Liang (2005). Conversely, if interest rates rise and the cap rate increases with it, the value of a real estate property would decrease, if the NOI remains constant. DiPasquale & Wheaton describe in their paper that the curve in the top left quadrant moves clockwise when cap rates increase and counterclockwise when cap rates decrease.

DiPasquale & Wheaton also mention in their paper that an increase in interest rates means that investors require a higher income from a real estate asset, most likely to cover higher debt services. Commercial real estate financing often shows different interest rates than private mortgages. This is mainly because cap rates are often based on, among other components, interest rates and risk-free rates (Larriva & Linneman, 2022).

Thus, we can assume that in the current situation, where interest rates have risen substantially, the cap rates will rise accordingly. In the model, this means that the curve in the upper left quadrant will move clockwise slightly (Figure 3.10). Finding a new equilibrium in this scenario, if all other things stay the same, appears to be difficult. In this situation, for the same rent, less can be paid, as the cap rates have risen. Thus, less can be built. The effect of this is that the stock will

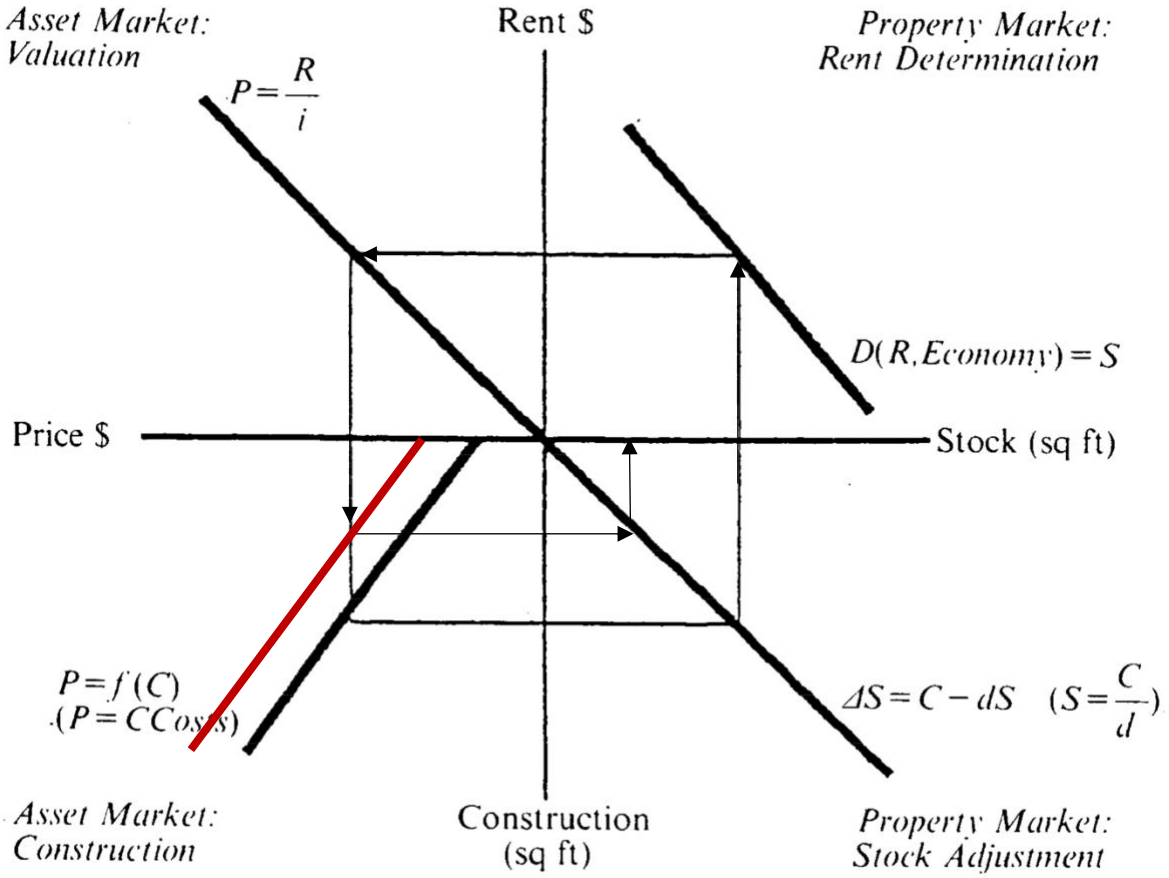

Figure 3.9: Four-quadrant model of the real estate market, adjusted for increased inflation (DiPasquale & Wheaton, 1992)

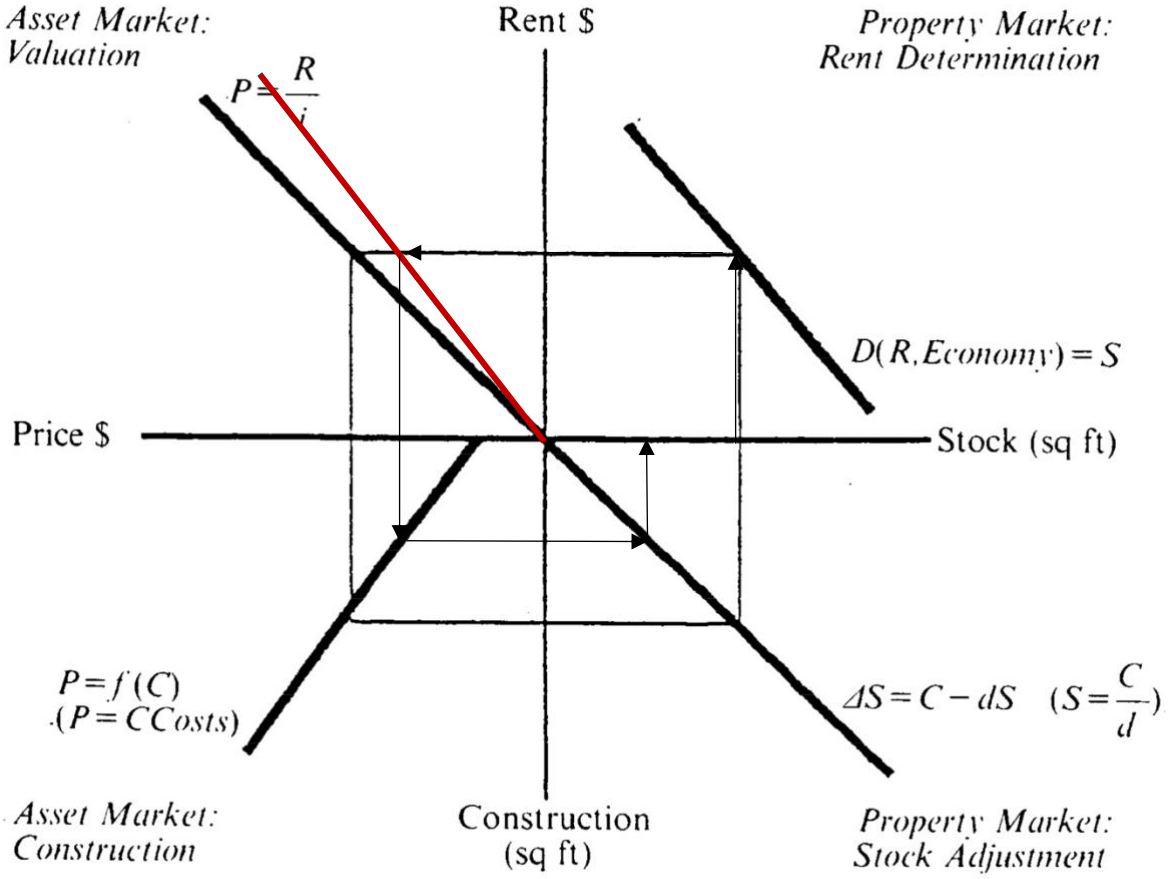

Figure 3.10: Four-quadrant model of the real estate market, adjusted for increased cap-rates (DiPasquale & Wheaton, 1992)

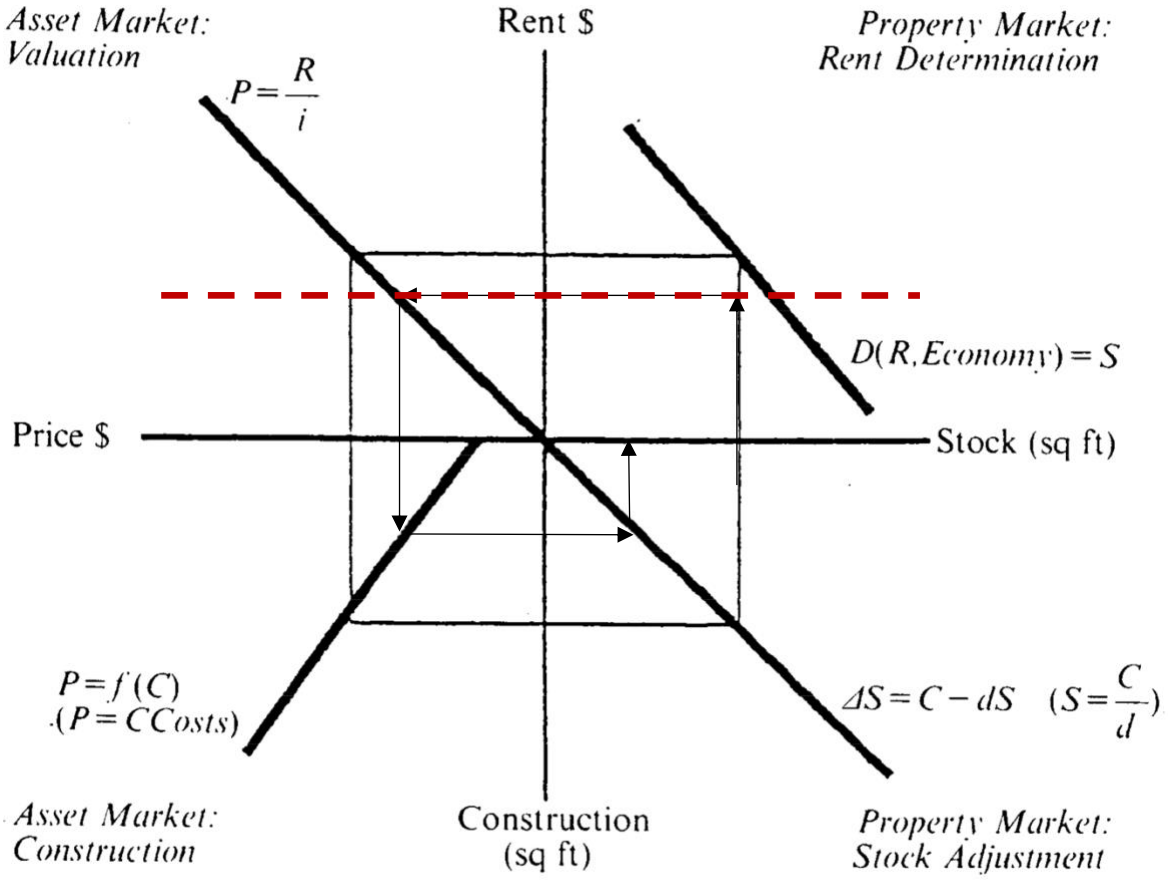

Figure 3.11: Four-quadrant model of the real estate market, adjusted for capped ret (DiPasquale & Wheaton, 1992)

go down if mutations in the current stock (for example transformation, demolition or, more specifically for the rental market, sale of rental dwellings to owner-occupants) remain at the same level. Consequently, this will raise the rent, if demand stays the same.

3.6.2 Expansion of the WWS

In essence, the new WWS regulation sets a maximum rental price for applicable assets, which can be modelled well in the four-quadrant model of DiPasquale & Wheaton (1992). This has significant implications for the upper portion of the model, as rental price serves as the foundation for the asset's value on the price axis. A rental cap disrupts the balance between stock and rent, potentially resulting in a rental income decline, which in turn affects the asset's overall value. This dynamic might be inflated by the way the demand curve moves outward when demand in the market increases according to DiPasquale & Wheaton. They state that the demand curve is shifted outwards if economic or demographic factors increase the demand for real estate, leading to a new equilibrium that is represented in Figure 3.1. A cap on the rent might especially lead to a decrease in value in in the 'new' equilibrium with a growing demand (like the Dutch market), as the 'market rent' would lie above the maximized rent, visualized by the red line in Figure 3.11. Eventually, because of the same dynamic we saw with the increased cap rates between valuation and construction, a lesser value per m2, leads to a decrease in stock according to the model of DiPasquale & Wheaton.

3.6.3 Increased inflation

According to DiPasquale & Wheaton, the price for the same amount of space built is affected by various factors, including increased material cost, short-term rates, and building regulations, all of which contribute to higher development costs and reduced profitability for new construction. As was discussed in section 3.3, the surge in inflation over the past year contributes to these factors. The model shows that construction will decrease if the asset price per m2 remains constant on the horizontal axis, as the curve for new construction shifts leftward due to rising construction costs. As a result, stock will decline, rent will increase, and prices will rise, eventually allowing for more construction. This will eventually lead to a new equilibrium, assuming all other factors remain stable.

3.6.4 Increased transfer tax

Finally, in the model of DiPasquale & Wheaton, the upper left quadrant is also influenced by tax regulation, having the same effect on the curve as increased interest rates, which is also shown in Figure 3.7. Higher taxes, among which transfer tax is also considered, lead to a lesser price per unit. As with the increased interest rates, this will lead to a decreased development of new units, leading to a decrease in the stock. Ceteris paribus, this will lead to higher rental prices, higher prices per unit, higher construction and a recovery of the stock. Eventually, this will lead to a new equilibrium in the model.

3.7 Conclusion

Concluding this chapter, DiPasquale & Wheaton's (1992) four-quadrant model is applied to analyse how economic context and regulatory changes impact the Dutch real estate market and institutional investors' responses. The model helps predict the effects of interest rates, inflation, and regulations by assessing the equilibrium between demand, rent, price, and construction costs. The Dutch residential market offers investment opportunities for institutional investors because of a housing shortage (315,000 dwellings in the mid-rent segment), though it faces challenges from inflation and regulatory changes. Recent economic conditions, influenced by the war in Ukraine and post-COVID-19 recovery, have driven inflation, which affects borrowing costs and real estate development.

As of January 1, 2023, the real estate transfer tax (RETT) in the Netherlands increased from 8% to 10.4%, which studies show generally decreases property values and transaction numbers, impacting real estate investment returns and holding periods. Additionally, Minister De Jonge proposed expanding the WWS regulations to address the shortage of rental housing for middle-income earners. This regulation applies to new lease contracts and aims to balance tenant protection, housing affordability, investor willingness, and sustainability. Measures include rent caps, energy label incentives, and annual rent increase limits. Reports suggest this will affect

approximately 327,500 rental properties, potentially reducing average rents by 26% and influencing new housing developments.

The study also examines the relationship between interest rates and inflation for institutional investors in the Netherlands. The ECB has raised key interest rates to combat inflation, not only impacting borrowing costs, but the real estate market, leading to higher mortgage rates and slowing house price growth. Insurers must maintain financial health under Solvency II regulations, which include managing such interest rate risks and other risks. Finally, rising risk-free rates influence investor sentiment and required returns on investments.

Implementing these factors into the DiPasquale & Wheaton model, the research hypothesizes that the combination of increased RETT, expanded WWS regulations, and economic conditions would negatively affect the supply of mid-rent dwellings. All factors point to a scenario where the market undershoots demand, suggesting that these combined aspects will lead to a decreased supply of rental housing in the mid-rent segment of the rental market.

4. Conceptual model

The conceptual model, which is set out in this chapter, will show the relationship between the different concepts that have been discussed in the previous literature review chapters. This will then serve as the foundation of our research questions. These concepts are operationalised in the second section of this chapter. This is done to make them measurable. Finally, this chapter will also cover the different sub-research questions which are developed to divide the main research question into a subset of smaller, manageable sub-questions.

4.1 Developing the conceptual model.

The literature review serves as an exploration of key concepts underlying the central research question. These concepts are synthesised into a conceptual model, clarifying their interconnectedness. Subsequently, the interview protocol is developed by operationalising these concepts in section 4.2 and chapter 5, facilitating the collection of qualitative data and, ultimately, answering the research questions.

Figure 4.1 illustrates the conceptual model underlying this study. Starting with the "investment/divestment" variable, positioned on the far right, representing the decision whether to invest (or divest) in a residential real estate asset. This dependent variable is mainly influenced by the variable of "investment strategy," situated to its immediate left, which, in turn, is dependent upon the type of institutional investor as defined in Chapter 2, located at the far left of the model. This dynamic on the horizontal axis of the model also shows the dynamic between strategic and tactical levels, as was mentioned in Section 2.4. The different motivations inherent to the different types of institutional investors translate into distinct goals within the investment strategy, thereby yielding different investment behaviours and portfolios.

Furthermore, the relationship between the "investment strategy" and "investment/divestment" variables is affected by the moderating variables “economic context" and "policy changes." These moderating variables influence how the investment strategy manifests into actual investment actions (Khanfer et al., 2013). Notably, these moderating variables are not influenced by the variables on the horizontal axis of the model.

This study defines the dynamic between the ‘investment strategy’ and the eventual ‘investment/divestment’ variables as the

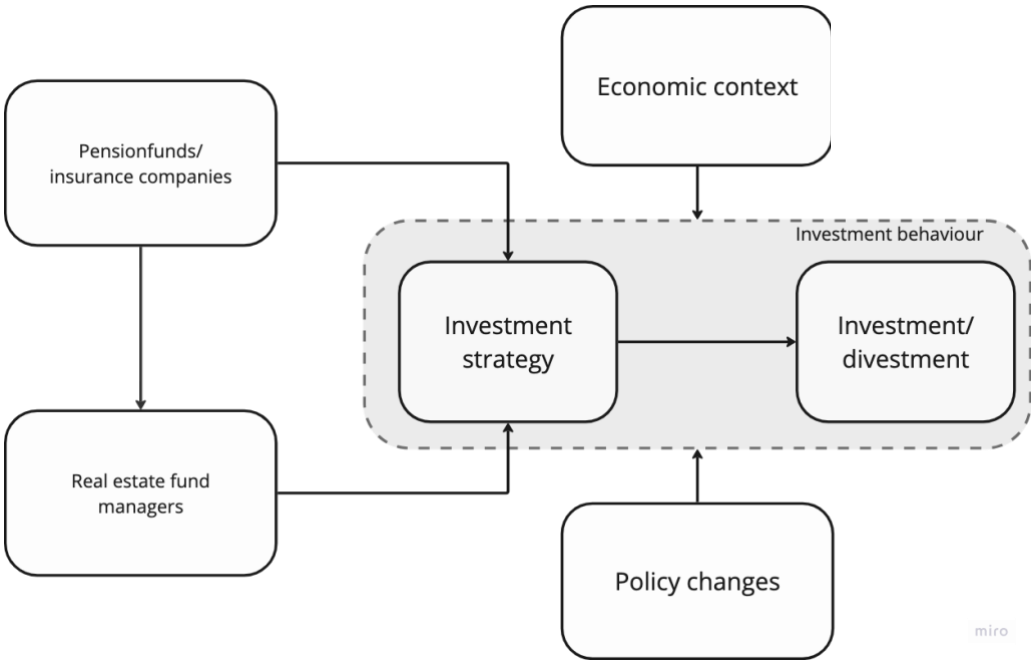

Figure 4.1: Conceptual model

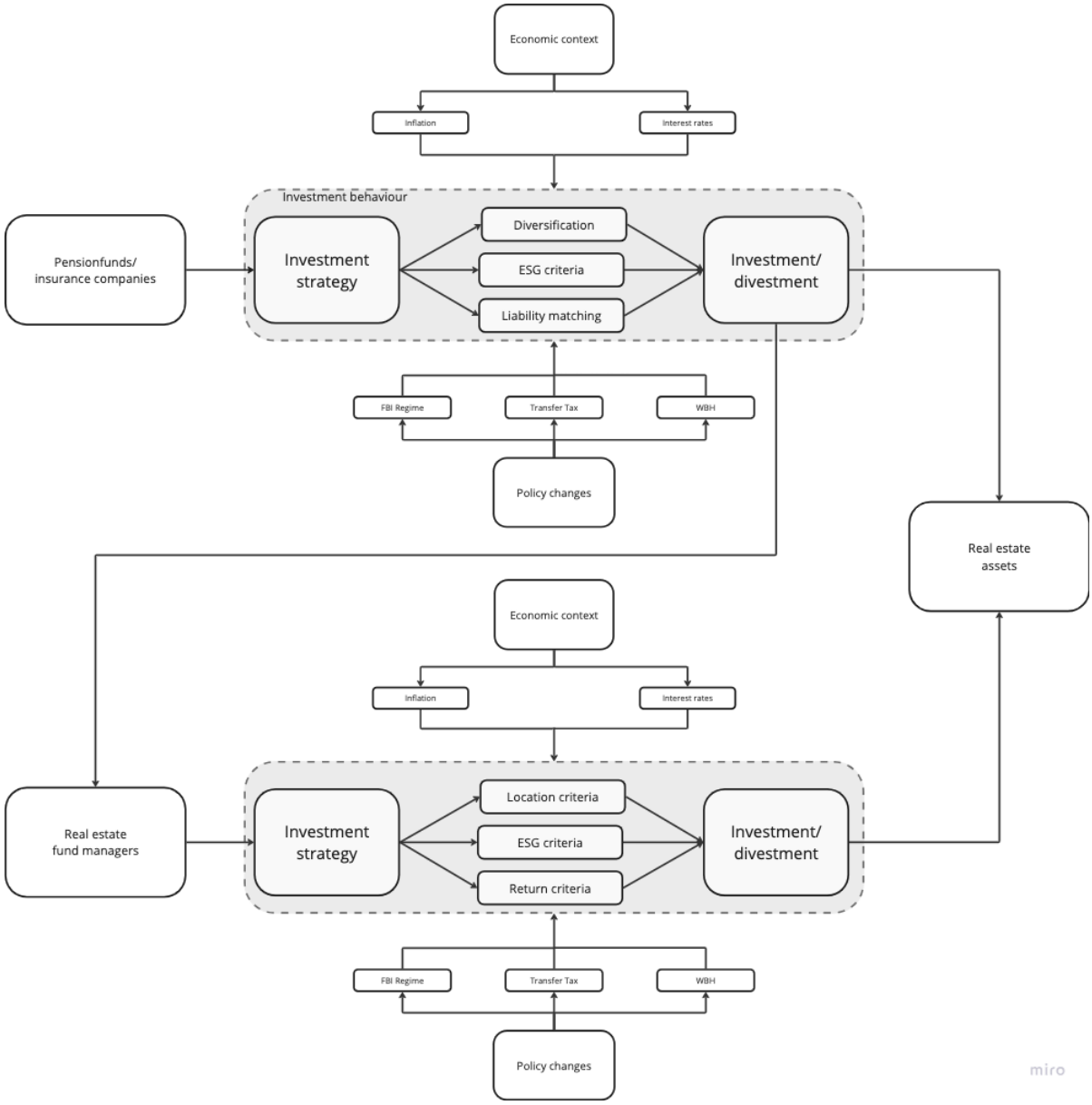

Figure 4.2: Operationalized conceptual model (Own image)

'investment behaviour', constituting the primary research question. Thus, investment behaviour encapsulates both the formulation of objectives and the operationalization of these objectives into actionable investments/divestments. As this is the main research question, it is also at the core of the conceptual model.

Moreover, within this conceptual framework, each linkage between variables corresponds to specific research questions, which will be elaborated upon in section 4.3 of this chapter. Central to the model lies the primary research question: the integration of "investment strategy" and actual "investment/divestment" encapsulates the investment behaviour of institutional investors. This corresponds to the principal research question stated in Section 1.3. Additionally, the model also incorporates how "economic context" and "policy changes" influence this behaviour, as shown by arrows originating from these variables. These connections address sub-research questions two and three, respectively, thereby further emphasizing the overarching aim of comprehending the impact of economic dynamics and policy shifts on investment behaviour.

As the economic context and policy dynamics steer this process, the arrows attach to the 'investment behaviour', as opposed to the specific variables. This configuration

underscores the intricate dynamic between external factors (of which economy and policy are just two examples) and the investment decision-making process. Moreover, each concept within the model is operationalized into concrete manifestations for the purpose of this study. For instance, the term "institutional investors" encompasses real estate funds, pension funds, and insurance companies. While their operational methods may differ, all three types of investor share the commonality of investing funds on behalf of clients. Notably, the influence of economic context and policy/regulation on real estate investment behaviour is researched, with regulatory changes constituting the focus of investigation. The investment strategy serves as a framework guiding investment decisions, ensuring alignment with overarching investment objectives of both different type of institutional investors. However, the nature of real estate investments diverges, particularly for pension funds and insurers, which typically delegate actual asset investments to funds or investment managers. Selection criteria such as return on investment and Environmental, Social, and Governance (ESG) considerations form their investment decisions, reflecting shifting paradigms in real estate investment practices (Klimczak, 2010; Newell et al., 2023).

Furthermore, the model incorporates arrows extending from the defined types of institutional investors toward the investment strategy variable. This is done because the two types of institutional investor have different motivation to invest in the Dutch residential real estate market. This distinction is based on the presumption that different groups of institutional investors ply different investment rationales, resulting in distinct investment strategies. As mentioned by Van Gool (2018), the investment strategy serves as a way for translating these motivations into actionable goals, justifying the arrows linking to the concept of "investment strategy" within the model.

