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PRIVATE HOUSING WITHIN REACH

How to make owner-occupied private housing attainable for medium income households

An exploration of housing prices, mortgage lending and additional housing costs

A business model of a new funding concept for private housing

By
Jim Oberdorf

Construction Management & Engineering
Eindhoven University of Technology

Graduation committee:

Prof.dr.ir. W.F. Schaefer, TU/e

Ir. B. van Weenen, TU/e

Ir. K. Waijers PDEng, Hurks vastgoedontwikkeling

COLOPHON

Author | J.P.M. (Jim) Oberdorf BSc
j.p.m.oberdorf@gmail.com

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Educational institution | Eindhoven University of Technology
Master Construction Management & Engineering
Chair Construction Management & Urban Development
Den Dolech 2
Postbus 513
5600 MB Eindhoven

Chair holder | Prof. dr. ir. W.F. Schaefer
Co-supervisor | Ir. B. van Weenen

Graduation company | Hurks vastgoed zuid bv
Pastoor Petersstraat 3
Postbus 671
5600 AR Eindhoven

Supervisors | Ir. K. Waijers PDEng.
Ir. M.V.B. Roelofs

PREFACE

This master thesis before you is the result of a research on the financial measures contributing to an improved financial accessibility of owner-occupied private housing for medium-income households. The research is done in cooperation with *Hurks vastgoedontwikkeling* in Eindhoven and with this thesis I will finish the master Construction Management and Engineering at the Eindhoven University of Technology. This thesis is also the end of my study career at the TU/e, that started in the autumn of 2006 with the Bachelor Architecture, Building and Planning.

First, I would like to thank my family and friends, for supporting me during my entire study and for providing me of enough entertainment in my spare time. Without them I would never have come this far.

Of course, I would also like to thank my supervisors at the TU/e and at Hurks vastgoedontwikkeling. Thank you Wim Schaefer and Bart van Weenen for your guidance during the graduation period and your input during the meetings. Koen Waijers and Michiel Roelofs, thank you for guiding me through the jungle named *Graduating* and for sharing your professional insights and thoughts with me.

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Jim Oberdorf

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MANAGEMENT SUMMARY

Due to several different developments in the housing market it has become more difficult for medium income households to find an attainable private dwelling with corresponding mortgage. These developments all took place in the subareas *housing prices*, *mortgage lending* and *additional housing costs*. This has a negative influence on the number of transactions and deteriorates the flow through in the private housing sector, which results in the following main research question: *What financial measures contribute to an improved financial accessibility of owner-occupied private housing for households with an income between €34,000 and €43,000?*

Within the aforementioned subareas numerous measures are taken to make private housing attainable for the target group. These measures all serve single or limited purposes and sometimes even counteract with other measures. There is a lack of umbrella measures that cover two or three subareas and provide integral solutions to the growing problem.

Based on the analysis of these subareas, the stakeholders and their changing roles, the exploratory interviews, expert meetings and two international best practices, a new business model is constructed to provide a structural improvement of the financial accessibility of private housing. In this innovative model the emphasis is on minimizing system risks by involving suitable stakeholders and thereby providing competitive mortgage loans.

This new business model, the *Housing Investment Plan* (HIP) is based on the strengths of both the *German Bausparen* and the *Danish Mortgage model*. Long before a dwelling is purchased by the customer, a savings account is opened and equity capital is accumulated under favourable conditions. The savings phase ends when the HIP dwelling is obtained via the investment plan, and the accumulated capital is deducted from the selling price. For the remaining sum a safe mortgage loan is provided.

The bank in its traditional and capital providing role is no longer involved in the model and will have a mediating role at most. Pension fund capital is used to finance the mortgage loans by providing HIP bonds with the exact same conditions as the mortgage loan. Market risk and credit risk are borne by respectively the HIP and the pension fund, the *NHG* takes over the credit risk for a small fee. These lower risks allow for competitive interest rates and in combination with HIP savings, housing costs can be significantly lower than the traditional costs and hence loan capacities increase.

The savings account and the mirrored bonds based on *match-funding* in combination with the constant payment mortgage loan provides a safe and transparent system and is therefore customer friendly. In a time with failing difficult financial constructions, a stagnant housing market and major economic uncertainties, these models are very important to inspire customer confidence.

The *Housing Investment Plan* provides households with an income between €34,000 and €43,000 of accessible private housing with a safe and transparent funding. Furthermore, it provides a good platform for the implementation of a standardized but diverse process and product and thus provides the ability to develop competing housing prices and energy efficient dwellings.