Additionally, concerning real estate funds, stakeholders, including pension funds and insurance companies, may influence the investment strategy through stakeholders' meetings, as per Van Gool et al. (2018), ensuring alignment between fund investments and their own investment strategies. Consequently, the type of institutional investor engenders divergent investment strategies. The investment strategy, as explained in the second chapter, articulates the investor's long-term objectives, resulting in real estate investments/divestments, the final variable on the horizontal axis. This aspect represents the tactical dimension mentioned in the second chapter, embodying concrete actions facilitating the realization of investor objectives.

Furthermore, the two contextual variables (policy and economy) within the conceptual model serve as moderating factors. These variables, unaffected by other model variables, exert influence over other model components. While institutional investors wield influence over policy formulation to some extent, facilitated through industry lobbying associations and consultations during legislative processes, such considerations are beyond the purview of this study. Hence, the variable "changes in policy" assumes a mediating role within this study.

4.2 Operationalising conceptual model

The concepts in this conceptual model can then be dissected into several sub-concepts that ‘contribute’ to each concept (Table 4.1), which have also been investigated in the literature review. Figure 4.2 (larger version can be found in Appendix IV) shows how these sub-concepts relate to the research questions’ concepts and a more intricate elaboration of the relationship between concepts, sub-concepts, and the different types of institutional investors. These sub-concepts will furthermore be used to define the main subjects of the interview questions.

Starting at the top of the model, the first concept to consider is the Economic Context, which is the main focus of the second sub-research question. The Economic Context can be further divided into sub-concepts that are relevant to this study, such as inflation and interest rates, which are the main drivers behind the economic context that we will look at in this study. Further, other potential financial assets, and the current real estate market are interesting notions to look into. These sub-concepts are situated below the main concept of Economic Context and show the specific parts of the economy examined in this study

At the bottom of the conceptual model lies the second main concept, Policy Context, which serves as the basis for our third sub-research question. The sub-concepts that contribute to this main concept include the expansion of the WWS and the rise in transfer tax, which are the the two most recent policy changes that have affected (institutional) real estate investors. Besides those, the growing relevance of sustainability regulations, and the elimination of the FBI regime are also policy topics that have had, or will have, an impact on (institutional) real estate investors.

These initial two main concepts have significant impact on the rest of the conceptual model. Additionally, the model is divided into two distinct parts. Firstly, a differentiation is made between the various institutional parties, namely institutional investors such as pension funds and insurance companies, and real estate funds, which also bear an institutional character as defined by Chen (2021). This distinction is made because the latter frequently act as investment managers for institutional investors, thereby causing real estate investment criteria of the pension funds and insurance companies to become (crucial) input for the development of the investment strategy of real estate funds. Besides their underlying relationship, the principal concepts (and their corresponding sub-concepts) have varying impacts on these two different types of institutional investors. To give an example, for pension funds and insurers, a higher interest rate might lead to higher required returns on a strategic level, whereas on a tactical level, it might lead to a different allocation in financial assets, or even within the real estate portfolio (between different real estate segments or markets). For real estate funds, it might lead to less debt financing or higher financing costs. Thus these two main concepts serve as input for both the institutional investors and real estate funds separately

Secondly, the strategic and tactical levels of the two parties are, as mentioned before, captured in the 'investment behaviour' in the conceptual model. For insurance companies and pension funds, this can be that the goals from the investment strategy are translated to concrete diversification ratios of different asset classes, ESG criteria, or the goal to match liabilities. For real estate funds, the goals from the strategy might be translated to criteria about the location, ESG-performance or return of new and existing assets. This also shown in the operationalised conceptual model in Figure 4.2.

Answering the main research question brings together the three main concepts of Economic Context, Policy Context, and Investment Behaviour. It explores how institutional investors adjust their investment strategies in response to recent developments in both economic and policy contexts and how this translates to investments/divestments. This also shows why the Economic Context and Policy Context serve as inputs for the investment strategies and tactics of institutional investors in the conceptual model. Ultimately, this question sheds light on how changes in economic and policy contexts impact the investment behaviour of institutional investors.

The next step is to operationalise these concepts into more measurable variables. This is of importance to the methodology used, which will be further elaborated on in the next chapter. In qualitative research, operationalisation typically adopts a more open-ended approach, requiring data collection methods that enable participants to elaborate on their responses (DeCarlo, 2018). In qualitative research, researchers can then utilise the collected data to refine their research approach, incorporating fresh insights and new data obtained from participants.

4.3 Research questions

The main research question of this research will be focused on the investment behaviour of institutional investors in residential real estate. The decision to focus on the subgroup of institutional investors in the Dutch rental market is due to their important role in addressing the shortage of mid-segment rental units, as mentioned by Minister de Jonge (Kamerbrief Regulering middenhuur, 2022). Furthermore, housing corporations are primarily focused on regulated social housing and are therefore less affected by the expansion of the WWS. Of course, they are also influenced by the economic context and other regulations. However, as the WWS is a key aspect of this study, it was decided that focusing on housing associations would not be the most appropriate choice.

Concept	Sub-concepts	Variables
Investment strategy	Real estate allocation (in mixed asset portfolio)	Performance of other asset classes Denominator effect Redemption requests Verhouding in mix van het portefeuille
	Investment criteria	Required rate of return ESG goals
Economic Context	Interest rates	Real estate valuations LTV ratio Costs of loans Required rate of return
	Inflation	Capital expenses (capex) Operational expenses (opex) Rent development
Policy	Expansion WWS	Cashflows Rent development Real estate valuations
	Transfer tax increase	Transaction levels Real estate valuations
	FBI Regime	Foreign investors' willingness

Table 4.1: Operationalisation of key concepts (own elaboration)

Many factors, of course, influence the investment choices of institutional investors. However, this research will focus on the effect of changes in regulation in the current economic context. The current context is characterised by aspects such as rising interest rates, inflation, building costs, transfer tax, and announced rent price regulation of the mid-rent segment. This has led to the following research question:

How do changing regulations in 2023 influence institutional investors' (residential) real estate investment behaviour within the changing economic context, and what are the expected impacts on standing and new investments in residential real estate?

This main research question will be divided into three sub-research questions that will be answered to come to a more general answer to the main research question. These sub-research questions are:

S-RQ 1: *Why do different institutional investors invest in the residential real estate market?*

S-RQ 2: *What is the effect of high inflation, -interest rates and -construction costs on standing- and new residential investments?*
S-RQ 3 *What does the new policy mean for the standing- and new investments in residential real estate?*

To delve deeper into these sub-research questions and explain their contribution to answering the main research query, we will examine each one individually, highlighting why their insights might help address the overarching research goal and thereby enrich this study.

The first sub-research question provides an overview of the broader context of real estate investment. It delves into the decision-making process behind investing in real estate, the allocation of funds to real estate assets, and the various investment vehicles employed. It is imperative to comprehend why real estate is favoured as an investment, the different investment types available, and the unique characteristics of each real estate segment.

Chapter 6 delves further into this first sub-question, focusing on the role of real estate within a mixed-asset portfolio and the appealing qualities of real estate as an asset class. Additionally, this chapter explores residential real estate, the primary focus of this study. Specifically, it investigates the role of residential real estate within the mixed-asset portfolios of institutional investors, namely pension funds and insurance companies. Subsequent chapters, which address economic conditions and regulatory changes, will also shift the focus more towards real estate funds and investment managers, who regard real estate as their main asset. These managers often manage different funds in different segments of real estate, which also includes residential real estate.

The second sub-research question examines the impact of economic context, particularly high inflation, construction costs, and interest rates, on existing and new real estate investments. This entails understanding how the current economic climate influences the viability of new real estate projects. Together with the regulatory factors explored in the third sub-research question, economic context shapes the attractiveness of investment assets and influences investor behaviour. For an investment to proceed, it must meet specific criteria set by the investor. A feasible business case is necessary for investors to proceed with an investment. Chapter 7 focuses on addressing the second subsidiary question, evaluating whether Dutch residential real estate remains an attractive investment for institutional investors amidst prevailing economic conditions. This chapter examines whether existing real estate investments continue to be interesting compared to alternative investment opportunities, such as stocks, bonds, or obligations.

Additionally, it scrutinizes how economic factors affect the decision-making process for acquiring new assets. The risk-return profiles of various asset classes, including residential real estate, are taken into consideration, particularly for pension funds and insurance companies. Moreover, new investments are affected by rising inflation and interest rates, impacting their financial viability. The chapter concludes with a valuation analysis demonstrating how these factors influence the valuation of existing and new investments. Besides that, the hypothesised influence on the model of DiPasquale & Wheaton (1992) is revisited and checked.

The third sub-research question centres on policy changes influencing new residential real estate investments and the management of existing investments by institutional investors. Regulatory changes may impact the management of real estate assets and, consequently, their attractiveness as investments. Understanding how residential real estate investment and management are regulated and how this affects the attractiveness of different assets as investments sheds light on how regulatory changes can influence institutional investor’s behaviour.

Chapter 8 focuses on addressing the third sub-research question, building upon the previous chapter's analysis. It highlights new regulations, such as increases in transfer tax and restrictions on rent and rent increases, can significantly impact an investment's value and its direct and indirect returns. Additionally, increased regulation of the free-liberalised sector may limit cash flows generated by an asset, further reducing its returns and, subsequently, its attractiveness. These factors ultimately affect the returns attainable from an investment. The chapter's analysis considers both institutional investors and investment managers, examining both existing and new investments.

Following Chapter 8, Chapter 9 will synthesise the findings from Chapters 6 to 8 to formulate a response to the main research question, concluding this research thesis. The hypotheses formulated in Chapter 2, utilising DiPasquale & Wheaton’s (1992) model, will be tested to ascertain whether and how the studied factors influence institutional investors' investment behaviour as expected.

Chapter 10 will provide a reflective analysis of the study and offer recommendations for potential further research. The reflection will address the study's limitations and their implications for the conclusions drawn. Given the study's scope, certain aspects may not have been thoroughly investigated, warranting further research. Recommendations for future research will be proposed to address these areas.

5. Methodology

The research questions lead to choices regarding the conduct of this study. This chapter will justify the choices regarding the strategy, methods and techniques used. Multiple techniques are used in this research, which will be described in section 5.1. After that, the strategy will be explained. Next, the data analysis and the processing of the results are explained. This chapter concludes by determining the validity and reliability of this study.

5.1 Research Strategy

To answer the main research question, several sub-research questions have been formulated to divide this research into three parts. These sub-questions dive further into a smaller part of residential real estate investment. An answer to the main question was ultimately formulated by exploring each of these facets. Some of these sub-questions are answered partially by doing literature research. However, with some sub-questions, it is also necessary to find out how professionals from the field conduct their business. This has led to qualitative research that exists of both literature research and interviews with professionals from the field. The findings from these different methods were then juxtaposed and compared for similarities. In addition, this study also looked at how the interviews complement and nuance the literature (or vice versa).

The sub-research questions touch upon the subjects of regulation, the economic context, and the role of residential real estate in a mixed asset portfolio. To answer the main question, it is important to understand how investors adjust their behaviour in response to changes in these aspects. This is why the interviews were incorporated into the data collection strategy, as this is information that might not be found in the literature. This is also due to the topical nature of the research question. Thus the interviews are also an important basis for the findings in chapters six to eight.

Some information was also retrieved from literature research. As previously mentioned, the topics examined in this study are very timely. The interviews, however, should also provide insight into this, thus complementing the literature found. In addition, it is also possible that the findings from the literature is the basis for certain processes in the industry, but in practice, there is more nuance to it. Furthermore, there is the possibility that the theory found in the literature turns out to be outdated and different approaches are used in practice nowadays. This explains why the interviews were used: to both validate and supplement the theory found. Furthermore, the interviews also brought up new topics that were not found during the literature review beforehand. Approaching the sub-questions from both literature and interviews, also allowed for complementary literature research on topics that came up during the interviews.

5.2 Interviews and interviewee-selection

The interviews were thus a necessary component of the research strategy. The literature research has been done beforehand and served as input for the interview questions. The interviews were conducted in a semi-structured fashion. This structure was chosen so that the interviewer retains some control over the topics that are discussed during the interview, but there is also room to expand on topics that may not have been initially known to the interviewer. In this way, as mentioned in the previous section, the theory found beforehand can be both verified and be build out.

The aim was to conduct interviews with employees of both institutional investors, as well as real estate funds. Initially, the aim was to conduct 10 interviews, 4-5 with institutional investors, and 5-6 with real estate funds. This number was chosen because of the time that was available for setting up and conducting the interviews. Furthermore, the pool of allegeable firms is relatively small and there is of course the possibility some of them will negatively react to an invitation to partake in an interview. A slight focus on real estate funds was chosen because they directly invest in and manage the real estate and are thus most influenced by the regulatory changes. However, as the institutional investors were also of importance they also needed to be well represented in the interview group. With regard to the firms that were contacted to conduct an interview, these firms together make up the bulk of the market when it comes to Assets Under Management (A.U.M.).

Funds	A.U.M.	Pension/insurer
Vesteda	27.661 (€ 9.4 bln)	
Bouwinvest	18.820 (€ 7.6 bln)	*APG*
Amvest	11.010 (€ 4.0 bln)	
AlterA Vastgoed	7.000+ (€ 2.5 bln)	*NN*
Achmea Real Estate	6.468 (€ 2.2 bln)	
a.s.r. Real Estate	5.732 (€ 2.0 bln)	*PGGM*

Table 5.1: Potential participants and the number of residential units in their portfolio, and total value

In table 5.1 all funds and their AUM are summarized. Furthermore, potential pension funds and insurers are also listed, some of which are also represented by the funds in the list. The firms that were interviewed in the end, are those that are underlined and italic.

Furthermore, all these firms were chosen from the list of members of IVBN, the association for Dutch institutional investors. These include several pension funds and insurers, as well as real estate funds with an institutional character. The first seven firms to be interviewed were chosen on the basis that the contact persons were acquaintances and thus that a cold approach was not necessary. This improved the possibility of a positive response to an invitation. Furthermore, these firms form a good mix of both pension funds and insurers, as well as real estate funds with different characteristics. For example, a.s.r. Real Estate is a real estate fund which originated from the real estate division of the similarly named insurer. This means that employees might have knowledge from both the point of view of an institutional investor and that of an investment manager (i.e. real estate fund). Furthermore, other investment managers were chosen with the respective institutional investors that they manage funds for. This way the dynamic between institutional investors and the investment manager could also be looked into.

The interview protocol with questions that were used during the interviews can be found in appendices I and II. The questions from these interview protocols encompass the operationalised sub-concepts from Table 4.1.

5.3 Data-analysis and processing results

The interviews have been recorded so that they could be transcribed afterwards. These transcriptions then served as qualitative data input. This was the first step in the data analysis. The interviews were then to be transcribed. This can be done in several ways: via the 'transcribe' function in Word, transcribing the recordings by hand, or by 'dictating' in Word during the interviews. For the latter, a high-quality microphone is a prerequisite. It is best to both record and dictate so that the dictated file can be checked with the recording. The transcription was then coded using ATLAS.ti. Codes were drafted based on the main- and sub-concepts of the research beforehand. Furthermore, additional codes were added when necessary, during the process of analysing the interviews. ATLAS.ti was then also used to find connections between- or trends in the different concepts.

Initial codes that were used to analyse the interviews included the codes stated below. As most of the interviews were in Dutch, these codes are also in Dutch:

- Portefeuille
- Vastgoed
- Residentieel
- Denominator effect
- Hoge rente
- Economische situatie
- Inflatie
- Andere assets
- Regulering
- Wet Nijboer
- Overdrachtsbelasting
- WWS
- Investeringscriteria
- Investeringsstrategie
- Rendementseis
- ESG
- Green bond

As mentioned, this is the first list of codes that were used to analyse the interviews for relations between these topics. Other valuable topics were mentioned during the interviews, which led to additional codes.

The data collected through the interviews was anonymized to respect the interviewees' privacy. Furthermore, files such as the recordings, transcriptions and the ATLAS.ti analysis files will be saved in accordance with the Data Management Plan. However, it is important to note for context that when interviewing the parties mentioned, care was taken to ensure that the right person within the organisation was interviewed. These were often employees involved in managing the portfolios. However, to protect the privacy of the interviewees, the exact job title will not be shared as this information combined with the companies given could lead to concealing the identity of the interviewees.

5.4 Reliability and validity

The quality of any research is partially determined by the "validity" and "reliability" of that research. Therefore, this section will discuss the reliability and validity of this study. Here, the focus will be mainly on the interviews, since most of the literature review will be based on scientific articles. With these articles, reliability and validity should already be guaranteed, assuming that these studies were also conducted within scientific guidelines.

The reliability of a study is closely related to the method by which the study was conducted. To what extent are the observations made, and the conclusions drawn from them, reliable and not based on chance. For example, in the case of interviews, errors of chance are less common when the interviewer works with a structured questionnaire. That is why a semi-structured interview was chosen so that while there is the possibility of structuring the interview, there is also room for expansion beyond the preconceived topics. According to Van Thiel (2010), reliability is determined by the accuracy of observations. In this study, that accuracy was ensured by recording all interviews and transcribing them verbatim (thus excluding misinterpretation by the interviewer). Conclusions are then based on the statements made during the interviews.

The conclusions drawn from the interviews are then juxtaposed with the literature found during the literature research. In this way, it is examined whether the statements from the interviews are in line with the 'status quo' from the literature, or whether the literature is missing aspects. In the latter case, any 'complementary information' from the interviews must have been observed by several respondents.

The validity of a study can be divided into two parts: internal validity and external validity. The level of assurance that the causal relationship under test is reliable and unaffected by other variables or factors is known as internal validity. The degree to which research findings can be extrapolated (generalized) to other contexts, populations, or events is referred to as external validity (Streefkerk, 2019). In the case of this research, internal validity is assured if the methodology chosen measures how and to what extent regulation and the current economic context affect investors' investment behaviour.

In this study, external validity will depend mainly on the size of the group of firms interviewed. If a large enough number of investors can be interviewed, no new responses will eventually be observed. However, this does not yet imply that the answers given will be generalizable to other Dutch parties that have not been interviewed. For that, a survey would have to be sent out that shows statistical significance for the observations found. Furthermore, the Dutch real estate market is different from other countries, especially when it comes to regulation. This also makes it difficult to generalize this research to other markets in Europe. However, the economic situation that Dutch investors have to operate in, likely bears some resemblance with that in other European markets, as those markets are also influenced by the macroeconomic trends that underlie the current situation

6. Real estate as an asset class

The first step to answering the research question posed in this study is to understand the different reasons why institutional investors invest in Dutch (residential) real estate. In this chapter, this question will be answered. The answer will be substantiated by combining evidence from the literature and the findings retrieved from the interviews. The chapter will start with the literature, after which the interview information will be assessed. Lastly, a brief comparison will be made between the data from the literature and the interviews to determine whether the answers from professionals match or contradict the answers from the literature.

6.1 Evidence from the literature

Examining the literature reveals various incentives for different types of institutional investors for (residential) real estate investment. This section aims to explore these reasons and subsequently validate them through insights derived from interviews. The question is approached mostly from the perspective of pension funds and insurance companies, as the investment managers or real estate funds have a more facilitating role towards these parties.

Real estate stands as one of the asset classes at the disposal of pension funds and insurers for fund allocation. In general, pre-2012, the types of asset classes encompassed fixed interest values, real estate, shares, and other investments. Post-2012, private equity, hedge funds, and commodities were separately classified, having previously been grouped under shares. Within the real estate asset class, the three primary options include direct, private indirect, and publicly traded real estate investment (van Gool et al., 2018), each characterized by distinct attributes. Table 6.1 sets out the advantages and disadvantages of direct and indirect real estate investing, with the latter including both private indirect and publicly traded real estate investments. The pros and cons given by Van Gool et al. (2018) will be covered in this section, resulting in a literature review on the different reasons why different institutional investors invest in real estate. The focus in this will be on the direct investment pros and cons, as most institutional investors in the Netherlands invest in private indirect or direct real estate. According to data from the DNB, Dutch pension funds hold €47 billion of their real estate on their balance sheets or through related Dutch investment funds by the end of 2022 (De Nederlandsche Bank, 2023b)

Dutch pension funds and insurers also directly invest in residential properties, bypassing the intermediary role of a fund. Figures from the Dutch Central Bank (DNB) indicate that by the end of 2022, Dutch pension funds had directly invested €7.6 billion in housing. Indirectly, through investment funds, the amount invested in Dutch rental properties reached €28.2 billion by the same period. Consequently, Dutch pension funds allocate approximately 80% of their investments through housing investment funds and 20% directly. Concrete figures for Dutch insurers are not available, but the trend suggests that these insurers also primarily invest indirectly in housing through a subsidiary fund manager. These investment funds often emerged from the restructuring of the real estate portfolio of insurers or pension funds to better match their workforce to their operations. Examples are investment funds such as Vesteda, Achmea Real Estate or a.s.r. real estate.

Direct real estate		**Indirect real estate**	
Pros	Cons	Pros	Cons
Portfolio diversification	Intensive management	No local expertise needed	Less influence on policy
Stable cashflow	Knowledge based/-intensive	Small investment possible	Less 'feeling' with market
Good return-risk ratio	Capital intensive	No transfer tax	Higher risk due to leverage
Inflation hedge	Intransparent	Higher liquidity	More risk if publicly traded
Manageable returns	Illiquid	Less emotional	
Unique opportunities	Performance measurements	Possibly higher returns	
Fiscal advantages		Leverage	
		Better benchmarking	
		Economy of scale	

Table 6.1: Advantages and disadvantages of direct and indirect real estate investment (Van Gool et al., 2018)

6.1.1 Portfolio diversification

Within a broader portfolio of financial assets, real estate, whether direct or indirect, is an asset class that can be used to diversify a mixed asset portfolio. However, size, property type, geographical and economic location, and proximity to a metropolitan area are all factors that affect real estate. This brings with it market-specific risks for real estate investments (Seiler et al., 1999). Diversification within the real estate portfolio, based on property type within several markets, can reduce market-specific or location-bound risks, reducing the volatility of returns (De Wit, 2010; Glascock & Kelly, 2007; Grissom et al., 1987; Viezer, 2000). Glascok & Kelly (2017) and De Wit (2010) both find that diversification based on geographic markets has the biggest impact on the reduction of volatility in returns. In addition, this way of diversifying often offers the best return for a particular risk profile (Viezer, 2000).

A commonly used method to compose a real estate portfolio is derived from the stock and bonds markets. In the 70s, Markowitz's Modern Portfolio Theory (MPT) was first used on a real estate portfolio. The idea of this theory was that one could reduce the risk of any investment portfolio (mixed-asset or real estate) by not 'putting all eggs in the same basket.' Based on the characteristics of the different assets in the portfolio, a diversification composition that gives the optimal return on risk can be found. This raises the question of the composition to diversify one's portfolio. Several studies have already researched this in the past decades. However, a report produced by the Investment Property Databank in 2000 emphasised that there was not enough knowledge regarding risk assessment in the real estate sector at that time, and thus, more research should be done (Blundell et al., 2005). More recent studies by Pavlov et al., (2015) and (Delfim & Hoesli, 2016) do, however, show a significant impact of macroeconomic factors such as interest rates, inflation components, (local) money supply and stock market returns in explaining both non-listed and listed fund returns. These impacts also suggest that volatility in these areas would bear significant risks for real estate investors. Such risk factors would intuitively require a return premium for real estate as compared to

Finally, a study done by INREV shows the diversification potential of both non-listed and listed real estate. This is done by exploring the correlation with other asset classes that can be found in mixed asset portfolios. Table 6.2 provides evidence regarding the favourable characteristics of real estate and, in particular, non-listed vehicles, when it comes to diversification benefits within a multi-asset portfolio. It indicates that:

- It serves as a commendable proxy for direct investment.
- Non-listed real estate provides superior diversification against equity risk compared to listed real estate, private equity, and hedge funds.
- It serves as an effective diversifier for portfolios (low correlation with other asset classes).

This finding holds significant implications for institutional investors, such as pension funds and insurance companies, which maintain substantial bond allocations to fulfil their liabilities. (INREV, 2021)

	Bonds	Equities	Private Equity	Hedge Funds	Listed Real Estate	Non-listed Real Estate	Direct Real Estate
Bonds	1.00						
Equities	0.29	1.00					
Private Equity	0.12	0.90	1.00				
Hedge Funds	-0.02	0.89	0.96	1.00			
Listed RE	0.57	0.82	0.78	0.71	1.00		
Non-listed RE	-0.42	-0.24	-0.07	-0.12	-0.08	1.00	
Direct RE	-0.29	-0.23	-0.08	-0.12	0.02	0.96	1.00

Table 6.2: Correlation between annual returns 2010-2019 (INREV, 2021)

The inclusion of REITs (publicly traded real estate) in an mixed asset portfolio leads to a reduction in portfolio risks that is greater than the loss of return (Lee, 2003), suggesting a favourable risk-return profile in comparison to other asset classes. Furthermore, real estate offers diversification possibilities, not only on the level of the mixed asset portfolio but within a real estate portfolio as well. On a mixed-asset portfolio level, real estate returns show low, and in some cases even negative, correlation to stocks and bonds (Heaney & Sriananthakumar, 2012; Montezuma & Gibb, 2006; Salzman & Zwinkels, 2017). However, Heaney & Sriananthakumar also find that the correlation between, more specifically, Australian REIT returns and the stock markets is higher than the correlation with returns from direct real estate, suggesting that the latter provide considerable diversification benefits over listed real estate investment. Oikarinen et al. (2011) state that this difference can be due to the slower adjustment to prices in the direct real estate market to the market conditions in comparison to the more informationally efficient and higher liquidity REITs. This means that the latter reacts quicker to shocks in the market conditions, explaining the difference in short-term correlations. However, in the long run, direct real estate also adjusts to such shocks, and thus the long-run correlations are more similar (Oikarinen et al., 2011). In the Netherlands, this difference can partially be attributed to the fact that real estate is valuated quarterly, whereas the variables real estate is affected by, change more frequently.

6.1.2 Stable direct returns

Dutch real estate market, benchmark company MSCI, has compiled data on returns from Dutch real estate over recent years, depicting the sector's performance per segment set out against long-term interest rates, and Consumer Price Indices (CPIs) (Figure 6.1). It is interesting to

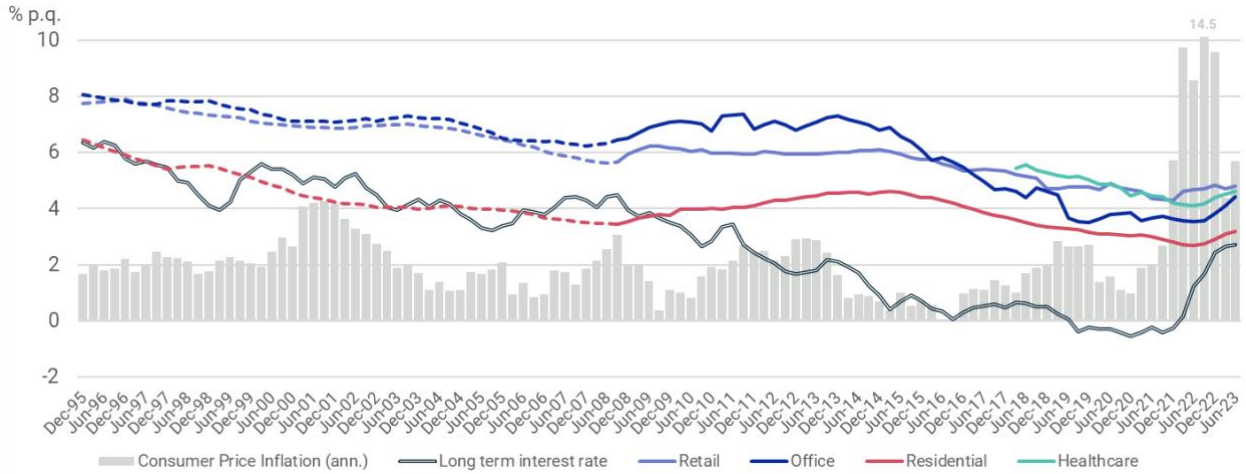

Figure 6.1: Yields of different real estate classes compared with interest rates and inflation on the long term (MSCI, 2023)

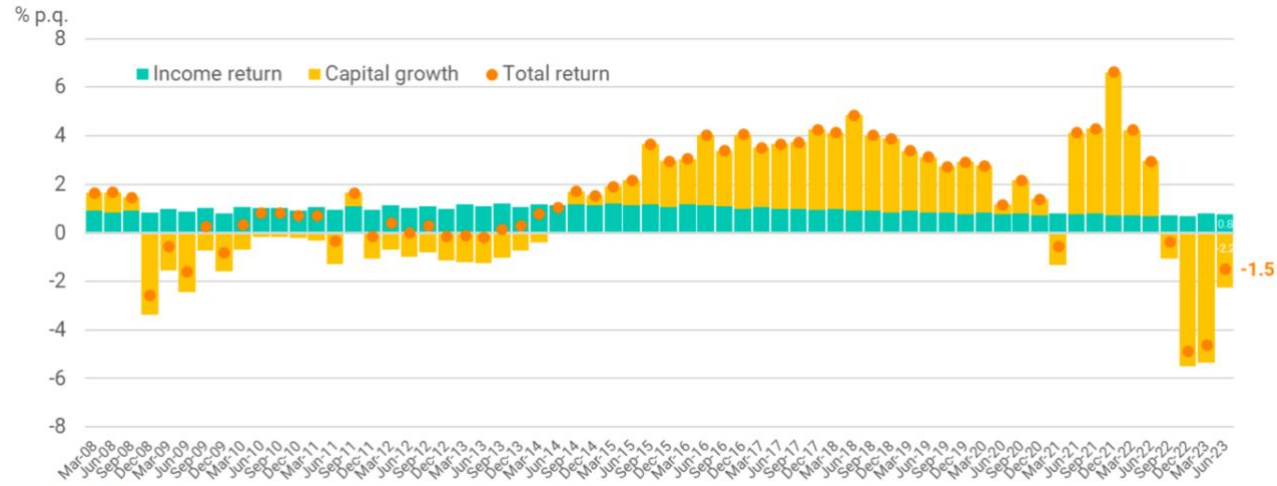

Figure 6.2: Quarterly total return, income return and capital growth on standing investments of MSCI Dutch residential index (MSCI, 2023)

see that, as depicted in Figure 6.1, the yields from residential real estate are comparatively low across sectors, resulting in a diminished yield spread with government bonds.

Figure 6.2 illustrates the return development on standing residential investments of Dutch institutional investors. Notably, this is based on standing investments, implying that the real estate asset pool may not be identical each year. However, given the long-term nature of most investments, a substantial continuity in standing investments is anticipated. The total return is split into two components: capital return (appreciation in value) and income return (from rental income). An examination of the return from rental income reveals a sustained growth of roughly 1%, in contrast to the volatility observed in the value's development. This stability of the income return can be, partially, attributed to annual rent indexation, often by a factor of CPI/CAO + X%.

The yield spread, denoting the difference between returns on two distinct financial instruments, is minimal between residential real estate and government bonds (Figure 6.1). The preference for residential real estate over government bonds, despite a minimal yield spread, can be explained by the stable rental income and -increases that can be seen in Figure 6.2. These increases consequently influence value developments, as the value of a real estate investment relies partially on future cash flows. This aligns with the Discounted Cash Flow (DCF) valuation method discussed in the third chapter, wherein increasing rents can lead to increased future cash flows and, consequently, a rise in asset value.

6.1.3 Inflation Hedge

For Dutch institutional investors, studies examining housing's ability to hedge against inflation across various countries show varying outcomes concerning short-term investments in residential property. However, overall, they appear to indicate that investing in residential real estate serves as an effective hedge against inflation in the long run compared to stocks or obligations (Amenc et al., 2009; Eichholtz et al., 2000; Newell et al., 2015). Furthermore, unsecurtized (or private) real estate has been found to hedge against both expected and unexpected inflation (Hoesli et al., 2008; Huang & Hudson-Wilson, 2007; Seiler et al., 1999), specifically, direct investment in the residential or office market (Demary & Voigtländer, 2009; Hoesli et al., 2008; Huang & Hudson-Wilson, 2007). The inflation-hedging properties of residential real estate do not come from direct income from rental income. Huang & Hudson-Wilson (2007) find that for residential real estate, the inflation hedging ability primarily comes from the capital return. However, the sidenote can be made that the growth in income, through the valuation, seeps through into the value growth. In general, Salisu et al. (2020), in line with previous findings from other studies, find that returns on real estate increase more than a proportionate increase in inflation rates. They give two main reasons for this. The first being that demand for real estate, as can also be seen in the Dutch market, is always present as it offers one of the three essential human needs: shelter, meaning that higher demand leads to higher returns. Furthermore, they also state that higher real estate returns lead to higher inflation, which can be explained by the fact that housing cost is often taken into account as a factor when computing the CPI.

These inflation-hedging properties of real estate justify moreover their inclusion in the mixed-asset portfolios of institutional investors, especially from an asset liability matching (ALM) viewpoint. According to Amenc et al. (2009) and Mitra & Medova (2010), pension funds specifically have to hedge against long-term inflation risks in their pension liabi. Amenc et al. (2009) furthermore state that commercial and residential real estate provides a significant inflation hedge over the long horizon, thus complementing the statements from Demary & Voigtländer (2009), and Huang & Hudson-Wilson (2007). Looking at insurance companies

6.1.4 Liquidity of real estate assets

Real estate is characterized by its illiquid nature but also presents nuances in liquidity across different investment vehicles. For example, the liquidity profile varies among direct real estate investments, investments in private real estate funds, and shares in listed real estate companies (Oikarinen et al., 2011). Each of these investment options has a different degree of liquidity, influencing the ease and speed with which investors can buy or sell their positions.
In theory, committing capital for longer periods, five to fifteen years for example, in investments

like private real estate funds should justify a notable illiquidity premium for the investor. However, research conducted by the IVBN and the EPRA indicates otherwise (EPRA, 2019; Mosselman, 2013). Their data, spanning from 2000 to 2012 and 2005 to 2016 respectively, reveals a lower average return on private (unlisted) investments compared to listed investments for Dutch institutional investors. Nonetheless, findings from the IVBN's research also highlight that private investments exhibit a more favourable Sharpe ratio (average return divided by the standard deviation of returns). This suggests that the risk-return profile of private investments outweighs that of listed investments.

Finally, research done by Günther et al. (2022) suggests that this illiquidity is also, partially, a reason for the previously mentioned inflation hedging characteristics (private) real estate exhibits. They state that an investor's liquidity preferences within a given portfolio should be taken into consideration and that there is a trade-off between illiquidity and diversification potential. Furthermore, they state that optimum portfolio allocations depend on illiquidity acceptance.

6.1.5 Leverage

Looking to the incentives to, more specifically, invest in publicly listed real estate, besides the previously mentioned higher liquidity, as Van Gool et al. outlined, we see that leverage through debt can be an advantage for that type of real estate investments. For leverage, interest rates are a determining factor. Currently, a climate of high interest rates has been created by high inflation. To increase the return on the investors' equity, parties can use borrowed capital. This creates what is known as leverage. Thus, to use leverage, debt must be raised, leading to debt costs for the investor.

Van Gool et al. (2018) provides a basic formula that shows the relationship between debt and return:

$$RoE = \frac{R_{object} - LTV \times interest\ rate}{1 - LTV}$$

Where:
RoE = The return on equity
R_{object} = The return on the asset
LTV = Loan-to-value ratio

However, this can also result in negative leverage depending on the cost of borrowing or the "cost of debt". The formula shows that negative leverage occurs when debt costs exceed the return realised from an asset's cash flow. Rising interest rates have increased the cost of debt for new loans for investors. Furthermore, investors may also face a higher cost of debt when refinancing maturing loans in the near future. Especially in the latter situation, leverage could turn negative if the increase in debt costs is high enough. As was mentioned in the second chapter, core funds generally employ an LTV up to 30% (also taking into consideration the core-plus category).

6.2 Empirical findings

Complimentary to the evidence from the literature, it is also important to find out whether the motivations found are also applicable to the group of interviewees that was interviewed for this study. Thus the question of what the reasons to invest in Dutch (residential) real estate are, was also asked in the interviews, to verify the theory with practice and possibly find additions to the literature that was studied. In this sections we will discuss whether the interviewees confirm or refute the findings from the literature per topic.

6.2.1 Portfolio diversification

Diversification appears to be a predominant motive for investing in real estate. Various rationales support real estate's potential for diversification. Firstly, its response to economic shocks stands out. It was corroborated in several interviews that real estate prices adjust slower to economic conditions, where it was noted that real estate portfolios in the Netherlands are valued quarterly, explaining the lag in response to economic shocks. The influence of the economic context on real estate diversification will be further explored in the following chapter.

Additionally, the proportion and correlation of a real estate allocation relative to other financial assets plays a significant role. However, one interviewee mentioned that determining this allocation often relies on complex internal models, which would exceed the scope of this study. While the Markowitz model is commonly mentioned as the basis for determining the

optimal portfolio structure of mixed-asset portfolios, it was noted by several interviewees that this model does not directly dictate the optimal allocation to real estate. Instead, it serves as input for the decision-making discussion regarding portfolio structuring and optimization. As one of the interviewed institutional investors noted:

"*Yes, you might expect a Markovic optimization that delivers a certain percentage, but that's not how it works. Our ALM strategy department has its models for that...*

...So the choice [allocation] is model-driven partly, but there's always an overlay over it with: how are we going to structure that [the portfolio], how are we going to optimise it?"

Moreover, diversification within a real estate portfolio across markets, types, and between private and listed assets is achievable. ALM studies are conducted to ascertain the appropriate allocation to cover all liabilities with portfolio assets. Variables such as long-term return and risk forecasts, as well as covariance with other asset classes, are considered by the strategy and ALM departments.

Furthermore, clients' preferences regarding allocation, as outlined in their mandates, are taken into consideration by investment managers. However, due to its illiquid nature, the allocation to (private) real estate tends to be modest for Dutch institutional investors, typically around 10%. It is essential for real estate portfolios to remain manageable and adaptable to fulfil their ALM objectives effectively.

6.2.2 Stable direct returns

Another incentive that came forth from the literature review was the steady direct return real estate offers in the form of rental income. During the interviews this was confirmed to be a significant reason to invest in real estate, by both investment managers and institutional investors. For institutional investors it allows them to match their liabilities towards their clients. Investment managers also state that their shareholders the steady direct returns on real estate make it an attractive investment for their clients (of which often a great number are institutional investors).

Moreover, the direct income from rental cash flows holds particular interest for institutional investors, especially those facing longevity risk in their liabilities, as these cash flows often adjust with inflation, thereby growing alongside liabilities. However, it's important to note a caveat regarding this growth in rental income. In some cases, rental indexing may be linked to the CAO rather than the CPI), resulting in a slightly diminished advantage. This aspect will be further explored in the chapter discussing the impact of regulations on existing investments.

Another point to consider is that rental income is not as secure as the interest on government bonds, which are often used as a benchmark for a risk-free investment. This will be elaborated on in the chapter discussing the economic context. One of the interviewees described the comparison as:

"...your rental income isn't as certain as the interest on those bonds. You don't know what the value of your real estate will be in X years. With bonds, you know you'll get back the nominal amount."

As highlighted in the aforementioned quote, apart from the direct return from rental income, the overall return on real estate investments is also influenced by indirect returns stemming from capital value appreciation. Interviewees noted significant increases in house prices in recent years, leading to steady positive returns annually. One interviewee emphasized the importance of both stable direct returns and capital appreciation, attributing roughly equal significance to both aspects:

"Yes, one of the reasons, I think, is a stable direct return. And at the same time I think that capital appreciation is just as important. Roughly fifthy-fifthy…"

This was confirmed by several other interviewees, of which one stated that:

""Traditionally, institutional investors invest in real estate due to its reasonably stable long-term returns, primarily derived from direct rental income and some appreciation over time. Consequently, one can achieve a long-term return of 7% to 7.5% for residential

investments, which is beneficial for a pension fund."

This return rate surpasses that of 10-year Dutch government bonds, a discrepancy attributed to the uncertainty of real estate returns compared to similar returns from government bonds, which should yield a (slightly) higher return.

However, it's crucial to acknowledge the high certainty of cash flow from rental income in the Netherlands, attributed by interviewees to the tightness in the Dutch residential market. This results in very low vacancy risk and, consequently, a minimal risk premium above the risk-free rate.

6.2.3 Inflation hedging

Furthermore, the literature suggests that real estate, and especially residential real estate and offices, show very good inflation-hedging properties. This makes it an interesting investment for investors with a mixed-asset portfolio. The interviewees did not seem to fully confirm this statement. One interviewee stated that:

"*Inflation hedge is a reason, yes, but it is not 1 on 1 [inflation rates to direct income]. Especially if inflation is very high, then you often cannot increase rents at the same rate. So in the situation where inflation moves into the double digits, then direct returns can be partially indexed. However, when inflation gets that high, central banks and governments often also start raising interest rates to keep inflation down. Since this is not ideal for real estate, that effect [of inflation hedging] is certainly not 1-on-1".*

Further elaboration on how inflation and the raised interest rates influence real estate, and especially residential real estate is provided in the next chapter about the economic context.

6.2.4 Liquidity of real estate assets

The findings about the liquidity of real estate as an investment are in line with the statement that was made in the section on returns. Due to its illiquid nature, institutional investors often have relatively small real estate allocations. The number of about 10% allocation to real estate was validated on several accounts. Furthermore, the interviewees agreed about the illiquid nature of private real estate. One of the main reasons, according to one of the interviewees was the illiquid nature of the underlying assets:

"Private real estate currently accounts for about 19 billion of the AUM, in an underlying market that is illiquid. With publicly traded real estate, especially with very large positions, it can take a few days before something is bought or sold.

You also don't want to have too much pricing impact. But with private positions, it takes longer. That's the way we have to operate, so we think like an oil tanker. You can position it, you can adjust it, but it takes time. We always have to keep looking far ahead."

An interesting notion that came from one of the interviews was that this illiquidity could lead to institutional investors selling part of their real estate allocation because they need a certain degree of liquidity, which they do not have with such real estate investments.

6.2.5 Leverage

Staying close to the topics of interest rates and liquidity, the literature states that the use of leverage by publicly traded real estate funds is an incentive to invest in publicly traded real estate. Furthermore, one of the interviewees stated that some funds use a leverage position to maintain However, of the Dutch funds that have been interviewed, which are private funds, some indicated that they were indeed also using debt capital to achieve higher returns. Agreements are often reached with shareholders on this, mainly on the range within which the LTV metric should remain. The indicated LTV ranges or targets among the interviewed funds that have debt/loans outstanding ranged from 10% to a maximum of 25%. Compared to private investors, this is a relatively low percentage. One interviewee commented:

"*Private investors naturally try to earn as much as possible with the capital they have. That is why they often have higher LTVs, up to 60%, 70%. We invest on behalf of institutional parties, who prefer to invest their money on a long-term basis. An additional advantage is that if interest rates go up, or values go down, large banks in our case do not immediately get nervous if we move a bit to the upper end of the [LTV] range. However, if a private party*

suddenly goes from an LTV of 65% or 70% to 80%, the bank does get nervous."

This indicates that funds do use debt capital to increase the return on their equity, even though the effect is not enormous. Often they use leverage to a limited extent, however, as institutional investors focus on stable long-term returns, and want to avoid having to sell assets to pay creditors, especially in an economic downturn.

6.3 Conclusion

To comprehensively answer the research question of why institutional investors, invest in Dutch (residential) real estate, we have explored insights from both the literature and empirical data derived from interviews. The conclusion integrates these findings to provide a cohesive understanding of the motivations and considerations influencing such investments.

The literature underscores real estate's role in diversifying a mixed-asset portfolio. By incorporating real estate, investors can mitigate risks associated with economic shocks due to its distinct performance characteristics compared to other asset classes (Seiler et al., 1999; Glascock & Kelly, 2007). Diversification within the real estate portfolio itself—by property type, location, and investment vehicle (direct or indirect)—further reduces market-specific risks and enhances the return-risk ratio (De Wit, 2010; Viezer, 2000). Markowitz's Modern Portfolio Theory (MPT) supports this diversification strategy, suggesting that spreading investments across varied assets can optimize returns for any given risk level. The interviews confirmed diversification as a key motivator. Real estate's slower response to economic conditions, particularly direct real estate, was cited as beneficial for portfolio stability. The use of internal models, though not directly dictated by MPT, guides the allocation within portfolios to ensure balanced portfolios with optimal risk-return ratios. This is often done through ALM-style studies based on internal models. Interviewees emphasised that real estate's low correlation with other asset classes and its (relatively) stable long-term performance make it an essential component of diversified portfolios, despite its illiquid nature. However, this illiquid nature, and the necessary diversification limits allocation to real estate to around 10% for most Dutch institutional investors.

Stable direct returns from rental income are another significant incentive for investing in real estate, particularly for institutional investors needing to match (long-term) liabilities. Dutch residential real estate, with its steady rental income and low vacancy risk, provides a predictable cash flow, making it an attractive investment despite a relatively low yield spread compared to government bonds (Figures 6.1 & 6.2). The stability of these returns is further enhanced by annual rent indexation, often linked to inflation metrics, providing an inflation hedge. This will be elaborated on shortly.

Interviewees corroborated the literature, highlighting stable rental income as a crucial reason for investing in Dutch residential real estate. This stable income helps institutional investors manage their long-term liabilities effectively. Additionally, capital appreciation, driven by rising house prices, is considered equally important, with combined returns from both income and appreciation yielding competitive long-term returns. The tight Dutch residential market and low vacancy rates further support the reliability of rental income, minimizing the risk premium due to a vacancy risk. However, it was also noted that rental income does not match the certainty of government bond coupons, nor is the exit value as certain as the principal payment at the end of a government bond, posing some risk to overall portfolio stability.

Real estate, particularly residential properties and offices, is recognized for its inflation-hedging capabilities, making it valuable for mixed-asset portfolios (Hoesli et al., 2008; Huang & Hudson-Wilson, 2007). The ability to adjust rental income with inflation ensures that returns keep pace with rising prices, offering protection against both expected and unexpected inflation. While interviewees acknowledged real estate's potential as an inflation hedge, they pointed out some limitations. High inflation rates may not fully translate into proportional rent increases, especially if rent adjustments are tied to the CAO rather than the CPI, as is suggested in the Wet Betaalbare Huur. Additionally, the impact of raised interest rates, often a policy response

to high inflation, can adversely affect real estate values and thus indirect returns. Consequently, while real estate offers some inflation protection, it is not completely inflation-proof, particularly in environments of sharply rising inflation and interest rates, depreciation can seriously dent real estate returns.

With regard to the liquidity of real estate as an asset, it is inherently illiquid, which poses a challenge for investors needing flexibility in their portfolios. However, different real estate investment vehicles offer varying degrees of liquidity, with publicly traded real estate being more liquid compared to direct or private real estate investments (Oikarinen et al., 2011). Despite this illiquidity, real estate is often included in portfolios due to its favourable risk-return profile. Interviewees confirmed this illiquid nature of real estate, noting that this characteristic means that institutional investors often maintain a modest allocation to private real estate (a more illiquid real estate investment vehicle), balancing the need for stability with the demand for liquidity. The slow process of buying or selling private real estate was repeatedly compared to manoeuvring an oil tanker, underscoring the need for long-term planning and foresight in managing these investments.

Leverage is an important factor, especially for publicly traded real estate investments, where borrowing can amplify returns on equity. However, the effectiveness of leverage is dependent on interest rates and the cost of debt. Negative leverage can occur when debt costs surpass the returns on assets, making the strategic use of leverage precarious. Some private funds interviewed indicated they also use leverage, though conservatively, with LTV ratios ranging from 10% to 25%. This contrasts with private investors who often employ higher leverage to maximize returns. Institutional investors prefer lower leverage to ensure stable, long-term returns and avoid the risk of having to sell assets under unfavourable conditions. The current high-interest environment heightens the need for caution, as rising debt costs could lead to negative leverage and impact overall portfolio performance.

Combining insights from the literature and interviews on these different aspects, we can conclude that institutional investors' motivations for investing in Dutch (residential) real estate result from extensive consideration with a multitude of factors to be included in this consideration. Diversification remains a primary driver, supported by real estate's favourable risk-return profile and its low correlation with other asset classes. Stable direct returns from rental income further increase residential real estate's appeal for institutional investors, providing predictable cash flows that help match (long-term) liabilities.

While real estate offers inflation-hedging properties, these benefits are not absolute and can be influenced by rent indexing mechanisms and fluctuations in interest rates that often follow (sudden) fluctuations in inflation. The inherent illiquidity of real estate requires careful portfolio management and limits the overall allocation to ensure sufficient steerability and liquidity. Lastly, the strategic use of leverage, though more conservative among residential real estate funds, underscores the need to balance higher returns with the risks associated with borrowing.

In conclusion, Dutch institutional investors' residential real estate investment strategies are influenced by a combination of diversification benefits, stable returns, inflation protection, and careful management of liquidity and leverage. These factors collectively ensure that real estate remains a vital component of their portfolios, aligning with their long-term investment objectives and liability management models.

7. Residential real estate investment in the current economic context

This chapter will assess how Dutch residential real estate is influenced by recent changes in the economic context. In doing so, we will answer the second sub-research question. The main economic drivers that are addressed in this chapter are inflation and interest rates. As with the previous chapter, the second sub-question will be answered by evidence from the literature on the topics, which will be complemented by the findings from the interviews. Finally, the hypothesis with regard to economic drivers in the model of DiPasquale & Wheaton (1992) from Chapter 3 will be revisited and either confirmed or refuted based on the conclusion drawn in this chapter. On the one hand, an assessment should be made whether real estate is still an interesting investment in relation to other options like shares, bonds, or obligations. An important factor in this trade-off is the risk-return profile of different asset classes and (residential) real estate. This is mainly from the point of view of pension funds and insurance companies. On the other hand, new investments are also affected by rising inflation and -interest rates. This puts pressure on the financability of new projects. Thus, via a combination of literature and interview data, this chapter aims to answer the research question: "*What is the effect of high inflation, -interest rates and -building costs on the business case of (new) residential investments?"*

7.1 Evidence from the literature

7.1.1 Inflation

The aforementioned inflation surge in previous years, albeit the worst seems to be over, has had its impact on real estate investment. There are several ways in which inflation, in theory, has an impact on real estate investment and institutional investors. This section will address these before moving on to the rise in interest rates, which often follows a surge in inflation.

There are several ways in which inflation in theory can affect real estate returns for institutional investors in the Dutch residential market.

Firstly, there is the growth of rental income, which can be influenced by inflation, potentially affecting direct returns. Dutch institutional investors, due to their more socially oriented nature, may seek to maintain stable rental policies targeting the mid-rent segment, as evidenced by the annual reports of Dutch major residential funds (Amvest Residential Core Fund Annual Report 2022, 2022; Bouwinvest Annual Report 2021, 2021; Vesteda Annual Report 2022, 2022). This suggests that during periods of high inflation, they may not fully adjust rents to match inflation but rather slightly below it. In the Netherlands, the CAO is often used as a reference index when inflation (CPI) is exceptionally high. Consequently, the real growth of rental income, adjusted for inflation, may decrease during such periods if rents lag inflation. This could impact both direct and indirect returns from assets.

Indirect returns might be affected by a higher discount rate in valuation models, reducing the present value of future cash flows. The discount rates used in valuation methods are often based on the inflation expectation, to which certain risk premiums are added. Besides that, inflation can impact property valuations through changes in capitalization rates. Real estate contracts are usually long-term, so rent can only be adjusted to market levels when the lease is renewed. Therefore, according to Hoesli et al. (1997), when inflation expectations increase, the present value of future income decreases, causing the capitalization rate to rise if the rental income stays the same. In the Netherlands, rental prices have gone up consistently, albeit less so in periods of high inflation, due to the tightness in the market. The notion that market fundamentals such as inflation expectations drive cap rates, is underscored by several previous studies (Clayton et al., 2009; Hoesli et al., 1997; Sivitanides et al., 2001). However, these papers do not seem to give a consensus on the exact effect of inflation expectations on cap rates. Sivitanides et al. (2001) state that an increase of 1% in inflation expectations leads to a small decrease in cap rates, whereas Hoesli et al. (1997) state that an increase in inflation expectations leads to an increase in cap rates. In contrast to the above works, Chandrashekaran and Young (2000) find that there is no

significant relationship between inflation and cap rates and that forecasts based on macroeconomic factors are outperformed by their model based on lagged capitalization rates (Chandrashekaran & Young, 2000). Thus, as stated by Larriva (2022), although there are numerous reasons to expect a relationship between cap rates and inflation, there are also numerous observable exceptions. These exceptions occur when cap rates increase while interest rates decline, or vice versa. Consequently, research on this topic yields mixed conclusions, reflecting the complexity and variability of factors influencing the relationship.

High inflation can also lead to increased operating expenses for real estate properties, such as maintenance, utilities, and (property) management costs. Even if rental income remains stable, or grows at a stable rate, higher inflation could eat into investors' profit margins, reducing net income and ultimately affecting returns. Figure 7.1, based on data from CBS, shows the development of rental prices in the liberalised segment together with the development of building costs, made up of a labour component and a materials component. We can see that prior to the situation of high inflation in 2022, these two factors grew at a comparable rate. However, in 2022 we can see a clear difference between the two. This could potentially hurt returns for that year and the years that follow, especially with inflation expectations not returning to the goals of 2.0% until 2026 (Statista).

Furthermore, these high building costs also affect the development sector, reducing the number of new developments. If we take the number of building permits issued as an indicator of future new construction, we see a decline over the past three years. However, this is not only due to high construction costs caused by high inflation. Other factors such as nitrogen problems, long application procedures and the financial feasibility of new construction projects also lead to a lower delivery of new developments. According to data from CBS, roughly 73 thousand new homes were completed in 2023. This is slightly less than the nearly 75 thousand new homes built in 2022 but is above the average of over 61 thousand over the past decade. The drop in the number of new homes built in 2023 corresponds to the declining trend in the number of issued building permits over the past two to three years. From 2019 to 2021, this number was still increasing, but since then the figure has been declining. This suggests that the supply of new projects will not increase in the near future.

Inflationary pressures may lead to higher financing costs for the residential real estate funds operating on the Dutch market. Even if they have conservative financing structures with low levels of leverage. This is especially true for loans that were taken on in times of lower inflation, and consequently, lower interest

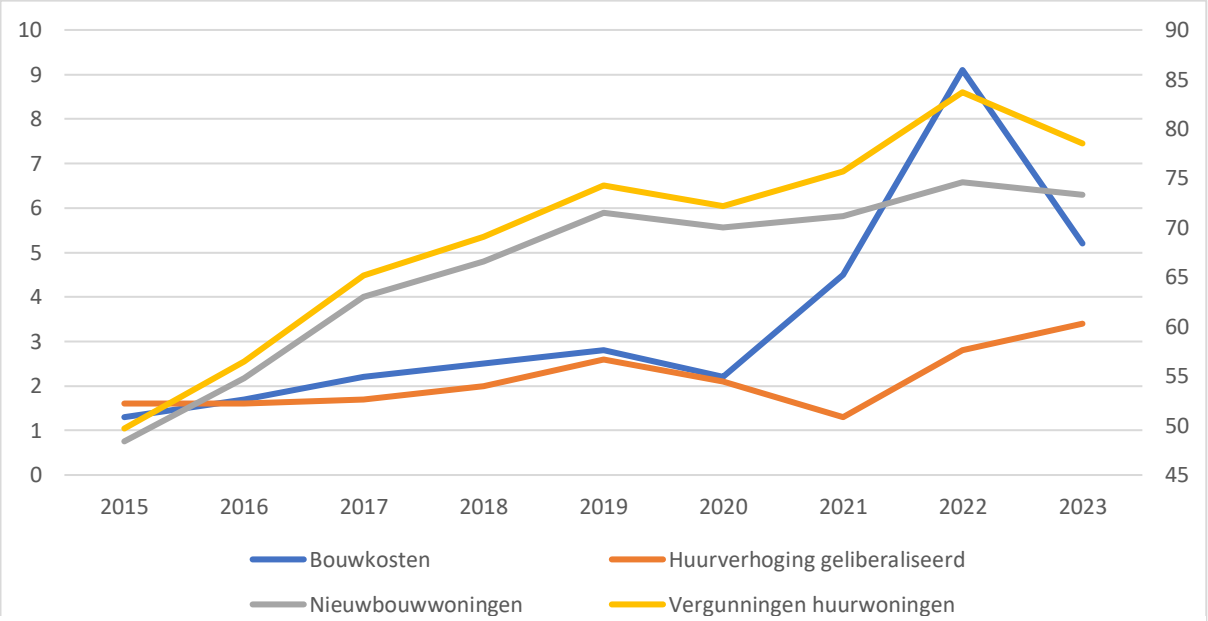

Figure 7.1: Development of buildingcosts, number of new dwellings and new permits and rent increases (CBS)

rates. Higher interest rates can increase the expense of debt financing for new acquisitions or refinancing existing debt, potentially reducing returns on invested capital. This dynamic between inflation and interest rates is very interesting. Especially as inflation on the one hand can also lead to an inflation of rental- and housing prices, however, on the other hand, can also lead to increased interest rates. The effects of the latter will be elaborated on soon. This same principle can also lead to institutional investors expecting higher returns on their investments in real estate. Especially because inflation can diminish their real returns. To maintain their wealth, meet long-term growth objectives and still be able to fulfil their obligations to their clients, institutional investors look for returns that outperform inflation. Thus, if inflation rises, the expected return theoretically should also rise.

Finally there is the denominator effect, which is a phenomenon that occurs among institutional investors with mixed-asset portfolios. It refers to the situation where the value of one or more asset classes, typically stocks and bonds, decreases significantly, causing the portfolio's overall value to drop. This decrease in value can lead to the investor needing to sell other assets, for example, real estate, to rebalance their portfolio and meet their investment objectives on a tactical level (Nasdaq Asset Owner Solutions, 2022; Portfolio Solutions Group, 2023; Schoenmaker & Leahy, 2022; van Gool et al., 2018). This can have a cascading effect, where the selling of assets further decreases their value and exacerbates the problem. Another problem specific to real estate is that real estate indices based on appraisals or sale prices are known for their slow response to market news/developments (Fu, 2003). Real estate in The Netherlands is typically evaluated each quarter, whereas, for example, stock/shares are evaluated almost immediately. The denominator effect can be particularly challenging for institutional investors with a long-term investment horizon who may be forced to sell assets at a loss to meet short-term liquidity needs.

The denominator effect leads to an over-representation of real estate in portfolios, mainly in the European market (Investment Intentions Survey 2023, 2023). On the contrary, in regions where real estate was still relatively underrepresented (such as Asia), the denominator effect led to a smaller gap between the target and current allocation of real estate. What is interesting to note is that within the various larger regions, there is still a difference by country. This can be seen in Figure 7.2, which shows that in the investor domicile "other" European countries, including the Netherlands, the average real estate allocation is one per cent above the target. The general sentiment concerning the rebalancing of the real estate asset allocation, as was seen in Figure 2.1, aligns with the over-allocation seen in Figure 7.2 for the 'other' domicile that the Netherlands falls under. It is interesting to see that the denominator effect only seems to appear among European investors.

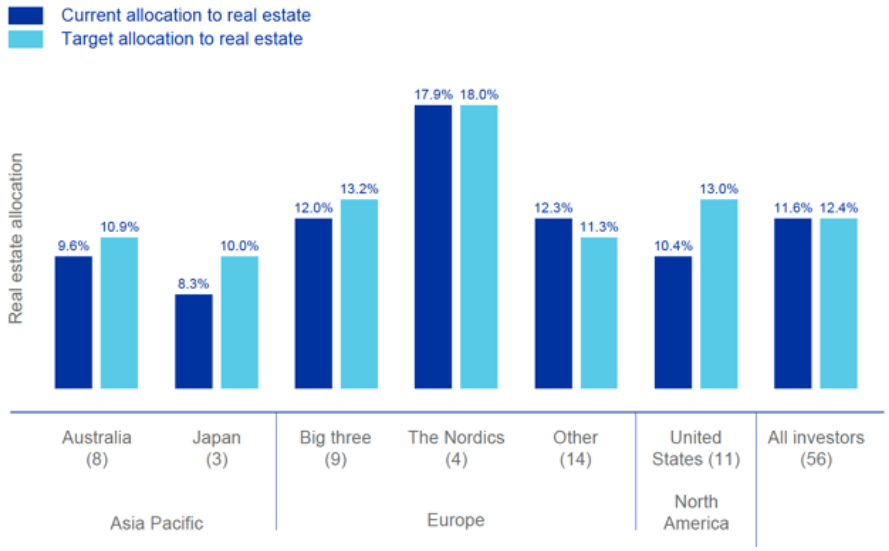

Figure 7.2: Average current- and target allocations by investor domicile in 2023 (Investment Intentions Survey 2023, 2023)

It is interesting to note that inflation, can also be one of the drivers behind the lower performance of other financial assets. A literature review of 158 articles on the topic done by Madadpour & Asgari (2019) concludes that the literature does suggest that inflation has the potential to diminish the actual value of stock returns and can also have an adverse effect on the value of stocks (Madadpour & Asgari, 2019; Quayes & Jamal, 2008). Furthermore, interest rates and the value of bonds show a strong relation, meaning that if interest rates go up, bond values go down (Lioudis, 2023; Longstaff & Schwartz, 1993). This further shows how the economic context impacts institutional real estate investment, and possibly their stance towards real estate.

Overall, the impact of inflation on real estate returns for institutional investors in the Dutch market depends on a combination of factors, including rental income growth, operating expenses, financing costs, property valuations and the performance of other financial assets. By carefully monitoring inflation trends and their potential implications for real estate investments, institutional investors can make informed decisions to optimize returns and manage risks in their portfolios.

7.1.2 Interest rates

From a theoretical point of view, there are a couple of ways in which heightened interest rates can affect the operations of institutional investors and residential real estate funds.

First of all, as was mentioned before, in Chapter 3, in response to higher inflation, central banks increase interest rates, leading to higher government bond rates. One common tool used by central banks is raising the benchmark interest rate, the European Central Bank's refinancing rate in the Eurozone. When central banks raise interest rates, government bond yields tend to increase in response to higher borrowing costs across the economy. As the long-term government bond rate is often used as a basis risk-free return rate, this can have a far-reaching impact on standing- and new investments in Dutch residential real estate. An increase in bond rates affects institutional real estate investors in two distinct ways. First of all, if government bond rates go up, they become relatively more interesting as an investment. This is due to the low risk involved in investing in government bonds. However, on the other hand, this reduces the value of outstanding bonds, leading to an increase in the previously mentioned denominator effect. As the exact workings of this phenomenon were already discussed in the previous chapter, we will not go over this again in this chapter. In the first scenario, where newly issued bonds yield higher yearly coupons, returns of other asset classes should increase in unity to remain an interesting risk-return profile, as their perceived risk does not change.

Continuing on the expected return from a certain asset, a commonly known model for institutional investors to set the required rate of return for the different assets in their mixed asset portfolio is the Capital Asset Pricing Model (CAPM) (Bartholdy & Peare, 2003; Elbannan, 2014; van Gool et al., 2018). This model continues the Modern Portfolio Theory from Markowitz. The CAPM first states that all investors should invest in a market portfolio (a fully diversified portfolio) in conjunction with a risk-free investment or loan. This combination allows for portfolios with an even more favourable risk-return ratio. Furthermore, the CAPM asserts that investors can only receive returns for risk that cannot be further diversified (van Gool et al., 2018). However, the CAPM is also a widely used model that estimates an asset's required rate of return by considering its systematic risk (beta) in relation to the overall market risk (market risk premium). The formula is:

$$E(R_i) = R_f + \beta_i(R_m - R_f)$$

Where
$E(R_i)$ = the required rate of return for the asset
β_i = the assets beta
R_f = the risk-free rate
R_m = the expected market return

This formula moreover shows very well how dependent the expected rate of return is on the risk-free rate, but also the volatility of the returns of that asset compared to the rest of the market. This means that an asset with a higher beta has a higher risk. Finally, the concept of 'the market' is often represented by an S&P500 index or, in the Dutch situation, the AEX index.

Institutional investors have a range of models and tools available besides the CAPM to

calculate the required return for an investment. Another asset pricing model commonly used to estimate the required rate of return is the Arbitrage Pricing Theory (APT). The APT has often been proposed as an alternative to the CAPM. The theory postulates that the required return for an asset can be derived through reliance on a similar function with a more diverse set of risk factors incorporated within the model, with an anticipation that these factors will exert an influence on the returns generated by all assets (Huberman & Wang, 2005). For instance, these risk factors may include variables such as inflation, fluctuations in interest rates, or geopolitical and economic developments, all of which are supposed to significantly impact the returns of all assets (Elbannan, 2014). This suggests that the expected return might not only depend on market returns and the asset's correlation to the market, but on a wider variety of systematic risks which are captured in premiums to the risk-free rate. The formula of this model to find the expected rate of return looks as follows:

$$E(R_i) = R_f + \beta_{i1}\lambda_1 + \beta_{i2}\lambda_2 + \beta_{i3}\lambda_3 + \cdots + \beta_{ik}\lambda_k + \epsilon_i$$

Where
$E(R_i)$ = the required rate of return for the asset
$\beta_{i1}, \beta_{i2}, \ldots, \beta_{ik}$ = the factor sensitivities of asset i to factors 1, 2,…, k
$\lambda_1, \lambda_2, \ldots, \lambda_k$ = the risk premiums associated with factors1, 2,…, k
R_f = the risk-free rate
ϵ_i = the random error term

As can be seen, both these models to calculate a required return for a real estate investment are based on the risk-free rate. Thus, if all other variables stay the same, and the risk-free rate increases, this will lead to a higher required rate of return.

Translating this from the institutional investor to the residential real estate fund manager, their return requirement also changes. The required rate of return for real estate can differ for the different parties considered in this study. For the investment fund manager, two returns are important. The first is the return they can offer to their stakeholders which should be somewhat in line with their expected return from the APT and CAPM. This return is often based on the sum of the direct and indirect returns. This is the return their stakeholders receive on their invested capital. The direct return is often paid in quarterly dividends. This is a different return rate than the Internal Rate of Return (or IRR). The IRR is often used in real estate investment to assess the potential profitability of an asset. It represents the discount rate at which the net present value (NPV) of all expected future cash flows from the investment equals zero. In formula, this looks like:

$$0 = \sum \frac{CF_t}{(1 + IRR)^t}$$

Where:
CF_t represents the cash flow at time t.
IRR is the internal rate of return.
t is the time period

Naturally, the first return, $E(R_i)$ from the CAPM and APT models, is often also a required level for the IRR, as new and standing investments must ideally yield a return equal or greater than the return requirement so that the portfolio as a whole has an adequate return for shareholders.

Thus, moving to the next consequence of increased interest rates for residential real estate investors, the increase in the expected return also means that the hurdle IRR, the minimum IRR of an asset, goes up. This of course has an impact on the possible acquisition of new developments by the fund managers. If their IRR goes up, fewer projects can be considered feasible projects. These hurdle IRRs sometimes are a direct translation from the required rate of return for institutional investors, whereas those hurdle rates were often based on a more traditional 'risk-free rate plus risk premium' (Hutchison et al., 2017). This simple approach, however, showed a wide range of options, from simple rules of thumb to more layered models with multiple risk factors, and pro-forma approaches.

Then, as was already briefly mentioned in Chapter 3, the cap rates, which are also included in the model of DiPasquale & Wheaton, are influenced by capital markets, expected inflation and policy factors such as interest rates or tax regulation. In the previous part of this section, the relation to inflation was already elaborated. However, interest rates are also often closely related to cap rates (Chandrashekaran & Young, 2000; Conner &

Liang, 2005; Devaney et al., 2019; DiPasquale & Wheaton, 1992; Sivitanides et al., 2003). Sivitanides et al. (2003) find that a decline in interest rates, and a high-inflation environment both have a downward effect on cap rates. The methodologies employed in capitalization rate determination go from surveys among industry stakeholders to the summation of presumed risk components, coupled with the inclusion of a risk-free return (Chandrashekaran & Young, 2000; Larriva & Linneman, 2022). Approaches with a stronger mathematical orientation commonly establish connections between real estate cap rates and prevailing conditions within the broader capital markets (Chandrashekaran & Young, 2000). On the contrary, there is also more recent research that suggests that the relation between interest rates and real estate cap rates is not to be considered crucial in forecasting methods for cap rates (Larriva & Linneman, 2022). Larriva & Linneman (2022) present a forecasting method that does not use any of the data thought crucial to cap rate forecasts, but instead uses a single variable of total mortgage debt as a percentage of GDP. In their opinion, this emphasises the importance of fund flow in cap rate forecasting.

However, as the majority of literature seems to suggest that there is a correlation between interest rates and real estate cap rates, which is also not explicitly denied by Larriva & Linneman (2022), we will assume that there is a certain dynamic between the two. This, consequently, would also mean that there is a certain link between interest rates and the valuation of residential real estate, for which cap rates are often used. For example, as stated by Krainer (2013) there exists a close relationship between interest rates, cap rates, and real estate valuations. He explains that the underlying fundamental principle in finance asserts that asset prices represent the present value of anticipated future cash flows. The determination of these prices heavily relies on the choice of discount rate applied to these cash flows. As was stated before, when interest rates decrease, the discount rate applied to cash flows from commercial properties also decreases, leading to an increase in commercial real estate prices. Furthermore, a study by Hobijn, Krainer, and Lang (2011), suggests that fluctuations in interest rates, which affect the entire nation, influence the discount rates applied to commercial real estate across all local markets, and consequently the value of real estate assets. In the model of DiPasquale & Wheaton, a higher cap rate leads to depreciation of the value, provided that rental income stays the same. Consequently, when stating that cap rates increase when interest rates increase, we indirectly state that, ceteris paribus, real estate valuations should decrease. Thus we could state that increased interest rates, through their relation to the cap rates, lead to real estate depreciation.

In the Netherlands, real estate values have risen consistently over the previous 10 years. If we look at the extrapolation between the interest rates for mortgages, the 10 yr Dutch government bond and house price development, we can see that in reaction to the heightened inflation, the government bond rate, and consequently interest rates on mortgages went up, leading to negative house price development. Furthermore, if we look back at the figure from the MSCI Dutch residential index (Fgiure 6.2) we also saw negative capital growth figures in the years after the interest rates took a hike. Based on an analysis of transactions and completed bidding processes in the second half of 2022 and the first half of 2023, CBRE observes a price reduction ranging from -5% to -30% compared to historical peak levels (CBRE Research, 2024). This disparity is particularly noticeable between core and core+ products, with the latter experiencing a more pronounced decline in prices on average. This discrepancy can be attributed to the reliance on financing associated with core+ investments, making them more susceptible to rising financing interest rates. Although this is based on all real estate segments, it does show the dynamic between interest rates and real estate pricing. As cap rates rise, and exit yields are more conservatively estimated, real estate prices drop.

Finally, there is the financing of real estate funds. As was stated in the second chapter, Core and Core+ funds sometimes use leverage in their financing structure. This does, however, expose them to a refinancing risk. Now that commercial loan rates have also gone up, following the risk-free rates, loans that have been taken on at a low rate, must be refinanced against a higher rate, potentially driving up debt costs for the investor.

7.2 Findings from the interviews

7.2.1 Inflation

Looking at the findings from the interviews concerning the previously mentioned relations between inflation and residential real estate investment, the following can be said.

First of all, on a more positive note, inflation can affect the growth of rental income, according to the literature. This seems to be confirmed by several of the interviewees, however, it must be stated that the nuance is made that the rent can't always be increased with inflation, due to the social character of the investors. Furthermore, even though rents can be increased a bit more, as one of the interviewees stated, cap rates are also very important when it comes to the price they can pay in the end:

"Look obviously rents we've also been able to price a bit higher due to inflationary increases, but that can't really necessarily outweigh in a lot of cases that increase in initial yield [Cap rate]*, so we just end up being able to offer less to meet a certain return requirement."*

Furthermore, another interviewee stated that the increase in rent during the rental contracts is often rather low, 0,5% to 1% plus CPI. However, this sometimes creates a discrepancy between the rent and the market rent. Thus the rent is recalibrated at mutation:

"...so those are those proceeds from sales and on the other hand you have your normal rent increase with your incumbent tenant. We always have that, which is usually around CPI plus 0.5 and/or plus 1.0%, something like that. Long term, it's about that on average. So of course you have that. Plus you have your rent increase on change, and that's an important one. Then a new tenant moves in, and the new tenant knows what he or she is signing up for, so you can increase the rent of your house."

This shows that institutional investors and Dutch residential real estate funds do indeed aim to find an equilibrium in the rental price inflation and their social goals. This is moreover affirmed by another institutional investor stating:

"We are not looking to squeeze tenants. So we could increase rents by inflation plus even more because of the tightness in the market, especially in the big cities, but we always hold back on that. Because we feel that we have to keep rent increases within limits anyway, otherwise it gets very unpleasant for tenants and for us, very quickly. At some point, you do reach a painful point."

Thus, inflation does allow for higher rent prices, which was also mentioned in the literature, however, to a certain degree. Due to their social character, institutional investors and the funds that they invest in, moderately increase rents.

Furthermore, the bigger rent increases at the mutation of tenants are often also timed with (sustainability) improvements of the dwelling:

"Often we do it in combination with renovation. So you always get a better home in return. [...] *that was between 5-8% on average.*

[...]

Yes but well, suppose you have part of that... of course, you already have normal inflation which means it is already higher, and part of it is renovation, so you get that in return. And then you have a final component that is because you have ... yeah just because you have the market impact."

This then furthermore justifies the higher rent the new tenant has to pay. Of course, as was mentioned by another interviewee, this goes in consultation with the other (remaining) tenants in that multifamily asset, as such improvement must eventually also come back through a better return. Some through capital growth (indirect return), but some also through rent growth (direct return).

This brings up another way through which inflation might affect residential real estate investors. Increased operational expenses. the findings from the interviews do not seem to be concise on this topic. One of the interviewees gives an insightful explanation:

"Yes in itself, strangely enough actually, it is not so bad in our case.
[...]

On the one hand, because we are working with long-term contracts with maintenance parties, which means that we don't see an extreme increase in operating costs, because you are faced with higher expenses and that [as a result] your net return actually decreases to some extent. But you also see a bit of an increase in scale in the fund. That projects that are just a bit smaller are also being phased out more often, or are being put less emphasis on.
[...]
This makes it easier to maintain your complexes at somewhat lower costs, so that cancels each other out, so to speak. On the one hand, there is an increase in operating costs. But you can also use those operating costs more efficiently per complex and per unit."

This demonstrates that operational costs indeed rise in response to high inflation. However, it is also feasible to mitigate these effects by focusing on specific types of assets that allow for economies of scale. Moreover, maintaining long-standing relationships with maintenance parties and establishing long-term agreements can further help in mitigating higher operating costs.

Nevertheless, most interviewees agreed on the impact of increased building costs on new developments, making it challenging for both developers and investors to establish feasible business cases for new projects.

Another way through which inflation affects real estate investors is through cap rates, as indicated by the literature and the model proposed by DiPasquale & Wheaton (1992). From the interviews, it becomes evident that cap rates are indeed a crucial metric for investors, and an increase in cap rates has been observed in recent times.

However, whether this increase in cap rates is a direct consequence of the high inflation rate triggered by the war in Ukraine and COVID-19 was not definitively confirmed. The primary driver behind the rise in cap rates, as mentioned on several occasions, appears to be the increase in interest rates. While this rise in interest rates is a response by central banks to counteract inflation, we will refrain from delving further into this dynamic as we focus separately on interest rates.

Lastly, there's the denominator effect. The portrayal from the INREV Intentions survey seems accurate, indicating that Dutch institutional investors were slightly over-allocated in real estate. Both the decline in the value of bonds and stocks are cited as reasons for real estate becoming relatively overrepresented in their portfolios.

About selling their real estate positions, one interviewee stated:

"Well, we are also experiencing a degree of it, but not as urgently. We are slightly above target, but we have the ability to manage that for now. So for the time being we are not forced to sell."

This was, interestingly enough, opposed by some of the fund managers that were interviewed. When asked about the reasons for possible redemption requests (requests to sell (a part) of an investor's shares in that fund), they stated that they had heard of parties being overallocated in real estate and that for that reason they wanted to decrease their share in (residential) real estate funds. For this reason, most funds have agreements with their shareholders about withdrawal from the fund. Often there are certain conditions about, for example, set times to exit, or transferring/selling the shares to a third party. The latter must often be done in agreement with the other shareholders and the fund itself. This is done so that the funds are not forced to sell assets to create liquidity to facilitate the withdrawal of a shareholder.

7.2.2 Interest rates

As mentioned, in response to the increased inflation, interest rates have gone up. This chapter will look at the rise of government bond rates, and how that rise has affected real estate investors in the Netherlands according to the interviewees.

First of all, the relation between the attractiveness of investing in real estate as opposed to government bonds. About this, one of the interviewees stated that:

"Investors are also starting to look at their asset allocation again. Suddenly, government bond rates are not doing minus 0.2%, but plus 4%. Also an attractive return, then more money goes there and less money goes to real estate."

This quote suggests that investors are more inclined to shift their allocation to bonds rather than real estate. However, this was not mentioned nor confirmed by any of the other interviewees, with another interviewee stating that:

"[real estate] *still has a role, it's still very stable, it's very unique so has a certain correlation with other asset classes, there's a steady rent coming out of it, a stable valuation. So it has all sorts of aspects that you don't want to suddenly undercut because that premium with government bonds is gone."*

This underscores the significance of diversification in mixed-asset portfolios for institutional investors. Despite the potentially better risk-return profile of assets like government bonds compared to real estate, the latter remains crucial in portfolios due to its diversification benefits. However, it's worth noting that several interviewees stated that interest rates do exert an influence on the valuation of bond allocations.:

"Big impact is really just the interest rate of course. The rise in interest rates, that just has an impact, you notice that with our clients as well because they invest of course in different classes, not just real estate, but also in fixed-interest assets for example.

And what you see now is that many parties are becoming overweight in real estate because, for example, the fixed-interest assets have started to fall in value, and then you get the denominator effect so you have too much real estate."

This indicates that, via the denominator effect, an increase in interest rates could lead institutional investors to rebalance their allocations towards residential real estate.

Additionally, nearly all interviewees affirmed the relationship between interest rates and required returns. In the literature review, the Arbitrage Pricing Theory (APT) model was discussed as a possible model to determine the required return. The APT model posits that the required return comprises the risk-free return, typically represented by government bonds, along with several additional (weighted) premiums. This model seems to closely align with the mechanism by which returns are calculated in practice:

"But what is important here is the risk-free rate. Usually, that is the government bond yield. And not Argentine, but Dutch or German government bonds. Then there are some risk premiums for investing in real estate."

Most interviewees also indicated that, with rising interest rates, there was a higher return requirement. This negatively impacts the feasibility of acquiring new projects, as this return requirement often serves as the primary metric for determining the feasibility of an investment. Fund managers typically review the required IRR for acquisitions annually, and this metric is partly influenced by interest rates. Several fund managers noted that coupled with increasing construction costs, the higher required IRR has rendered fewer projects financially viable. This is especially true because many developers must meet their own criteria, causing the price for new developments to surpass investors' target IRR.

Lastly, regarding the relationship between interest rates, capitalization rates (cap rates), and real estate valuations, one interviewee stated:

"I think an interest rate is indeed an important one. In the recent period, now it is somewhat stable again, but the ECB has raised interest rates to 4% in 10 steps or so.

That means that yields [cap rates] *have started to rise and that means that investors, including us, have had to sit on our hands. When values fall, you don't do anything for a while."*

This illustrates how the increase in interest rates has prompted investors to exercise caution in new investments. From the interviews, it has become evident that the rise in interest rates is a key driver for the rise in cap rates, thereby also driving down real estate valuations.

7.3 Conclusion

In this conclusion, the hypothesis based on the model of DiPasquale & Wheaton (1992) is revisited. As was stated in the third chapter, the increase in inflation and interest rates would, according to the model of DiPasquale & Wheaton, lead to a decrease in the stock. Before revisiting the hypothesis, the findings from both literature and interviews are put beside each other and reviewed on confirmations or discrepancies.

First of all, inflation poses significant implications for residential real estate investments, affecting various aspects of portfolio allocation, project feasibility, and rental income growth. This chapter explored insights from both literature and interviews to provide a comprehensive understanding of these impacts.

Regarding the Denominator Effect and the real estate allocation in a broader mixed-asset portfolio, both the literature and interviews underscore the denominator effect, where real estate becomes disproportionately represented in mixed-asset portfolios during periods of a slower economy and heightened inflation. Institutional investors respond by adjusting their allocations, potentially divesting some of their real estate assets. While the literature suggests that Dutch institutional investors are indeed overexposed to real estate and that a significant percentage would reduce their real estate allocation, redemption requests to fund managers, although observed in interviews, do not occur at an alarming rate. Additionally, clear guidelines are often established upon entry into a fund regarding exit procedures. These guidelines safeguard funds from being compelled to sell assets to generate liquidity for redemption requests. However, as redemption requests do occur, funds are restricted in the extent to which they can reinvest proceeds from planned sales into new assets.

Increased construction and maintenance costs present further challenges for real estate funds. The literature and interviews concur on the impact of rising costs, which can hinder project feasibility and affect investors' direct returns. Data from the CBS shows a clear discrepancy between the growth of material-/labour cost, and rental growth in the Netherlands, suggesting that maintenance costs should go up. The interviews show a more nuanced image, stating that this problem is not very impactful. They show that good timing for large renovations, long-term agreements, larger-scale assets and good relations with maintenance parties can mitigate the potential rise in maintenance costs. While the literature emphasises the potentially beneficial relationship between rental income growth and inflation, the interviews underscore the importance of finding a balance between rent levels and tenant affordability. This is mainly due to the more social character of the institutional investor, and their focus on the mid-rental segment.

Finally, regarding the relationship between inflation and cap rates, some of the literature suggests that inflation-driven rises in cap rates should theoretically lead to reduced property values. However, other studies show a slight decrease in cap rates when inflation increases, which should theoretically increase property values. Thus, the literature appears to remain indecisive. The interviews do not explicitly contribute to the devaluation of real estate to the rise of inflation, and as a consequence, cap rates. The dynamic between inflation and cap rates seems to go mainly through the rise in interest rates, which are handled separately.

In conclusion, inflation seems to influence residential real estate investments, with implications for portfolio allocation, project feasibility, and to a certain degree rental income growth. While the literature and interviews offer valuable insights into these impacts, there are differences in perception regarding redemption requests, rental income growth, and the impact on cap rates.

Then there is the relationship between interest rates and real estate investment. Interest rates often rise in response to heightened inflation and laos pose significant implications for real estate investments. Especially required returns are impacted by this, but also other metrics such as cap rates, real estate values, and the denominator effect.

First looking at the effect of increase interest rates on the required rate of return. Both the findings from the literature and the interviews understate the relationship between interest

rates and the yield requirement. This is mainly due to the increase in government bond rates. These are used as risk-free rates underlying the methods used to determine the required rate of return. Frequently cited models in the literature are the CAPM and the APT model. The latter most closely resembles the method described by interviewees, in which risk premiums are added on top of a risk-free rate to eventually arrive at a required rate of return. On this matter, the interviews and the literature seemed to confirm each other. Higher interest rates require a higher return on real estate investments. For a lot of fund managers, this reduces the number of financially feasible investments. Furthermore, this also means that when improving and renovating an asset, a stricter framework must be tested. If, at periodic evaluation, assets underperform, investors either have to upgrade the asset, which can be financially challenging with higher costs and sharper return requirements, or sell the asset.

Then there is the attractiveness of real estate as an asset class, relative to fixed-rate assets, such as bonds. The latter currently offer higher yields than before and are often seen as risk-free investments as the coupon and principal amount remain unaltered throughout the bond. This suggests that real estate is becoming a relatively less attractive asset. On this, the interviewees do not fully agree. One interviewee stated that increased bond rates lead to a greater allocation to bonds, others state that the unique characteristics of real estate as an asset class (e.g., inflation-hedge or its low correlation with other classes) make it a good class for diversification of the broader mixed asset portfolio. The latter view also would seem to be better supported by the literature. Another interesting insight from the interviews was that the value of these bonds would go down, which amplifies the denominator effect.

Looking at the inflation first, in Chapter 3 we saw the curve in the left lower quadrant move left due to higher building- and labour costs. If all other factors were to stay the same this, in theory, should lead to less construction and thus less stock. This would then drive up prices in the market, allowing for more construction and thus more stock. Eventually finding a new equilibrium. We can conclude from the interviews that there are indeed higher construction costs in the market, which in turn reduces the number of financially viable projects. For the developer, higher construction costs also mean a higher required sale price as they must also meet return-/profit criteria. However, this makes it more difficult for fund managers, who also must meet a required IRR, to invest in financially viable projects. Consequently, the interviewed fund managers indicate that it is more difficult to find projects that meet their investment requirements, and they are therefore forced to maintain a more conservative investment policy. This, combined with fund managers selling assets that no longer meet requirements and for which it is also not financially feasible to upgrade them, can in the long run lead to reduced stock.

Moving on to the interest rates, the hypothesis also seems to be confirmed by the literature and the interviews. The interest rates drive up the cap rates, moving the curve in the upper left quadrant clockwise. If the other variables stay the same, this should lead to a decrease in stock. The fact that cap rates are driven up by increasing interest rates is confirmed by both the literature and the interviews. Consequently, for Dutch residential investments, this partially led to a decrease in valuations, which is in line with the model of DiPasquale & Wheaton. As indicated by several fund managers, this leads to the fact that to also meet the (increased) IRR requirement, less can be offered for a new investment.

Finally, several interviewees stated that the combination of these two factors combined led to reduced feasibility of new projects. This is mainly because these projects can no longer be calculated in a way that makes it financially feasible within the new regulation (to be discussed in the next chapter) for both investors, developers, and the end user/tenant.

After examining the characteristics of the Dutch residential real estate market and its attractiveness for institutional investors, this chapter has looked at the business case of Dutch residential real estate within the current economic context. A conclusion will be drawn based on a combination of the presented literature and interviews conducted with experts in the field. The following section will summarize and compare the key findings from the literature and interviews and draw conclusions regarding the impact of rising

inflation and interest rates on the investment potential of the Dutch residential real estate market for institutional investors.

The literature shows us that there are several ways in which rising inflation and interest rates affect real estate investment. First, based on the CAPM formula, it seems reasonable to presume that institutional investors will be expecting higher returns from their investments in real estate, as the risk-free rate has also. Moreover, when looking at the financeability of real estate, rising interest rates could oppose investors with too low DCRs on their near-maturity loans. Adding to those problems, by looking at the leverage formula, we can see that, in case interest rates on loans rise, the RoE also drops.

Furthermore, considering the higher inflation, building costs have risen, putting pressure on the business case of new development. However, on the income side of the exploitation, rents often increase with inflation. Thus, the possibility of higher rents offers some degree of relief. This increases the cashflows in the numerator of the IRR formula.

8. Impact of changing policy

Changing policies such as increasing the transfer tax and rent control potentially affect the direct and indirect returns of real estate investments. Furthermore, although regulation can be deemed necessary in distressed housing markets, it potentially also makes that market less attractive to invest in. In this chapter, recent policy changes in the Dutch residential real estate market will be visited from a literature and empirical point of view. The findings from the literature and the findings from the interviews with market parties will be laid out next to each other and compared. The concluding section will outline the main differences and similarities between the literary and empirical research. The differences will also attempt to be explained. Ultimately, these insights should lead to a statement about the expected effect of the policy changes discussed on the investment climate of the Netherlands.

8.1 Evidence from the literature

This first section will outline findings from the literature regarding the third sub-research question. Regulation will be divided into "rent control" and "transfer tax. Finally, the abolition of the FBI regime for investors will also be briefly discussed. The relevance of this topic emerged during the interviews. Thus, additional literature research on this topic was also briefly conducted.

8.1.1 Rent control

Rent control has been around for some time and almost all countries currently employ a certain degree of rent control or have done so in history. In academic literature, a general understanding exists about two different types of rent control: first- and second-generation rent control (Kholodilin, 2020). A rent freeze is set by first-generation rent control, in which the rent is set at a fixed amount that can be established in several ways (e.g., rent for similar residences at some date or a value estimated on structural, locational, and quality attributes of the property). In second-generation rent control, rent is presumably set more or less freely when new contracts are signed, but during existing contracts, rent increases are subject to upper boundaries. (Kholodilin, 2020; Monras & García-Montalvo, 2023). Figure 8.1 illustrates the classification of Dutch rent control by Kholodilin (2020), revealing a discrepancy between the different sources. While Kholodilin (2020) identifies the Netherlands as employing a first-generation rent control policy, Kettunen & Ruonavaara (2021) suggest a second-generation approach. However, upon closer examination of Kettunen & Ruonavaara's description of Dutch rent control and their definition of second-generation rent control, similarities to Kholodilin's definition emerge. Both sources characterize Dutch rent control as fixing rent at a certain level based on home

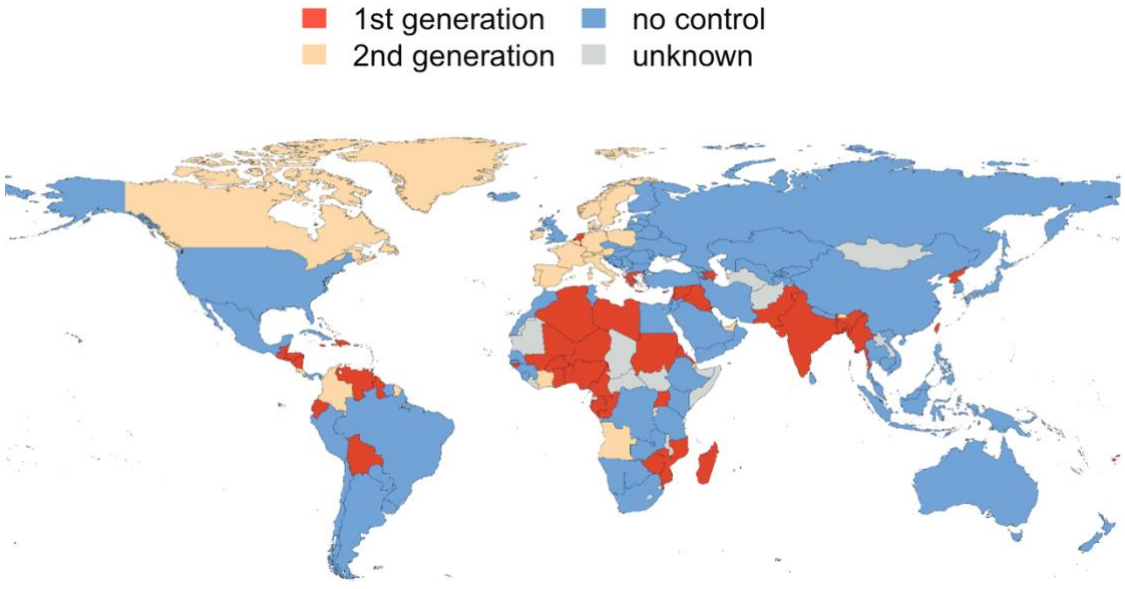

Figure 8.1: Different types of rent control per country (Kholodilin, 2020)

characteristics, with a focus on the Housing Valuation System (WWS). This system is to be expanded in the Netherlands with the WBH bill, also including the lower mid-rent domicile of the liberalised rental segment. For this reason, a recent example of both first- and second-generation rent control was chosen to explore in more depth how, based on the literature, such interventions in the rental market affect the market. This chapter will therefore look at Mietendeckel, a first-generation rent freeze in Berlin, as well as the second-generation rent control in Catalonia. This is done so that a more well-considered estimation can be made of the impact of implementing new rent control.

Based on the DiPasquale & Wheaton model, rent control could lead to a decrease in rental dwelling stock, as it becomes less of an attractive investment for investors due to a decreased cash flow. This decreased cashflow furthermore leads to a lower valuation for both new and existing assets. For new investments, this means less construction, as construction costs remain the same. Eventually, this decrease in construction leads to a decrease in stock. To examine the effect of rent control, several cases of rent controls (both first and second generation according to the definition of Kholodilin) are looked into by Kholodilin (2024). Kholodilin did a literature review of available literature on rent control from the 1960s to the 2020s, including both first- and second-generation rent control. Based on this literature review, several effects can be distinguished. However, some effects are mentioned by many papers as being an effect of implementing rent control. These are: construction/stock effects, distribution effects, rental price effects, and effects on the number of homeowners. Kholodilin's definition has been chosen over the one from Kettunen & Ruonavaara, as it is based on an older definition of Arnott, which is also often used in other literature regarding rent control.

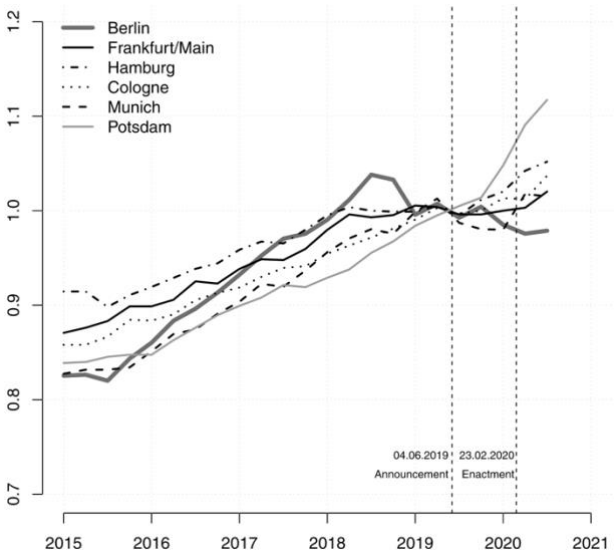

Figure 8.2: Rent price indices German cities show significant difference with Berlin (Hahn et al., 2023)

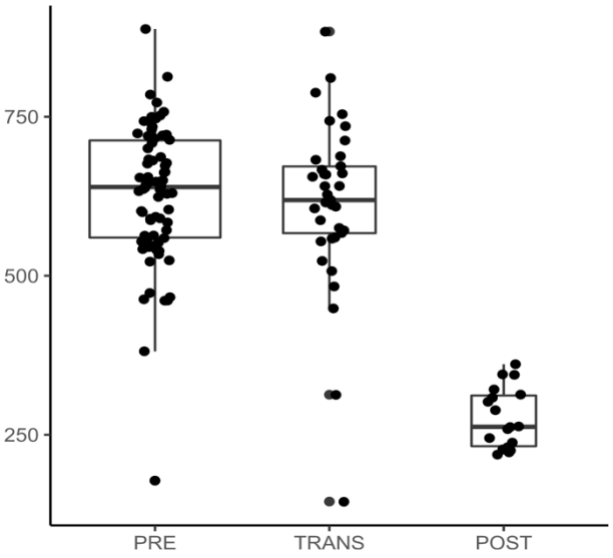

Figure 8.2: Significant drop in No. of newly posted rent ads, weekly (Hahn et al., 2023)

The Mietendeckel, introduced in Berlin in 2020, represents a first-generation rent control policy wherein rents were frozen in response to soaring prices in the city. However, the German Constitutional Court revoked the policy in 2021, allowing researchers to examine its short-term effects. Studies by Arlia et al. (2022) and Hahn et al. (2023) reveal various negative consequences of the Mietendeckel, including reductions in flat rental and purchase prices and decreases in the number of rental and purchase advertisements in Berlin. It is worth noting that landlords in Berlin heavily rely on private networks for tenant recruitment (Molden, 2023; Sagner & Voigtländer, 2023), potentially limiting the scope of research findings by Arlia et al. (2022) and Hahn et al. (2023).

The implementation of the Mietendeckel resulted in a decline in rental prices for affected dwellings in Berlin (Arlia et al., 2022) but also led to a significant increase in rental prices for unaffected dwellings (Hahn et al., 2023; Molden, 2023). Existing renters experienced increased housing security due to the drop in

their rent, while new renters and landlords faced negative effects, particularly evident by comparing Berlin to other (nearby) cities. Figure 8.2 illustrates rental price disparities between Berlin and other German cities. Particularly interesting is the difference in rent between Berlin and Potsdam, one of Berlin's satellite cities. This discrepancy in such nearby markets can be explained by the number of available properties in Berlin's rental sector, which has shown a significant drop (Figure 8.3). The number of rental properties on offer in Berlin has halved as a result of the introduction of Mietendeckel (Arlia et al., 2022; Hahn et al., 2023), making the smaller nearby markets substitutes. Hahn et al. find that this drop is true for both the affected rental dwellings as well as those exempt.

For new renters, the tightening of Berlin's rental market suggests a potential decrease in housing security in the long run. Furthermore, landlords encountered difficulties, with 4% defaulting on loans due to reduced income and property values. Consequently, many investors and landlords adopted a more cautious approach, expressing reluctance to expand their residential portfolios in regulated areas (Molden, 2023; Sagner & Voigtländer, 2023). However, the absence of a significant increase in dwellings for sale, as reported by Sagner & Voigtländer (2023), indicates that landlords did not immediately divest their assets. Some landlords mitigated risks through complex contract structures, effectively shifting risk to tenants, and exacerbating tenants' challenges.

The case of the Mietendeckel in Berlin underscores the potential drawbacks of first-generation rent control policies, such as rent freezes, which may inadvertently reduce available rental dwellings and increase prices for unaffected properties in the immediate and surrounding markets. Furthermore, this case seems to underscore the hypothesis based on the model of DiPasquale & Wheaton, although construction is not included in the dynamic set out in this part.

Looking at second-generation rent control policies, we look at the case of Catalonia and a similar policy in Germany. In both examples, the policy was aimed at disburdening low-income households in a rising rental market. Due to the high proportion of tenants, public and political discussion on affordable housing led to a nationwide rent control regulation for new contracts in March 2015 (Mietpreisbremse). Rental price increases for new contracts were restricted by a ceiling of 10% above the local comparative rent index, which led to a 5% decrease in rental prices on average (up to 9% for certain types of dwellings) (Breidenbach et al., 2022). Catalonia enacted a second-generation rent control with a similar design in late September 2020. Interestingly enough, in this case, the reduction in rental prices was, as in the German case, roughly 5%. In terms of new dwellings, the two policies differ. In Germany, new-build homes are exempt from the limitation on rents for new contracts. In Catalonia, this is not the case, and the policy also applies to newly built properties, albeit at a slightly more advantageous rate of 20% above the reference price.

However, not all effects were positive. In the Catalonia case, the supply of dwellings for rent was also analysed. Interestingly enough, the literature does not give an unambiguous answer. Kholodilin et al. (2022) state that there is no significant decrease in rental dwellings, however, do state that the introduction of rent control led to a decline in the ads of regulated dwellings, while the number of unregulated dwellings stabilized at a higher level. On the other hand, Monras & Montalvo (2023) and Raya Vilchez (2023) state that the policy has led to a significant decline in available rental units in the market during the period the law was in force (Figure 8.4). Finally, Breidenback et al. (2022) find that the introduction of rent control led to a decrease in quality in the regulated segment. Based on the literature review examining examples of rent control policies, the overall trend aligns with the hypothesis derived from the DiPasquale & Wheaton model. Although the dynamics may vary slightly, particularly as construction is not consistently included in most studies, it is acknowledged that artificially keeping rents low could diminish the incentive to invest in new development, leading to decreased returns (Breidenbach et al., 2022; Kholodilin, 2020)

For instance, in Catalonia, Kholodilin et al. (2022) discovered that during the period of rent control, there was a 6% reduction in new residential developments compared to pre-control levels, contrasting with the national

trend or Madrid, where new developments increased by 12–13% during the same period. The case in Berlin showed a similar outcome, where new initiatives in Berlin decreased, whereas in the rest of Germany they, on average, increased (Hahn et al., 2023). Furthermore, after the elimination of rent control in Cambridge, in 1994, a sharp increase in residential property investments followed. The number of building permits issued for improvements and new construction increased by approximately 20 per cent (Autor et al., 2014). These findings underscore the negative impact of regulation on new dwelling construction. Both Kholodilin et al. (2022) and Hahn et al. (2023) state that this negative is for a big part contributable to the decrease in income from the rental stream, suggesting that the attractiveness of residential real estate decreases because of rent control.

8.1.2 Increase real estate transfer tax

Besides rent control, this study also takes into consideration the recent increase in real estate transfer tax (RETT) in the Netherlands. As of the first of January 2023, the Dutch government has increased RETT to 10,4% for investors. Before that, the RETT was 8%, since 2022. Before 2022, it amounted to 'just' 6%. Thus, this increase is not an unfamiliar development. From the point of view of the government, these increases are aimed at improving the relative position of the starter and intermediate buyer compared to the investor in the owner-occupied housing market and serve to cover measures in the coalition agreement. The government thus chooses to use an existing fiscal parameter at the state level for its intended purposes. The increase in the RETT from 8% to 10.4% is expected to reinforce the intended effect of the Law on Differentiation of Transfer Tax and bring about budgetary revenue (Ministerie van Financiën, 2023). However, The IVBN, the interest organisation for institutional investors in the Netherlands, has stated it could also have significant negative effects on institutional investors operating in the Dutch residential market.

In general, the effects of increasing RETT follow a common pattern. An anticipation effect, before the implementation of the reform, to avoid the RETT increase. This is often followed by a retention effect in the post-reform period. In the end, after a certain period, transactions often stabilise again, possibly at a slightly lower level (Bérard & Trannoy, 2018; Dolls et al., 2021; Fritzsche & Vandrei, 2019; Kopczuk & Munroe, 2015). In the Netherlands, both CBRE and StiVAD observed a significant drop in investment volume in 2023 (CBRE Research, 2024). Both reported an (almost) halving of investment volume in 2023 compared to the previous year (Figure 8.5). Whether this is entirely due to increasing RETT cannot be said with certainty. CBRE, for instance, suggests that rising interest rates and high uncertainty in the market are also seriously affecting investor sentiment.

Besides the transaction volume, RETT can also influence the value of residential real estate (Best & Kleven, 2018; Dolls et al., 2021; Petkova & Weichenrieder, 2017). Dolls et al. find a possible decrease in the value of apartment buildings of 4,0% for each

Figure 8.3: Quarterly evolution of the number of contracts Catalonia (Raya Vilchez, 2023)

percentage point the RETT increases, based on their research in the German market. Furthermore, they find that, in anticipation, prices react to RETT before the implementation. If a property is offered for sale shortly before the RETT rate change becomes effective, it is unlikely that the transaction will be completed before the implementation date, implying that the higher RETT rate will apply.

Finally, this also translates to the valuations of real estate assets. In the professional investment market, the starting point of property valuation is generally a DCF calculation model. Modellers most likely adjusted the calculation models immediately after the implementation of the new transfer tax rate. This should be done in two steps. The first step concerns the adjustment of the rate in the determination of the exit value or terminal value calculation at the end of the term of the DCF. To determine the market value of an asset, the exit value is of course also taken into account. This exit value is the value of the property a potential buyer is willing to pay at the end of the holding period. This value is often calculated with the expected income of the first year after the holding period, and the expected cap rate or exit yield. However, this is the market value 'vrij op naam' (v.o.n.). However, there are transaction costs that have to be taken into consideration. For that reason, the exit value is not the market value v.o.n., but the market value 'kosten koper' (k.k.). This value can be calculated with a simple computation:

$$VALUE_{k.k..} = \frac{VALUE_{v.o.n.}}{1 + k.k.}$$

In which the Value k.k. is the price a potential investor might be willing to pay at the end of the holding period. By performing a simple computation, we find that with the increase of the RETT from 8.0% to 10.4%, the value of a real estate asset would decline by roughly 2.2%, ceteris paribus:

$$Decrease\ \% = 1 - \left(\frac{\frac{1}{(1 + 8{,}0\%)}}{\frac{1}{1 + 10{,}4\%}} \right) = 2{,}2\%$$

Second, the rate for the rental value capitalisation model used by the appraiser alongside the DCF should also be adjusted, this also applies to the adjustment from n.d. to c.d. of the market value as it is reflected as of the valuation date. Many appraisers base the market value on the results of both models.

8.1.3 Abolishment of FBI-regime

Concluding this section, a brief mention will be made regarding the abolition of the FBI regime. The relevance of this topic emerged during the interviews, as it significantly impacts the investment climate in the Netherlands. Therefore, it will be briefly discussed.

The FBI regime, akin to international REIT regimes, was established in the Netherlands in 1969. It imposes a 0% corporate income tax rate, effectively granting full exemption and

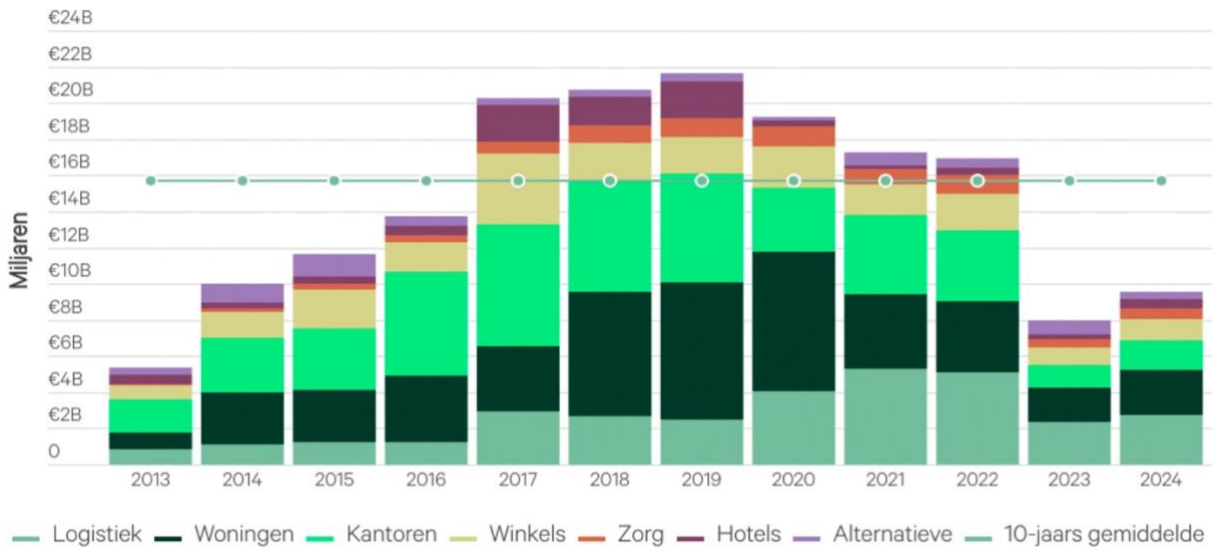

Figure 8.4: Investment volume (with expected volume for 2024) in Billion € (CBRE, 2023)

serving as a tax incentive for investment. Originally designed for real estate, it may also apply to other passive portfolio investments. Amendments made in 2007 aligned the regime with EU regulations, allowing foreign entities to qualify. However, starting January 1, 2025, FBIs are prohibited from direct real estate investments, both domestically and abroad. This change addresses concerns about potential tax loopholes when foreign investors utilize FBI status for Dutch real estate investments, potentially avoiding corporate income- and dividend taxes. Consequently, existing real estate FBIs will face corporate income tax obligations, at the standard rate of 25,8% from 2025 onwards, necessitating structural adjustments, particularly for exempt institutional investors (Mazurczak, 2011; van Gijlswijk et al., 2022). Understandably, this would result in the Dutch real estate market becoming less attractive to (foreign) investors from a taxation point of view, potentially hurting their willingness to invest in the Dutch (residential) real estate market. Connecting this development to the DiPasquale & Wheaton, the abolishment of the real estate FBI, would best be categorized in the taxes that drive the cap rates in the upper left quadrant, similar to the increase of the RETT.

A report by Adema et al. (2022) finds that asset managers use the FBI regime to serve large professional investors, such as pension funds and insurers. The FBI regime serves mostly national needs and plays virtually no role internationally. Foreign parties use the FBI regime for only limited purposes. Use by foreign parties is mainly in the real estate FBI. For this reason, it is therefore still important for this study to look further into the options for when the real estate FBI is abolished. In the past, a transparent, i.e. closed, FGR has been put forward as an alternative to the real estate FBI. Such an enclosed FBI is fiscally transparent, meaning that the fund itself is not taxable, but the value of the participations is taxed with the participants. A large proportion of Dutch real estate funds are not structured as FBIs but as Common Account Funds (FGRs in Dutch). However, some funds are (still) structured as FBIs, and will have to restructure for that reason. To enable such restructuring, the government is currently consulting on the possibility of lifting the previously discussed increased transfer tax in such cases, as assets must be transferred from the ‘old’ FBI to the new entity. This could lead to hefty transfer tax charges.

The international benchmark shows that foreign property regimes are more flexible/favourable than the Dutch regime on several points (in particular the activity requirement). Abolishing the real estate FBI further limits the extent to which the regime contributes to the Dutch competitive position and thus its effectiveness in this respect.

Finally, based on the model of DiPasquale & Wheaton, the hypothesis was that an increase in RETT would eventually lead to a decrease in the stock. DiPasquale & Wheaton state that the curve in the upper left quadrant is influenced, among other factors, by taxes. This means that the cap rates are supposedly connected to RETT.

8.2 Findings from the interviews

The second section of this chapter will look at the topics of rent control, transfer tax and abolition of the FBI regime from the angle of the interviews. These interviews will provide new insights or confirm what we have found in the literature. Then, the last part of this chapter will draw a conclusion based on these findings and the findings from the literature.

8.2.1 Rent control

Moving to look at rent control, and the interviewees' views on it, there are a few things that stand out. In several areas, the findings from the interviews seem to align with the narrative emerging from the literature in the broad sense. In the examples of rent control from the literature, one effect came forth from all of them and was in line with the hypothesised effect from the DiPasquale & Wheaton model: eventually, a rent control, in any form, appears to lead to a certain degree of decreased stock.

However, the interviews also offer a number of nuances that make it clear that the Dutch case also differs in certain aspects from the cases from the literature. Looking at the investment behaviour or -willingness of the investors that were interviewed, it becomes clear that the

willingness to invest in the mid-rent sector is still present. Unfortunately, the 'Wet betaalbare huur' does make it hard for them to find investment opportunities in the mid-rent sector that also adhere to their investment criteria.

Moreover, it is frequently asserted that the economic landscape is worsening feasibility concerns, with investors and developers contending with various adverse economic factors and regulatory changes that could potentially have a negative impact. This combination of factors seems to make it more difficult to maintain the same investment volume. Factors contributing to this difficulty are higher cap rates, higher financing and building costs, and ultimately, lower transaction volume, affecting sales values. Nevertheless, the slowdown in investment activity does not signify a complete stop. Certain interviewees indicated that investments are still viable, albeit with the caveat that these projects must be tailored to adhere to the WWS criteria to ensure feasibility. For that reason, investors have already incorporated new regulatory parameters into their feasibility assessments, even before the bill has passed the Senate. Of course circumstances such as the ground price and building costs on the side of the developer must also be favourable, however, feasible projects are not completely unfindable:

"Yes yes, fortunately, things are coming around now. It was a really tough year, but now we do notice that in about three cases, there are projects that will probably go our way again. So that's always nice. Yes."

"OK, and how come those are feasible now?"

"I don't know exactly where it comes from... but for us, the calculation is very simple. The cap rate is market-conform. Well, the rents are just perfectly fine and not too expensive so yes, it is feasible for us. I think it's really on the cost side and so maybe with the developer."

It must, however, be stated that the definition of what rents fall within the mid-rent segment varies between the government and various investors. Often, investors also contribute rent that is within the low range of the liberated rent, to the mid-rent segment as well. This makes it possible to achieve a slightly more favourable return. For these unregulated dwellings, the energy label and location are often important to keep them above 186 points. As another investor described:

"[…] *especially if you're talking about new buildings where you get your points for your energy label, in new buildings you already have these extra points altogether. There are areas where you then just undercut the point rent price* [WWS rental level]. *So it definitely happens."*

"And that is also the case in the economically strong regions?"

"Well, not in the really big cities, but Rosmalen, Assen, Zwolle, for instance, could well be. Cities like that."

Another aspect of relevance to investors is of course the cap on rent for dwellings that fall under the expanded WWS. This does diminish the income from rental income for investors. However, the severity of the impact on existing portfolios seems to differ, although none of the interviewees stated that the expansion of the WWS would have a severe effect on their portfolios:

"[...] And what comes in on top of that, of course, is our minister's whole regulation on middle rent which both puts pressure on the income of the existing portfolio, but also does something to the business cases of new construction."

When looking at the degree of the impact on existing portfolios, this seems to depend on the type of dwelling that comprises the portfolio, with investors stating that:

"*Of course, it also depends on what your portfolio looks like.*

If you start looking purely at existing, what we have in our portfolio is all relatively new, sustainable, large outdoor spaces… Well, so if we look purely at [company] and that whole mid-rent regulation. That's not going to have a huge impact on our cash flow, so to speak.

You do have a loss from it of course, But it's relatively limited.

[…]

Look, I can imagine if at first, you said, well, we want to focus very much on very small houses in the middle of Amsterdam with very high WOZ values, which are also capped, then I can imagine you saying: well maybe we shouldn't want that at the moment with the law at hand."

This underscores how the 'Wet Betaalbare Huur' disproportionately affects smaller units, where WWS points heavily rely on the WOZ value. These properties are typically situated in the city centres of major Dutch cities, where high land prices demand the construction of more compact, yet pricier units for viability. Consequently, such dwellings often receive relatively high WOZ valuations, in line with other urban properties. As mentioned in section 3.5, a cap on WOZ points is triggered if a dwelling scores 186 points or more, effectively relegating these units below the liberalisation threshold.

In contrast, larger, newer dwellings possess the square meterage and energy label to compensate for lost points, allowing them to remain in the liberalised segment. However, smaller units lack these advantages, leading them into the newly regulated mid-rent segment. This poses a challenge as it targets the very area where most investors focus their new investments: economically strong/ -thriving urban zones where the housing market is often very tight. However, as becomes clear from the interviews, if the composition of dwelling types is good, and it are relatively large, new, and sustainable dwellings, the financial feasibility appears to be not that heavily affected. Even for dwellings with affordable rents.

From a societal standpoint, institutional investors can significantly impact these areas by providing affordable housing for those unable to afford inner-city rents. Additionally, the scarcity of housing in Dutch cities ensures a low vacancy rate, reducing investment risk.

To delve deeper into the societal role of institutional investors, the interviews reveal a dual perspective. While these investors acknowledge their social responsibility, they also emphasise the need to maintain financial viability, which necessitates returns that surpass inflation rates, as discussed in the previous chapters. In the interviews, this dual perspective became evident in two distinct ways. First of all, the rent increases, about which we already saw a quote that stated that institutional investors have to find a balance between a market-aligned rent and what is affordable for their tenants. Second, when asked about their social character, another investor stated the following:

"*Again, does it have something to do with the more social character that you don't raise rent so radically?*"

"Yes yes yes yes, the social character, but I think also risk. You want to get a good return, but you also don't want to get vacancy, so you're also not going to give a tenant a very substantial rent increase. If the likelihood of the tenant leaving is much higher than if you do it more moderately every year. Yes, you can of course, especially in a certain market, you can also take advantage of the situation. That you raise rents by 8% a year. But yes, then it also has to do with the image of such a pension fund, that social image."

This illustrates that while the social aspect motivates moderate rent levels and increases, there's also a financial rationale for avoiding excessive rent increases. Maintaining stable income, a recurring theme in the decision to invest in residential real estate that was also found in section 6.2, further reinforces this consideration. Another investor captured this sentiment very well in the following quote:

"We try to do many good things with our money, but also make returns with our money."

Expanding on the current market dynamics that, to some extent, still make residential real estate an appealing investment to institutional investors. This topic also frequently arises in the context of rent control. Many investors interviewed stated that the present state of the residential real estate market, particularly in urban areas, mitigates perceived investment risks to some extent. Consequently, a lower return may be deemed acceptable.

However, this assertion proves to be more nuanced upon closer examination of the interview responses. It's crucial to note that the required return is seldom a fixed figure but rather a bandwidth. One fund manager

highlighted this variability, indicating that shareholders' assessment of their mixed-asset portfolio dictates the required return for their real estate portfolio. While some shareholders may be open to slightly lower returns for mid-rent residential investments, others demand returns closer to the upper limit of the bandwidth. Thus even though there is a high demand for regulated mid-rent dwellings, assuring a stable direct return from such properties, lower rent levels dampen the IRR, pushing returns towards the lower end of this bandwidth. This complicates investment decisions and makes it harder to find viable investment opportunities.

8.2.2 Real estate tax changes

Looking at the RETT from the interviews, we find that this has mainly had an impact on the value of the real estate and possibly the transaction volume. Furthermore, it appears to have an impact on the consideration between selling assets as a whole complex to another investor, or per unit to individuals, often owner-occupiers (in Dutch called 'uitponden').

First, looking at property valuation, the valuation manual suggested an initial impact via the translation from price k.k. to price v.o.n. leads to a lower valuation of property. As one of the interviewees stated, this applies to new construction as well as the purchase of an existing complex. In general, the interviewed investors seem to confirm that the increase in the transfer tax does indeed affect the valuation of assets, as newly built assets to which transfer tax is not specifically applicable:

"Yes, it just goes straight into a valuation, so it leads to a depreciation immediately. Yes

[…]

Of course, a property you buy new-build, you buy it VON, so you don't suffer transfer tax there. But once it is valuated, then it does become like a, like a buyer's investment and then that correction is taken. So basically once it is delivered you kind of get a drop in value compared to the purchase price."

This shows very well that, even for new developments, the transfer tax may lead to a depreciation after deliverance. The same arithmetic goes for existing investments, where valuation models are also adjusted for a new transfer tax rate, also leading to a slight depreciation of assets. This depreciation is of course also attributable to the increase in interest rates, as was discussed in chapter 7. The interviewed investors are, however, not unanimous on the matter. It is noted by one of the interviewees that in the case of new construction, in theory, there should not be a very big impact. This is mainly due to the long holding period of properties, which means that the loss of value upon sale is discounted over a period of 10 to 20 years. Other investors argue that it immediately gives capital growth a hefty dent, which would then have to be made up for with increased direct or indirect returns to achieve the same overall return.

Finally, there are the assets that are not very much affected by the expansion of the WWS, or not at all, For which the increased RETT poses a bigger obstacle than the expansion of the WWS. Revisiting one of the previously mentioned quotes:

"*Of course, it also depends on what your portfolio looks like.*

If you start looking purely at existing, what we have in our portfolio is all relatively new, sustainable, large outdoor spaces… Well, so if we look purely at [company] and that whole mid-rent regulation. That's not going to have a huge impact on our cash flow, so to speak.

[…]

Well, with new projects you can make it feasible financially, you can just take it into account then. But the transfer tax bit huh? That always comes up again."

Showing that the transfer tax is something that affects all assets, and proves to be a bigger obstacle for investors whose portfolio is not severely affected by the expansion of the WWS expansion. The WWS expansion can be factored into considerations for new developments or the renovation of existing assets, allowing investors to potentially avoid or minimise its effects. Thus, if new projects fail to meet return requirements due to limited income over the holding period, they are simply put off.

Similarly, if an existing asset becomes regulated and renovation fails to sufficiently increase income to restore profitability, selling the asset may be the only viable option.

To dive deeper into the consideration of selling, this is another area where the increased transfer tax has its impact. For investors, there are two distinct ways to sell, as was briefly mentioned in the introduction of this section. An asset to be sold can be sold to another investor, which is often done with a whole complex. There is also the option of selling the individual units in a complex one by one, often to individuals who then become owner-occupiers. Of course, each has advantages and disadvantages that play into consideration. 'Uitponden', for example, is a lengthy process in which the income from the sale is spread over several years. There is also the risk of splintered ownership in the CoE, which makes managing the assets considerably more difficult. On the other side, the difference between vacant possession value and investment value is significant at the moment, as was stated by one of the interviewees, which makes 'uitponden' a very interesting option for investors:

"Uitponden is very interesting now, you know? Because house prices have only fallen very slightly actually. In fact, they are now rising again. Well, the investment values, those have fallen by 15%, I believe, in total.

[...]

So the vacant value that has obviously increased a lot, so it's much more interesting to pound out. So yes, that trade-off definitely plays into that."

However, he also stated that it plays into the consideration, in which the previously mentioned factors are also taken into account. Furthermore, the timeframe in which a certain amount of cash has to be generated. Finally, another advantage of 'uitponden' is that when selling to owner-occupiers, the RETT rate is set at 2%. De facto, this does mean that the house is withdrawn from the rental market.

Then some other aspects were mentioned, although not by all interviewees. However, these gave some valuable extra insights that will also be briefly addressed, as they are relevant for investors. First of all, it was also mentioned that the timing of the increase, as opposed to the previous increase from 6% to 8%, is an important driver for the magnitude of the impact. As stated by one of the interviewees, the previous increase happened in a period when returns were relatively very high. This meant that the impact was not as big, because the change in transfer tax rate only led to a slightly lesser positive return. However, this recent increase coincides with a period of high interest rates which is already marked by the depreciation of real estate. The increase in transfer tax only seems to worsen this effect based on the sentiment of the interviewed investors. Finally, another mentionable effect of an increase in RETT is the effect it has on the transferability of real estate, thus affecting its liquidity. As liquidity is often based on limiting factors in the transferring of an asset, a higher transfer tax would intuitively have a negative impact.

8.2.3 Abolishment of FBI-regime

Then the last policy change that is part of this research. The abolishment of the FBI regime was mentioned several times in the context of policy changes. The sentiment from the interviews was that this has had a significant effect on the willingness to invest of investors, especially foreign investors. Several Dutch real estate funds were structured as FBIs and have been forced to convert their corporate structure to an FGR due to the abolishment of real estate FBIs. This conversion is necessary for these parties to maintain their tax transparency.

For foreign shareholders in Dutch funds, the abolishment of the real estate FBI means that investment in the Dutch market has become increasingly less interesting:

"But that also means that our international shareholders, for example, will have to pay more tax. So then it could be a lot less interesting for foreign investors to invest in the Dutch market, through us anyway."

8.3 Conclusion

This chapter aimed to understand the impacts of rent control, the increase in real estate transfer tax (RETT), and the abolition of the FBI regime on residential investments of institutional investors in the Dutch residential real estate

market. Through a combination of literature review and interviews with key stakeholders, insights were found that highlighted both the anticipated effects and also showed more nuanced effects of these policy changes.

The findings from the interviews largely corroborate the literature's consensus on the consequences of rent control. According to the DiPasquale & Wheaton model and supported by various cases from the literature, rent control generally seems to lead to a reduction in the housing stock over time. This phenomenon is attributed to decreased incentives for landlords and investors to maintain and expand their residential properties, ultimately leading to a decline in the quality and quantity of available housing.

Various rent control policies underscore the nuanced and often complex effects of rent regulation on housing markets. The distinction between first- and second-generation rent control policies highlights different mechanisms of rent regulation, with first-generation policies implementing hard rent freezes and second-generation policies allowing setting market conform rents at mutation with restrictions on subsequent rent increases.

The case of the Mietendeckel in Berlin serves as a prominent example of first-generation rent control. Its implementation resulted in short-term rent reductions for existing tenants but also led to a significant decrease in the number of available rental properties. Furthermore, prices of unaffected dwellings in surrounding areas increased significantly. The policy's revocation further illuminated its negative impacts, such as decreased housing security for new renters due to higher prices and lower supply, and financial strain on landlords, leading to more cautious investment behaviour.

Second-generation rent control policies, as seen in Germany's Mietpreisbremse and Catalonia's rental cap, similarly aimed to alleviate the burden of rising rents. While these policies achieved modest reductions in rental prices, they also introduced challenges. In Catalonia, for instance, the rent control showed mixed results, with some studies indicating a decrease in available rentals and others noting a decline in the quality of rental units.

The interviews reveal a persistent interest in investing in the mid-rent sector despite the constraints imposed by the 'Wet betaalbare huur.' This legislation presents significant challenges in terms of finding viable investment opportunities that meet the criteria of institutional investors, who now face a complex landscape where higher cap rates, increased financing and building costs, and regulatory changes make it difficult to sustain previous levels of investment. However, the willingness to invest remains, albeit more conservative and more critical.

A notable nuance from the interviews is that the definition of mid-rent varies among stakeholders. While the government has a specific range defined in the ‘Wet Betaalbare Huur’, investors often also include properties in the low range of liberated rent in the mid-rent segment. This inclusion helps them achieve slightly better returns by leveraging factors like energy labels and location to keep properties above the 186-point threshold necessary for liberalization. A combination of regulated and liberalized dwelling within a project was suggested to still be viable.

The interviews furthermore highlight that the impact of rent control on existing portfolios is not the same in all cases. The expansion of the WWS particularly affects smaller units in city centres with high WOZ values, pushing them below the liberalization threshold and into the regulated mid-rent segment. Conversely, larger, newer dwellings with better energy efficiency ratings and more (outdoor)space are less impacted, as they can more easily retain their liberalized status.

Investors have adjusted their feasibility assessments to incorporate new regulatory parameters even before the bill's passage. This proactive approach underscores the sector's adaptability, and willingness to still invest in the Dutch residential market. Furthermore, institutional investors showed a focus on economically strong urban areas where the demand for mid-rent dwellings remains high. These areas, characterized by low vacancy rates, continue to attract investment despite the regulatory- and economic hurdles. Institutional investors recognize their social responsibility to provide affordable housing, especially in these areas, whilst also maintaining financial

viability. The dual perspective of ensuring moderate rent levels and achieving stable income is evident. Interviews reveal that investors carefully balance market-aligned rents with affordability to minimize tenant turnover and maintain occupancy rates. This approach not only supports social objectives but also ensures a stable cash flow, which is crucial for meeting return expectations.

The current market dynamics in urban areas mitigate some investment risks, making slightly lower returns acceptable in theory. Especially the high pressure on the mid-rent segment. The required return is often a range rather than a fixed figure, influenced by shareholders' mixed-asset portfolio assessments. This variability gives fund managers some room in times when returns are not as high as they were in previous years, particularly when lower rent levels push returns towards the lower end of the acceptable bandwidth. However, institutional investors suggest that they would like to see a return that is more towards the upper limit of the bandwidth, due to their increased required return for residential real estate investments as a consequence of the current economic context. Dutch institutional investors seem to be more understanding in this matter than their international counterparts, as they often understand the distinctive characteristics of the local market better.

Moving to the changes in tax policy. The increase in RETT from 8% to 10.4% has had significant implications for property valuation, transaction volumes, and investment strategies. This policy change has created an even more challenging investment climate in the Netherlands.

The interviews confirm that the increase in RETT leads to lower property valuations, as was also suggested in the literature. Interestingly enough, this effect is observed both for existing properties and new developments. For new developments, the adjustment from price k.k. to price v.o.n. results in immediate depreciation upon delivery, as the exit value of the property is valued lower due to the increase in transfer tax. Existing investments also experience a similar depreciation as valuation models are adjusted to the new tax rate. The impact is compounded by the current high interest rates, which already put downward pressure on real estate values.

Investors are divided on the severity of this impact. Some argue that the long holding periods typical in real estate investments mitigate the depreciation over time, while others contend that the increase in RETT immediately dents capital growth. This decrease in capital growth returns must then be redeemed by an increase in capital growth or rental income over the holding period, leading to a more severe impact on the potential return.

The RETT increase also influences the strategies investors employ when selling assets, possibly as a consequence of the ‘Wet Betaalbare Huur’. They face a choice between selling entire complexes to other investors or selling individual units (uitponden) to owner-occupiers. The latter option, with a lower RETT rate of 2%, is currently more financially attractive, as vacant values show a significant spread with investment values. However, it involves a lengthy process and potential management challenges due to splintered ownership in the VvE.

Higher RETT rates also affect the liquidity and transferability of real estate assets. The increased cost of transactions reduces the frequency of sales and complicates asset management. Liquidity is often based on limiting factors in transferring an asset, and higher transfer tax intuitively has a negative impact.

Finally, with regard to the RETT, the timing appeared to be a major factor in the impact of the increase. It was mentioned in the interviews that the previous increase from 6% to 8% was timed in a period where returns were relatively very high, meaning the impact was significantly less negative. This increase has come in a period that is marked by the depreciation of residential real estate, several impactful policy changes and high interest rates. This means that the increase in transfer tax adds to a ‘storm’ of negative factors.

The abolition of the FBI regime, effective from January 1, 2025, emerged as a major concern during the interviews, particularly for foreign investors. This policy change has substantial

implications for the structure and attractiveness of the Dutch real estate market.

The abolition of the FBI regime forces several Dutch real estate funds to convert from FBI to a mutual fund (FGR) to maintain tax transparency. This restructuring is essential for these funds, and more specifically their shareholders, to continue operating tax-efficiently. However, the change significantly affects foreign investors, who could face higher taxes as a result. This increase in tax liability makes the Dutch market less appealing. The transition from FBI to FGR involves considerable restructuring efforts, for which costs on the side of the funds could be considerable.

The sentiment among interviewees is that the abolition of the FBI regime has already influenced investment decisions. Foreign shareholders, in particular, are re-evaluating their positions in the Dutch market, considering the potential increased tax burden and the resulting impact on returns. This re-evaluation could lead to a decrease in foreign investment, affecting the overall market. Especially since foreign capital is also badly needed to solve the housing shortage in the Dutch market.

According to the DiPasquale & Wheaton (1992) model, changes in taxes and rent control, especially the combination of these changes, have a constraining effect on housing supply. This is also evident from both the literature and the interviews. However, it is important to note that the dynamics derived from the DiPasquale & Wheaton model are not directly mentioned by the interviewees as the main reason. Regarding the WBH and the rent cap, the interviews indicate that these measures indeed lead to fewer feasible projects. The nuance here is that the rent cap results in lower asset prices, which creates a discrepancy between the bid price and the price developers need to proceed with development. Consequently, this does not lead to smaller housing units for new developments but rather to fewer projects getting off the ground. The same appears to be true for the increased transfer tax.

9. Conclusion, discussion and further research

9.1 Conclusion

In this chapter, the results from this study will be summarised in the conclusion, to finally answer the research question this study set out to answer. The goal of this study is to understand and explore the effects of changing policy during an economic downturn in the Dutch residential market, from the perspective of institutional investors. To do so the sub-research questions one to three, which formed the bases for chapters six to eight respectively, break up this main goal into three parts. The first (chapter 6) looks into residential real estate as an asset class. Then the second (chapter 7) looks into the effect of economic changes on residential real estate investment. Finally, the third (chapter 8), assesses how policy changes affect residential real estate investment. The answers to these sub-questions will then be combined to form an answer to the main research question.

With regard to the reasons and characteristics that make residential real estate an attractive investment for institutional investors, we find that the literature highlights real estate's role in diversifying mixed-asset portfolios, mitigating risks due to its distinct low correlation to other asset classes (Seiler et al., 1999; Glascock & Kelly, 2007). Diversification within the real estate portfolio itself enhances the return-risk ratio (De Wit, 2010; Viezer, 2000). Interviews confirmed that diversification is a key motivator to invest in real estate, with residential real estate's lagged response to economic conditions providing portfolio stability. Allocation decisions, guided by internal models, ensure balanced portfolios with optimal risk-return ratios. Whereas one might think this is done based on Markowitz-like models, LDI seems to be more prevalent. Variables such as long-term return- and risk forecasts, as well as covariance with other asset classes, are considered in the strategy and ALM assessments. The covariance (or correlation) of real estate with other asset classes in a mixed-asset portfolio is, specifically for direct and private indirect real estate, close to zero and sometimes even negative. This further enhances the diversification potential of (residential) real estate in a mixed-asset portfolio.

Stable direct returns from rental income are another significant incentive, particularly for institutional investors needing to match long-term liabilities such as pension funds. Dutch residential real estate, with steady rental income and low vacancy risk, provides predictable cash flows, making it attractive despite a low yield spread compared to government bonds. Annual rent indexation, often linked to inflation or CPI, enhances these stable returns. Interviewees highlighted that rental income helps manage long-term liabilities, however, capital appreciation from rising real estate values is equally important, yielding competitive long-term total returns since the GFC.

Real estate's inflation-hedging capabilities make it valuable for mixed-asset portfolios (Hoesli et al., 2008; Huang & Hudson-Wilson, 2007). However, interviewees pointed out limitations: high inflation rates may not fully translate into proportional returns, as raised interest rates in response to high inflation can have an adverse effect on real estate values. This is mainly due to increased interest rates driving down indirect returns on investment. As was mentioned in the interviews, the indirect returns of Dutch homes, or the increase in value, also make up a significant part of the total return.

Real estate's inherent illiquidity poses a challenge for investors needing portfolio flexibility. Despite this, its favourable risk-return profile, low correlation with other asset classes, and diversification potential ensure its inclusion in mixed-asset portfolios. Institutional investors maintain modest allocations to private real estate, balancing stability with liquidity needs. From the interviews came a real estate allocation of roughly 10%. Leverage is used cautiously, with LTV ratios between 10% and 25%, ensuring stable long-term returns without the risk of forced asset sales under unfavourable conditions. most of the interviewees

The hypotheses based on DiPasquale & Wheaton's (1992) model are revisited by comparing insights from literature and interviews.

First looking at the economic factors within the scope of this study, the model suggests that increased inflation and interest rates decrease real estate stock, in the end driving up prices in the market. This chapter reviews the impact of these factors on Dutch residential real estate investments.

Inflation significantly affects real estate investments, influencing portfolio allocation, project feasibility, and rental income growth. Both literature and interviews highlight the Denominator Effect, where real estate becomes disproportionately overrepresented in mixed-asset portfolios during economic slowdowns and inflation due to its lagged performance. This can lead institutional investors to have to adjust their allocations, sometimes divesting real estate assets. While literature suggests overexposure to real estate, interviews with real estate funds indicate that redemption requests are not at alarming rates and that funds have safeguards in place against forced asset sales to facilitate these redemption requests.

Rising construction and maintenance costs challenge real estate funds. Literature and interviews concur that increased costs affect project feasibility and returns. However, interviews suggest that large-scale renovations and long-term agreements can mitigate these costs. While the literature emphasises the beneficial relationship between rental income growth and inflation, interviews stress balancing rent levels with tenant affordability, reflecting the social focus of institutional investors on mid-rental segments.

The relationship between inflation and cap rates is somewhat vague. Some literature suggests inflation-driven rises in cap rates reduce property values, while other studies show slight decreases in cap rates with inflation, increasing property values. Interviews do not directly link property devaluation to inflation, indicating that the dynamic mainly involves rising interest rates, driven by rising inflation.

Delving deeper into interest rates, these also impact real estate investments, especially required returns. Higher interest rates lead to higher required returns on real estate investments, reducing the number of financially feasible projects. Interviews and literature agree on this point, noting stricter frameworks for asset improvement and renovation. Increased bond yields, viewed as risk-free, make real estate relatively less attractive, though its unique characteristics still support its diversification role.

Higher construction costs and interest rates confirm DiPasquale & Wheaton's hypothesis, leading to reduced financially viable projects and decreased real estate stock. Developers require higher sale prices to meet return criteria, making it harder for fund managers to find viable investments. This results in more conservative investment policies and potential long-term stock reduction.

Finally, the effects of several key policy changes on institutional investors in the Dutch residential real estate market. The analysis delves into the impacts of rent control, the increase in real estate transfer tax (RETT), and the abolition of the Fiscal Investment Institutions (FBI) regime, offering insights from both literature reviews and stakeholder interviews.

Rent control appears to be a change in policy with mixed consequences, which becomes clear when looking at the literature and the interviews. The difference made in the literature between first-generation and second-generation rent control policies shows the variety of regulatory interventions in housing markets. Furthermore, the literature review showed that rent control effectively decreases tenants' rent in the short term for the affected dwellings. However, it also showed an increase in rent for unaffected homes and an overall decrease in supply. This is due to fewer incentives for landlords or investors to maintain or expand their residential real estate positions. However, Dutch institutional investors recognize their social role in the Dutch residential market balancing (potential) rent control with affordability considerations. Furthermore, concerning the unaffected dwellings in their possession, this same social role prohibits them from excessively increasing rents, also balancing market-aligned rents with affordability considerations. Institutional investors and real estate funds are willing to invest their assets in affordable housing, however, they must also continue to meet their obligation to beneficiaries and shareholders regarding required returns. Thus, the

consideration remains whether the social benefits outweigh allow for a slightly lower return.

The increase in RETT poses significant challenges, influencing property valuations, transaction volumes, and possibly divestment approaches. Varying perspectives among interviewed investors create somewhat of uncertainty with regard to the impact of an increased RETT, from immediate depreciation due to the way RETT is incorporated in valuation methods, to a more moderate attitude from other investors, who argue that due to the long holding period of the average investment property, the impact of a decrease in exit value is relatively low. However, there is a consensus on the fact that an increase reduces property value, and negatively affects the tradability of real estate. For real estate funds, this means that they have had to face even bigger depreciation on their assets, in addition to depreciation due to increased interest rates and cap rates.

Moreover, the abolition of the FBI regime initiates a fiscal transformation for some Dutch real estate funds. Furthermore, the interviews review that it is potentially discouraging foreign investment due to the associated tax implications.

Despite these challenges, institutional investors demonstrate a maintaining interest in investing in residential real estate, mainly in economically strong urban areas. A shift towards more cautious investment approaches is observed, also due to heightened uncertainty in the market as a result of the changing regulations and economic context. In addition, the focus is also on optimising the ratio of housing types in new construction projects. Several interviewees indicated that with a good mix of (potentially) regulated units and liberalised units, there are still new construction projects that are financially viable. This includes a strict focus on the sustainability performance of new homes, with more extensive regulation on the horizon. With this, real estate funds are trying to future-proof their portfolio. In addition to this, the expanded WWS also has a focus on the sustainability of homes, meaning that sustainable homes will be less affected, and might even fall in the liberalised segment.

In conclusion, Dutch institutional investors value residential real estate for its diversification benefits, stable returns, inflation protection, and careful management of leverage, aligning with their long-term investment objectives and liability management models. However, rising inflation and interest rates influence Dutch residential real estate investments by affecting portfolio allocation, project feasibility, and return requirements. While literature and interviews provide valuable insights, differences in perception exist. The relation between inflation and cap rates appears to be unambiguous. Furthermore, whereas in theory inflation should have a significant impact on the cost side, insights from the interviews show that this risk can be mitigated. However, the denominator effect, and consequently the overallocation to real estate, was confirmed through interviews and literature. However, as in theory, this should lead to a rebalancing of the mixed asset portfolio, and thus divestment of the real estate allocation, the Dutch institutional investors showed a more long-term restrained attitude, and real estate funds stated that they did not experience an alarming number of redemption requests. Finally, interest rates appear to have the most significant effect on real estate values and return requirements, and not so much on refinancing risks, as most parties interviewed maintain a relatively low LTV of max 30%.

Finally, with regard to the policy changes, the wet betaalbare huur appears to be relatively acceptable, and the main issue was the political uncertainty leading to an increased risk. Most real estate funds stated that in anticipation of the bill, they already incorporated in their feasibility- or performance assessments. The tax policy changes posed a bigger problem, as they influenced the value of real estate investments and created a less attractive investment climate for existing- and potential international stakeholders.

Circling back to the main objective of this study, assessing what the effect of changing regulation is in the current economic context. The combined impact of these factors seems to lead to reduced feasibility of new projects, confirming the model's hypothesis and affecting the investment potential of Dutch residential real estate for institutional investors. However, a nuance must be added to this statement, as it

becomes clear from the interviews, that, although each individual factor has its impact, the combination of all these factors in a short period of time seems to hurt the investment potential of Dutch residential real estate the most, at a time we need it the least. This means that the hypothesis based on the DiPasquale & Wheaton model, and the literature is somewhat true and that the combination of these factors appears to have formed a perfect storm hanging over the Dutch residential market.

To answer the main research question on the impact of changing regulations in the current economic context, findings from both literature and interviews indicate that rent control is indeed disrupting the market. The literature particularly highlights that a rent cap significantly affects investors and the supply and value of rental dwellings. Additionally, these regulations are compounded by other policy changes that adversely impact the investment climate in the Netherlands, such as the increase in RETT and the abolishment of the FBI regime.

Implementing these policy changes during a challenging economic period for institutional investors exacerbates the situation, leading to a noticeable reduction in investment in Dutch residential real estate. Extending rent control to the mid-rent segment, combined with tax changes and economic difficulties, further discourages institutional investment in this sector.

Consequently, there may be more support for a second-generation rent control model, as suggested in the literature, where rents remain market-based to keep investments in new construction projects attractive for institutional investors. This approach would be particularly beneficial in economically stable times, as current economic conditions have a more significant impact on investment behavior than rent control. While rent control is a factor that real estate funds must consider, it can be managed by optimizing new developments to comply with the new regulations. The increased interest rates and inflation on the other hand, affect the financial viability of new developments through higher development costs, higher cap rates and higher return requirements. These metric appear to be more strict in the investment/divestment consideration

9.2 Discussion

This discussion will briefly address the interpretation and implications of the findings, the limitations will also be discussed, before moving on to the last section of this chapter, the recommendations for future research.

This research has focussed on the way institutional investors react to the changes in policy and the economic context. This combination of policy and economy is a knowledge gap this research aimed to jump into. Research has been done into the effect of rent control, tax policy changes, and interest rate hikes. However, the Dutch residential market momentarily deals with all of these factors at the same time, offering an opportunity to assess how institutional investors react to this combination of factors.

The expectation was that these factors would form a ‘perfect storm’ of regulation and economic forces that would lead institutional investors to be more conservative in investing in the Dutch residential market, or even divest in it. The results can be interpreted that this expectation was, to a certain degree, true. The combination of both regulatory and economic factors appears to make investing in the Dutch residential market less attractive than before, indeed leading to a more conservative attitude. In the theme of housing shortage and taking into consideration the role that is put aside for institutional investors in the much-needed mid-rent segment, this is of course an undesirable outcome.

However, the results also allow for a more opportunistic interpretation. Many of the interviewed parties stated that although the changing policy dented the Dutch investment climate and their ability to invest in new assets, a part of their conservative attitude was also due to high costs and increased return requirements due to economic factors. Furthermore, most stated that the regulation changes, although making things harder, were not an absolute deal breaker and could be taken into account when acquiring new assets or assessing the performance of existing assets. The interviewed parties did show a remaining appetite for investing in the Dutch residential market,

partially because there is still a considerable demand in the market. This suggests that if economic conditions pick up, inflation is back to its target of around 2%, interest rates ease, and prices for development also decline somewhat, it can be cautiously argued that institutional investors might again take a slightly more active stance in investing in new assets. As of now, it appears that investors are more conservative meaning that fewer projects are financially feasible with their current requirements. When it comes to standing investments, it appears that these are also evaluated more critically and, where possible with the increased return requirement, they are optimised for the expected expansion of the WWS. With selling assets that are no longer up to standard, the trade-off has to be made between complex sale or 'uitponden'. The latter seems to be more advantageous in the current situation due to the difference between empty value and investment value, and a lower tax rate for owner-occupiers.

An alternative explanation for this remained appetite for investing in the Dutch housing market, especially in the case of the residential real estate funds that were part of the interviewed group, is that these regulations are simply a hurdle they must overcome. Selling all assets and dissolving the fund is most likely not a desirable solution, or one that is even within the possible solutions. Furthermore, through the IVBN they have some channels through which they represent their interests, so that they can remain operational in the Dutch residential housing market.

Looking at the results, there are of course some limitations to this study that have influenced the results. The first major limitation of this study lies within the nature of investing in real estate. For both types of institutional investors as defined in this study, the factors that play in the consideration of investing are very broad. This means that not all factors were taken into consideration in this study. Consequently, we cannot say that the interpretation of the findings is completely true, as other factors may also influence the investment behaviour of institutional investors. Two examples of regulatory factors that are taken into consideration, but were not part of this study are ESG-regulation or financing regulation. Furthermore, institutional investors also take into account certain social or demographic factors such as an increase in urbanism, the ageing of the Dutch population, and consequently the increased demand for different types of dwellings. However, a holistic approach would not have been feasible in the timeframe that was given for this thesis. Furthermore, the topics that were subject to this study, are very recent, and the interviews were taken in such a way that the focus was mainly on these topics. This means that any findings can predominantly be attributed to the topics of this study, making the findings nonetheless valid for the purpose of answering the research question.

A second limitation is the relatively small group of interviewees and the relatively small share of pension funds and insurers in that group. It must be noted that the population of eligible organisations was not very large, a broader selection could have been made, also aiming for a larger share of pension funds and insurers. Nevertheless, the interviewed parties gave very similar reasons and answers, suggesting that most parties are on the same page regarding the topics of this study. For this reason, the findings are probably still sufficient to answer the research question after all.

The final limitation that is to be addressed is the second round of interviews. The first round of interviews, combined with an in-depth literature review, provided a good picture of how institutional investors are responding to changing policy in the current economic circumstances. For this reason, one round of interviews is sufficient to adequately answer the research question, taking into account the exploratory nature of this study. However, a second round of interviews could have given a nice insight into more concrete adjustments to certain requirements or certain measures taken by institutional investors to deal with the topics of this study. This is, however, something that could be assessed in future research, which will be discussed in the next section.

9.3 Further research

From the limitations that are set out in the previous section, there are some suggestions or topics that could be considered for future research. The House of Representatives voted on 25 April in favour of the bill Wet Betaalbare Huur', and the first chamber will meet on 28

May. if the law is passed, all institutional investors will therefore have to comply with the bill. Picking up on the last argument of the previous paragraph, a second round of interviews. For further research, it would be interesting to do a second round of interviews that is less exploratory, and done among, for instance, all members of IVBN. That way, an overview can be obtained of the more concrete steps institutional investors will take if the 'Wet Betaalbare Huur' bill is also passed by the Senate. What concrete steps might be taken to optimize their existing portfolio? will they employ the 'uitponden' strategy when selling assets? By how much can institutional investors lower their return bandwidths before they get into trouble in their mixed asset portfolio? Are funds going to refinance any maturing loans? such more specific questions were unfortunately not explored in the interview round of this study. Hence, a second round of interviews, or perhaps an additional survey with such questions, could add depth to this exploratory study.

Furthermore, to assess the actual impact of the changing policies that are subject to this study, it might be interesting to do research into these topics in hindsight, in a period when the economic situation has eased. A more quantitative data analysis can be done after a certain period after the Wet Betaalbare Huurbill has passed, for example, based on portfolio- or transaction data from institutional investors. This way it can be assessed what the actual effects are of the Wet Betaalbare Huur on the investment behaviour of institutional investors. Furthermore, at that time, the effects of the Wet Betaalbare Huur on the liberalised rental market, and the by-then regulated mid-rent segment, can also be assessed. To research the influence of the abolishment of the FBI regime, data with regard to foreign institutional investors and their investment behaviour in the Dutch real estate market can be used, as this policy change supposedly mostly affected that particular subgroup. Finally, to assess the influence of the increase in transfer tax, valuation data can be used to do more statistical research into the effect of RETT on portfolio and/or asset value. However, as the value of assets is also dependent on many other variables this might not give a very exact answer. It must be said that it might be hard to acquire such data, as it may be very sensitive data.

10. Reflection

10.1 Relevance of the topic

The chosen topic of this study is recent and still ongoing in the Dutch residential real estate market. However, the issue of policy changes, specifically rent control, has already been explored by numerous scientific studies. Despite this, the topic holds significant societal relevance, considering it involves one of the primary necessities of human life, namely (affordable) housing. Or rather the lack of it in the Dutch housing market.

This relevance thus lies in the effectiveness of policy changes regarding middle-segment rental housing in the Netherlands. As indicated in the initial bill, the proposal aimed to alleviate the tightness in the rental housing market, particularly within the affordable segment. However, it is crucial to consider this intervention within a broader perspective to understand its effectiveness. Investing in Dutch residential real estate is complex, involving multiple interconnected facets. Besides the proposed (and by the time of finishing this thesis nearly adopted) Affordable Rent Act (WBH), other interventions also impact the housing market. Moreover, all of this occurred during an economic downturn. Therefore, it seemed interesting to examine the (partly already discussed) effects of introducing the WBH together with other changing policies and a shifting economic landscape. The scope of this study focused on the WBH, the raised transfer tax, rising inflation, and increasing interest rates. At the time I began this research, these were the main changes affecting the Dutch rental housing market. Consequently, this study aimed to provide insights into the effects of these combined regulatory interventions and economic factors.

Furthermore, the focus was on the impact on institutional investors. This choice was driven partially by societal relevance. Within the implementation of the WBH, institutional investors in the Netherlands play a crucial role in achieving the required affordable rental housing. However, these entities also bear responsibilities to their shareholders, and pension- and insurance beneficiaries. Therefore, it is interesting to examine the effects on these parties and their reactions, as their investment behaviour partially determines the effectiveness of this policy change.

In hindsight, I believe this research captures the sentiment of these institutional investors, allowing us to assess the impact of policy changes, combined with a shifting economic landscape. This combination of economic and regulatory factors adds to a better understanding of the effects of implementing regulatory interventions on the Dutch residential rental market in the scientific domain. Ultimately, addressing this more holistic understanding also addresses societal relevance, as the way institutional investors react to changing policy in a shifting economic context may play an important part in alleviating the tightness in the Dutch housing market.

10.2 Method

The methodology employed in this study has undergone minor modifications throughout its progression. Initially, the plan was to perform deductive research as defined by Blaikie & Priest (2018), meaning that a theory/hypotheses are formed which is then tested by gathering data. In the study, this translated to conducting a preliminary review of the literature, which would be the basis of a number of hypotheses and would also inform the development of interview questions designed to address the primary research question. This strategy was indeed implemented, leading to the creation of hypotheses based on the DiPasquale & Wheaton (1992) framework combined with insights from the literature, and interview questions based on the initial literature review. The rationale for this approach was that the various concepts of the subject had already been discussed in literature, news articles and editorials, albeit mostly individually. It was, therefore, necessary to first get a good understanding of the problem and the interrelationships between different concepts through a review of these sources and draw expectations from them, before speaking to the parties involved to find out what their stance was. Reading the various sources on the subject of this study has led to an understanding of the different concepts that make up this study, and how these concepts relate to each other. The

insights from the interviews contributed to this understanding, and even strengthened it, by nuancing or complementing certain relationships. Furthermore, the interviews offered a view of the sentiment Dutch residential real estate investors have regarding the accumulation of regulation in an economically challenging period.

As mentioned, while conducting these interviews, some topics emerged that needed further exploration through literature. For this reason, a more iterative process was eventually chosen, in which new topics, or topics that could be researched further, were explored more in-depth through additional literature research. This was done parallel to doing the interviews, with the added advantage that new insights could also be tested with other interviewees. Ultimately, I think this has led to a better understanding of the relationship between different concepts of this study, and how that translates to the way Dutch residential real estate investors deal with changing policies in an economically challenging period.

10.3 Limitiations

Looking at the limitations of this method and this study, the main limitation is that the interviews do not give a quantitative, data-driven insight into the actual figures that lie behind the interviewees' statements. In interviews, especially those with real estate funds, it can be difficult into the actual figures that lie behind the interviewees' statements. In interviews, especially those with real estate funds, it is of course difficult to be able to distinguish between what the interviewees report, and what they actually do. Since investing in Dutch (residential) real estate represents their right to exist, it is of course not an option to say that due to changing circumstances, it is no longer possible to invest, as that would have serious implications for their operation. This must be taken into account when assessing their input.

Furthermore, and this is more a limitation to the course of this study, rather than the method used, it is unfortunate that no second interview series or maybe a survey took place. Here, on the contrary, the effect of the researched concepts on the actual numbers could have been discussed in more detail. For example: How many percentage points did return requirements change on average? What percentage of sales are sold (per complex) and what percentage was ‘uitgepond’? Maybe even gain insight into feasibility studies done by fund managers. However, there is also a caveat here that it is questionable whether investors are willing to open the books on these matters.

A final remark about the interviews is that the pool of possible interviewees is relatively small. This has led to a small number of conducted interviews. For any further research it might thus be interesting to conduct further, sector wide interviews. This can also be done through a sector wide survey. The time for this research unfortunately did not allow for such an elaboration during this study.

10.4 Feedback from mentors:

The feedback from my mentors on the interview questions has been very valuable, particularly regarding the interview protocol and -questions. Marietta's expertise in protocol development, combined with insights and connections with the relevant parties from Peter and Erwin, has resulted in series of productive interviews. My mentors suggestions on rephrasing questions have also been instrumental in getting more detailed and qualitative responses from interviewees.

Regarding the methodology, the feedback was sometimes less clear to me, which is likely due to the unconventional approach of conducting a literature review before and during the interviews. This deviation from the more ‘standard’ research process made it challenging for my mentors to focus on the content, as discussions often centered around the structure of the research and the report. In hindsight, having a dedicated session for structuring the report could have allowed for more content-focused feedback in subsequent meetings. This is a lesson I will carry forward.

Regarding the incorporation of my mentors' feedback, which focused mainly on the structure of the report, I made an effort to apply the feedback I agreed with. While I occasionally opted not to implement suggestions on minor aspects like sentence structure and paragraph order, I embraced most feedback on significant topics, such as the interview process and report structure, as well as discussions on the conceptual model. This made the whole process

somewhat iterative, which took more time than expected. However, I do think it made the final product better.

10.5 Personal reflection

The aim of this research was to gain a better understanding of how institutional investors deal with changing policies in economically challenging times. In summary, I believe that I have certainly gained a better understanding of this on a personal level. In that regard, I have traversed a valuable learning path during the execution of this master's thesis, where the method of laying a foundation through a literature review, followed by a more in-depth literature review alongside interviews, has certainly helped. Personally, this was a sufficient method for me to acquire the knowledge and insights I wanted to gain at the beginning of this project. However, this might not be the typical way to conduct such research. As my mentors also pointed out in their feedback, the usual procedure involves a literature review followed by empirical research. By deviating from this, including in the structure of the report, I think I might have made the study unnecessarily complicated in retrospect. However, I do not look back at it in a negative way. I believe that the choice of topic has led to a rather basic initial literature review. This was mainly because the topic of real estate investing was a relatively new topic, which was given less attention during the MBE master's curriculum.

Outlining the academic knowledge and skills that I gained during this thesis, I think the most valuable is a basic intuition of real estate investment. As was stated before, there are many aspects to investing in (residential) real estate. During my internship at Vesteda, I got an insight in the ‘day-to-day’ of investing in real estate, taking into consideration all the different aspects. On top of that, this experience at Vesteda, and the insights I gained from the interviews brought a nuance to the literature on (a small part of) investing in residential real estate, which I deem very valuable.

Further diving into the topics of my research: regulation and economic context. Here, too, the combination of theory and practice offered insightful perspectives on the intricate dynamic between policy and economic conditions. Additionally, the interviews provided a clear view of how institutional investors think about- and handle these issues, as well as their associated concerns for their portfolios. This was what I aimed to achieve in this thesis. The actual insights I gained are, of course, detailed in the thesis report. To keep this reflection as concise as possible I will not delve deeper into them now.

In terms of skills I have learned that I deem valuable going forth, interviewing professionals for scientific purposes stands out. This was something I had never done before this thesis project. The first interviews were somewhat unaccustomed. However, as I progressed through my thesis project, I became more proficient in conducting interviews and better at incorporating knowledge gained from previous interviews and the additional literature into my questioning. I think these skills to incorporate gained knowledge and connect concepts in discussions can also be very valuable in my professional career when discussing any topic with colleagues or others from the real estate investment sector.

Briefly revisiting the feedback from my mentors; balancing the feedback with a tight schedule was challenging at times. Some suggestions required more time to implement, which, at times, was frustrating given the limited timeframe. In hindsight, I realize I could have communicated these challenges more effectively, and this is an area for improvement in the future.

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Apendices

Appendix I: Interviewvragen institutionele beleggers

Must-have vragen

1. Wat is de rol van vastgoed in jullie mixed-asset portfolio?
    a. Welke overwegingen spelen mee in de bepaling van de grootte van de allocatie in vastgoed?
    b. Wordt er binnen de assetklasse vastgoed nog een verdeling gemaakt? Zo ja, hoe wordt dat bepaald?
2. Hoe beïnvloeden de huidige economische marktomstandigheden/ -ontwikkelingen jullie strategie?
    a. Hoe bepalen jullie de rendementseis voor de (residentiele) vastgoedallocatie
    b. Hoe beïnvloedt de hogere rente de aantrekkelijkheid van vastgoed ten opzichte van andere assetklasses?
    c. Hoe beïnvloedt de hogere inflatie de aantrekkelijkheid van vastgoed ten opzichte van andere assetklasses?
3. In hoeverre hebben jullie last van het 'denominator effect'?
    a. Hoe beïnvloedt dit jullie investeringsstrategie ten opzichte van vastgoed?
    b. In de situatie dat Waardes van (residentiee) vastgoed dalen, wat betekent dit voor jullie investeringstrategie?
4. Welke factoren spelen mee in de overwegen om bestaande vastgoedinvestering aan te houden of verkopen of een nieuwe investering te maken?
    a. Welke KPIs worden daaraan verbonden?
    b. Hoe streng zijn de bandbreedten voor die KPIs?
    c. Hoe snel en ingrijpend wordt er gereageerd als er buiten de bandbreedte gegaan wordt?

Nice-to-have vragen

5. Beleggen jullie nog direct in vastgoed? Of gaat het beleggen in vastgoed via 'investment managers'/vastgoedfondsen?
    a. Hoe soepel zijn jullie in het handhaven van de gestelde rendementseis?
6. Welke factoren spelen mee in de overweging om niet in het buitenland een hoger rendement te zoeken?
7. Welke overwegingen spelen mee in het besluit om in vastgoed te investeren? (Mocht dat niet duidelijk worden uit de eerste vraag)

Appendix II: Interviewvragen vastgoedfondsen en investment managers

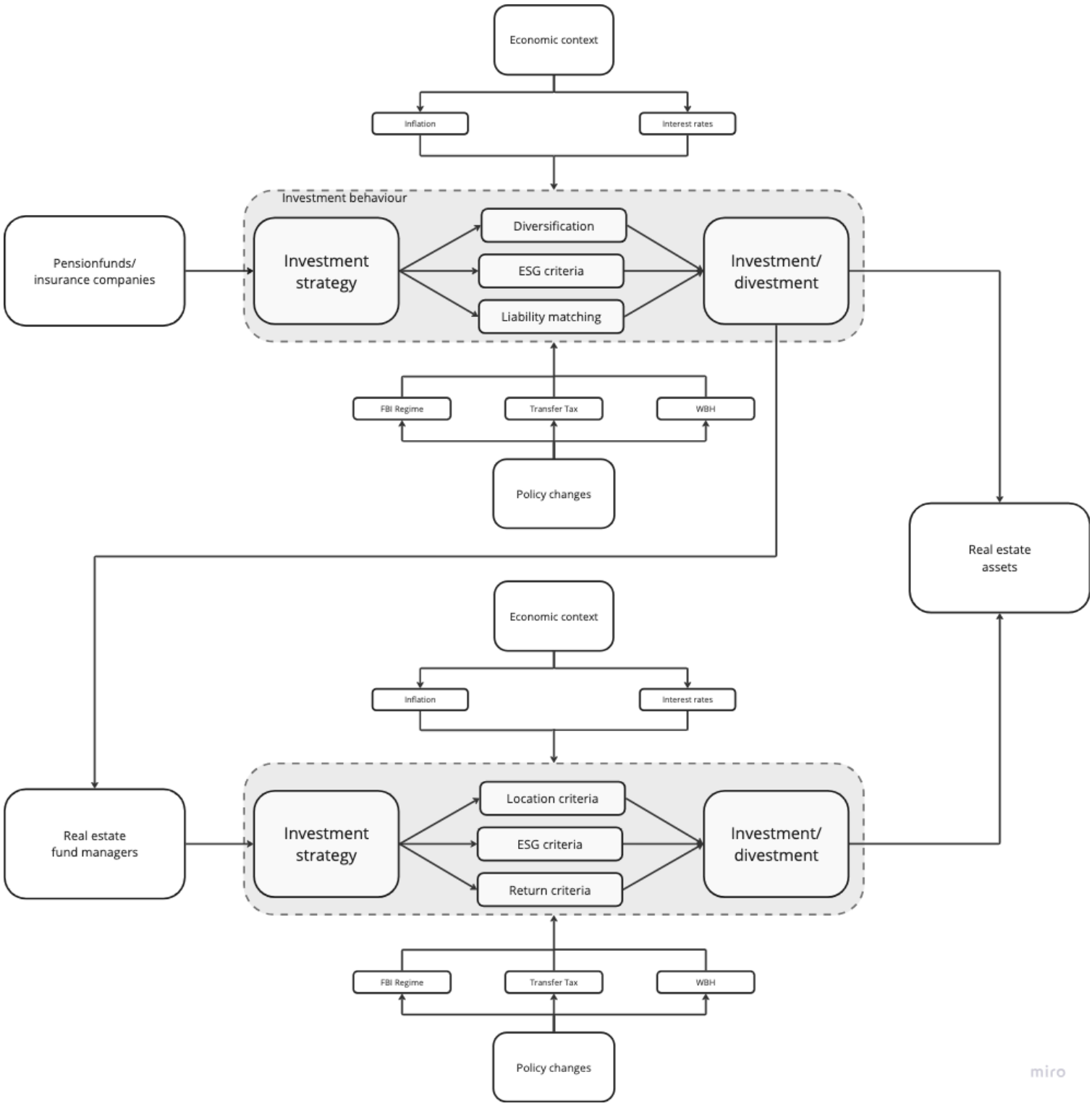
Must-have vragen

1. Hoe beïnvloeden de huidige economische marktomstandigheden/ -ontwikkelingen jullie strategie?
    a. Hoe beïnvloedt een hogere rente jullie rendementseis
    b. In hoeverre kan jullie portefeuille voldoen aan een stijgende rendementseis voor residentieel vastgoed als belegging?
    c. Merken jullie dat de inkomsten genoeg meegroeien met de ontwikkelingen aan de kosten kant? Bijvoorbeeld de huurprijsontwikkeling t.o.v. hoger opex of dalende waarde.
    d. Hoe vertaalt de huidige marktsituatie zich naar jullie acquisitie-/investeringsstrategie?
2. Hoe beïnvloedt veranderende regelgeving de bereidheid in nieuwe assets te investeren? Of hoe beïnvloedt het de business case van jullie bestaande assets? Denk daarbij aan:
    a. Wet Nijboer
    b. Verhoging overdrachtsbelasting
    c. Wet betaalbare huur
3. Welke andere factoren spelen mee bij het beoordelen van bestaande- en nieuwe investeringen?
    a. Worden deze criteria beïnvloed door de veranderende markt?
    b. Hoe gaan jullie daarmee om in de investeringsstrategie?
    c. ZIjn er nog rendabele/betaalbare projecten in de markt die voor jullie interessant zijn?
4. Hoe beinvloed de huidige economische situatie in jullie optiek jullie aandeelhouders?
    a. Hoe beinvloedt het 'denominator effect' het aantal redemption requests?
    b. Hoe nemen jullie mogelijke redemption requests mee in jullie investeringsstrategie?

Nice-to-have vragen

1. Wat doen jullie met assets in jullie portefeuille die niet meer aan de rendementseis (of andere eisen) voldoen?
    a. Hoe beïnvloedt de verhoging van de overdrachtsbelasting deze afweging?
    b. Wordt er vaker ingezet op de verduurzaming van assets?
2. In hoeverre hebben jullie focus op het ESG-aspect van vastgoed investeren?
    a. Wordt er ingezet op de aankoop van duurzame assets/verduurzaming van bestaande assets?
    b. Wordt er geprobeerd meer gebruik te kunnen maken van green bonds/loans?
    c. (in het geval van een impact fund) Wat was voor jullie de overweging om een impact fund op te zetten?
3. Er zijn veel vastgoedportefeuilles afgewaardeerd in het eerste half jaar van 2023
    a. In hoeverre komt dit door verandering in regulering (WWS, overdrachtsbelasting)
    b. In hoeverre is dit toe te delen aan een veranderende economisch milieu?
    c. Komen jullie als gevolg hiervan in gedrang met jullie LTV richtlijnen?
    d. Wat zijn de opties om dit op te lossen? → Welke heeft de voorkeur? → En waarom?
4. Worden er nog andere criteria gesteld aan investeringen?
    a. Worden deze criteria beïnvloed door de veranderende markt?
    b. Hoe gaan jullie daarmee om in de investeringsstrategie?

Appendix III: Operationalized conceptual model



Appendix IV: Data Management Plan

Plan Overview

A Data Management Plan created using DMPonline

Title: The perfect storm of policy and economy on the housing market

Creator: Simon Biervliet

Affiliation: Delft University of Technology

Template: TU Delft Data Management Plan template (2021)

Project abstract:
The expansion of the WWS will lead to a decrease in revenue from mid-rental dwellings for (institutional) investors if rent control affects these rent levels. This makes investing in mid-rental units potentially less profitable. On the other hand, there is a shortage of roughly 300.000 dwellings and an ambition to build 900.000 homes by 2030. Given the expanded WWS in combination with the current economic climate of higher inflation and higher interest rates, (institutional) investors may be hesitant to make an investment.
Some research has already been done into the expected effect before the government sent the proposal for an expanded WWS to parliament. However, not only is the proposal now in the open, there are more factors, besides rent control, that are taken into consideration during the decision-making of a residential real estate investment. It is important to find out why institutional investors invest in residential real estate and what their criteria are for residential investments. Furthermore, to place the effects in context, the current economic landscape (relatively high inflation and interest rates) must be assessed as well.
To address the posed problem, an insight must be gained into whether institutional investors will still invest in mid-rent residential projects. If this appears not to be the case, the understanding of the internal criteria and the effect of the economic context can be used to define the criteria that are needed for institutional investors to be willing to invest in mid-rent residential property, whilst the WWS can still be introduced.
This research aims to create an understanding of the dynamic between adapted WWS, economic context and internal investment criteria. Understanding this dynamic enables to answer the main research question: “To what extent does the expansion of the WWS affect the investment decision of institutional real estate investors and the durability of the Dutch residential investment climate within the current economic situation?”
To gather data, in depth semi structured interviews will be conducted with professionals from the real estate investment field of work. An interview protocol with an introduction to the study and why the interviews are conducted, informed consent form and interview questions is set up for these interviews. The interview is recorded if the interviewee gives permission. Thereafter, the interview will be transcribed verbatim and analyzed with ATLAS.ti. the resulting information will be used anonymously to formulate the answers to the research questions.

ID: 125945

Start date: 04-09-2023

End date: 04-12-2023

Last modified: 31-10-2023

The perfect storm of policy and economy on the housing market

0. Administrative questions

1. Name of data management support staff consulted during the preparation of this plan.

My faculty data steward, Janine Strandberg, has reviewed this DMP on 23-10-2023.

2. Date of consultation with support staff.

2023-10-22

I. Data description and collection or re-use of existing data

3. Provide a general description of the type of data you will be working with, including any re-used data:

Type of data	File format(s)	How will data be collected (for re-used data: source and terms of use)?	Purpose of processing	Storage location	Who will have access to the data
Transcriptions of expert interviews	.docx	Audio recordings during interviews will be transcribed into anonymous summaries Interviewees will be asked whether they want insight in transcriptions, for agreement.	Gaining insight into investment decision-making	TU Delft project server	Simon Biervliet and TU Delft tutors: Marietta Haffner & Peter Boelhouwer
Recordings of interviews with professionals from real estate investment companies	.mp3	Audio recording during interviews Audio files will be	Gaining insight in investment decision making	Temporary storage on personal computer TU Delft project server	Simon Biervliet and tutors: Marietta Haffner & Peter

		deleted after transcribing Recording is done with high-end microphone connected to personal computer			Boelhouwer
Names, signatures, job title, telephone numbers, and mail addresses	Contacts in the mail (MS Outlook), .docx, .pdf, physical forms	Through search on internet, via third persons Through email, or scans of physical print-outs Physical consent forms will be scanned and uploaded to TU Delft Project Server Physical copies can be stored in a secure personal locker at either TU Delft or the Vesteda Office.	Adminstrative reasons: contacting* interviewees, obtaining informed consent. *contacting done from TU Delft webmail	TU Delft project server	Simon Biervliet and tutors: Marietta Haffner & Peter Boelhouwer
ATLAS.ti coding files of transcriptions - anonymous qualitative datasets	.atlproj files	Input for these coding files are the transcriptions	Retrieving answers to the Research Questions from the transcriptions	TU Delft project server	Simon Biervliet and tutors: Marietta Haffner & Peter Boelhouwer
Data reports- and information about the real estate market Other resources	.cvs, .xcls, .pdf, .pptx	Sources of such data can be companies like MSCI, and INREV. These parties provide market information/data to companies	Input to formulate answers to the research questions, from the literature	Vesteda Laptop	Simon Biervliet and Erwin Evers (Vesteda tutor)

These companies must often have a paid subscription to receive this data. Other resources are mostly physical resources such as a working space or extra monitors

4. How much data storage will you require during the project lifetime?

< 250 GB

II. Documentation and data quality

5. What documentation will accompany data?

- Methodology of data collection
- README file or other documentation explaining how data is organised
- Data dictionary explaining the variables used
- Data will be deposited in a data repository at the end of the project (see section V) and data discoverability and re-usability will be ensured by adhering to the repository's metadata standards

Each transcription should ba accompanied with a readme-file that in accordance with the 4TU.ResearchData '*Guidelines for creating a README file*'. This readme-file can also contain a data dictionary with definitions of possible used jargon in the interviews to make the content more clear to readers without basis-/background knowledge of the topic.

III. Storage and backup during research process

6. Where will the data (and code, if applicable) be stored and backed-up during the project lifetime?

- Another storage system - please explain below, including provided security measures

- Project Storage at TU Delft

Data will be stored on a TU Delft Project server.
As mentioned before, Recordings will be temporarily saved to my personal laptop during and directly after the interviews. Afterwards they will be saved on TU Delft project server until transcriptions are made and the recording become redundant. Then they will be deleted.
Physical signed Informed Consent forms will be stored in a secure locker and scanned. After being scanned they will be uploaded to TU Delft Project server, together with digital signed Informed Consent forms.

IV. Legal and ethical requirements, codes of conduct

7. Does your research involve human subjects or 3rd party datasets collected from human participants?

- Yes

8A. Will you work with personal data? (information about an identified or identifiable natural person)

If you are not sure which option to select, first ask your Faculty Data Steward ***for advice. You can also check with the*** privacy website ***. If you would like to contact the privacy team: privacy-tud@tudelft.nl, please bring your DMP.***

- Yes

Two types of personal data are used in this study:
Personal data for administrative purposes: Name, email addresses, job title, (gender and age*)
Personal research data: personal data used to answer research questions might include audio recordings (and transcriptions of said recordings), These recordings will include personal and/or professional opinions on topics that are researched in this study.

*gender and age are not specifically asked for during interviews, but might be mentioned when interviewees introduce themselves.

8B. Will you work with any other types of confidential or classified data or code as listed below? (tick all that apply)

If you are not sure which option to select, ask your Faculty Data Steward ***for advice.***

- Yes, confidential data received from commercial, or other external partners

Some of the questions in the interviews might ask for confidential or classified answers. These are mainly the answers on questions related to the investment strategy of that particular firm. However whether the interviewees are willing to share this information is unsure, and of course their own choice. Furthermore, it is interviewees will be asked whether they want to check and agree upon the transcriptions before they are used.

9. How will ownership of the data and intellectual property rights to the data be managed?

For projects involving commercially-sensitive research or research involving third parties, seek advice of your Faculty Contract Manager ***when answering this question. If this is not the case, you can use the example below.***

The data from the interviews will only be accessible to the researcher. As mentioned before, this data is stored on TU Delft Project Server which is not accessible to Vesteda employees. this is agreed by my mentor from Vesteda, Erwin Evers. During the research, the researcher will oversee the access rights and/or request to data (and other outputs).
This data can not be shared with Vesteda as they might be able to identify the interviewee more easily, as the branche is rather small. Furthermore, the interviews can contain information from Vesteda's direct competition.

10. Which personal data will you process? Tick all that apply

- Names and addresses
- Telephone numbers
- Email addresses and/or other addresses for digital communication
- Signed consent forms
- Other types of personal data - please explain below
- Data collected in Informed Consent form (names and email addresses)

In the interviews, personal and/or professional opinions might be gathered on the topics that are researched in this study (Economic context, Regulatory changes, and/or investment strategies).

11. Please list the categories of data subjects

Subjects of the interviews will be professionals from the real estate investment field of work in The Netherlands. They will mostly operate as portfolio manager, or any function with the same responsibilities.

12. Will you be sharing personal data with individuals/organisations outside of the EEA (European Economic Area)?

- No

15. What is the legal ground for personal data processing?

- Informed consent

16. Please describe the informed consent procedure you will follow:

The interviewee will be informed that the answers he/she gives will be used to answer the answers of my research, and that this will be done in an anonymous manner. At the suggestion of my supervisor Peter Boelhouwer, I will bring a printed informed consent form that the interviewees will fill out before/after the interview (what the interviewee prefers). The reason for doing this is to streamline the interview, as many interviewees will likely have little time nor want to have to fill out forms before the interview begins.

The informed consent form will be attached to the initial invitation/mail so that the interviewee can familiarize himself/herself with it.

17. Where will you store the signed consent forms?

- Same storage solutions as explained in question 6

Physical signed Informed Consent forms will be stored in a secure locker and scanned. After being scanned they will be uploaded to the TU Delft Project server, together with digitally signed Informed Consent forms.

18. Does the processing of the personal data result in a high risk to the data subjects?

If the processing of the personal data results in a high risk to the data subjects, it is required to perform a Data Protection Impact Assessment (DPIA). In order to determine if there is a high risk for the data subjects, please check if any of the options below that are applicable to the processing of the personal data during your research (check all that apply).
If two or more of the options listed below apply, you will have to complete the DPIA. Please get in touch with the privacy team: privacy-tud@tudelft.nl to receive support with DPIA.
If you have any additional comments, please add them in the box below.

- None of the above applies

22. What will happen with personal research data after the end of the research project?

- Other - please explain below
- Anonymised or aggregated data will be shared with others

- Personal research data will be destroyed after the end of the research project

Personal data in the form of name, age, email address, telephone number, or age/gender will be deleted after the research project.
The anonymized transcriptions contain personal/professional opinions. The names, job titles and company they work for can be removed to anonymize this transcription as well as possible. Furthermore, it must be considered if the subjects' personal/professional opinions, combined with other indirectly identifiable data, can lead to the identification of the interviewee.

23. How long will (pseudonymised) personal data be stored for?

- 10 years or more, in accordance with the TU Delft Research Data Framework Policy

This applies to the archiving of informed consent forms. The transcripts are anonymized, meaning there should be no personal data remaining.

24. What is the purpose of sharing personal data?

25. Will your study participants be asked for their consent for data sharing?

- Yes, in consent form - please explain below what you will do with data from participants who did not consent to data sharing

Their interviews (audio files) will be destroyed after the anonymized transcriptions are made. However, these anonymized transcriptions can be shared, only if the interviewees have given consent after they have received, read, and agreed upon the transcriptions.
If consent is withdrawn after the research, or the interviewee does not agree in the transcription, the personal data must be anonymized (which it already is) and the research data of those individuals may not be used for future research.
If this happens during the research, the data, in principle, has to be deleted, unless achieving the purpose of the scientific research becomes impossible or is seriously impeded. In that case, however, the data must be anonymized. However, this is already the case, as the transcriptions are anonymized.

V. Data sharing and long-term preservation

27. Apart from personal data mentioned in question 22, will any other data be publicly shared?

- All other non-personal data (and code) produced in the project

29. How will you share research data (and code), including the one mentioned in question 22?

- All anonymised or aggregated data, and/or all other non-personal data will be uploaded to 4TU.ResearchData with public access

30. How much of your data will be shared in a research data repository?

- < 100 GB

31. When will the data (or code) be shared?

- At the end of the research project

32. Under what licence will be the data/code released?

- CC0

VI. Data management responsibilities and resources

33. Is TU Delft the lead institution for this project?

- Yes, leading the collaboration - please provide details of the type of collaboration and the involved parties below

The research is also done in collaboration with Vesteda, a Dutch Residential institutional investor. They provide me with resources and information that can contribute to the research.
These resources are, as stated in Q3, data reports- and information about the real estate market. Furthermore, other resources are more practical of nature, such as a working space at their office and access to most of their amenities such as extra monitors, printers etc.

34. If you leave TU Delft (or are unavailable), who is going to be responsible for the data resulting from this project?

35. What resources (for example financial and time) will be dedicated to data management and ensuring that data will be FAIR (Findable, Accessible, Interoperable, Re-usable)?

4TU.ResearchData is able to archive 1TB of data per researcher per year free of charge for all TU Delft researchers. We do not expect to exceed this and therefore there are no additional costs of long term preservation.