TABLE OF CONTENTS

COLOPHON.....	3
PREFACE.....	5
MANAGEMENT SUMMARY	7
TABLE OF CONTENTS.....	9
1. INTRODUCTION.....	11
1.1. Context	11
1.2. Problems.....	11
1.3. Problem statement.....	13
1.4. Research objective	14
1.5. Research questions.....	14
1.6. Research design.....	15
1.7. Reading guide	15
2. EXPLORATION OF THE THREE PROBLEM AREAS	17
2.1. Housing prices	17
2.2. Mortgage lending	22
2.3. Additional housing costs.....	36
3. CONFLICTING AREAS and EXISTING MEASURES.....	41
3.1. Housing prices – Mortgage lending.....	41
3.2. Housing prices – Additional housing costs	42
3.3. Mortgage lending – Additional housing costs	43
3.4. Conclusion	44
4. STAKEHOLDERS	45
4.1. Stakeholders and their role	45
4.2. Review of the interviews	49
5. DEVELOPING MEASURES.....	53
5.1. Housing prices	53
5.2. Mortgage lending	54
5.3. Additional housing costs.....	54
5.4. Conclusion	54

6. THE HOUSING INVESTMENT PLAN	57
6.1. Starting point.....	57
6.2. Modelling options.....	59
6.3. Expanding model options	62
6.4. Best practices	64
6.5. Final model	69
6.6. Conclusion	74
7. CONCLUSION AND DISCUSSION	77
7.1. Conclusion	77
7.2. Discussion and future research	82
7.3. Reflection	84
BIBLIOGRAPHY	87
APPENDICES	91
APPENDIX A.....	93
APPENDIX B.....	95
APPENDIX C.....	97
EXTENDED SUMMARY.....	101

1. INTRODUCTION

In this chapter the subject of the graduation thesis is justified. First the context in which the research takes place is described to get a better understanding of the housing market. Secondly, the problem is defined and a focus is established to give a more clear and specified direction in which the research is set. Next the research objective, research questions and research design are stated and the chapter is concluded with a reading guide.

1.1. Context

The housing market is a big and very diverse market with its own rules and target sectors. There are two main sectors in the housing market, which can be referred to as the private housing sector and the social housing sector. Both sectors have the same two submarkets. The first is the rental housing market where a monthly amount is charged for renting the dwelling. The second market is that of the owner-occupied housing where the owner has a mortgage loan with which the dwelling is financed on a monthly basis. This brings the total to four forms of housing.

Social housing is mostly owned by housing corporations. They rent their housing stock to households with an annually indexed maximum gross salary. The rental charges are limited to € 652.- per month for these social dwellings and housing corporations have to meet these limits. The only exception is a maximum of 10% of the housing stock that can be rented to higher incomes, where priority is given to high urgency households. (Rijksoverheid, 2011a).

When renting a private dwelling, the owner can be a pension fund, a large investor or a private individual. All dwellings for which no housing permit is required are privately owned dwellings (read: all dwellings with a rent calculation higher than the limit that the municipality determines in their housing regulation).

When buying a dwelling it is usual to hold a mortgage loan. A mortgage is a loan in which real estate is used as collateral on the loan. The maximum height of the loan is calculated from the gross annual salary. Each month a repayment plus interest is paid, this interest can partly be deducted via tax authorities. The main difference with the rental housing market is the fact that the dwelling is owned by its residents.

1.2. Problems

The problems in the housing market are complex. In this section the three major problems are stated which affect the majority of the households. Furthermore, the involved actors (problem owners) are stated.

1.2.1. Social housing

Since January 1, 2011 housing corporations are required to rent 90% of their housing stock to households with a gross annual income below €34,085¹. These allocation rules are due to an order of the European Committee (EC) on state support to housing corporations (ADV Market Research, 2011). According to (RIGO, 2010) eventually 650,000 households will

¹ Updated with the 2012 correction. This correction is implemented in the entire report.

suffer from these allocation rules. In the first year about 45,000 households with a low medium-income will have difficulties finding an affordable dwelling.

1.2.2. Housing price

The second problem is the high housing price. From 2001 till 2008 the average selling prices of new housing have increased by 22%. In the same period the land prices have increased with 53%. This means that margins for developers (like *Hurks vastgoedontwikkeling*) are under pressure. In the last three years (2008-2011) the average selling prices have decreased by 9%, while the land prices still increased by 10%. The main problem lies in the fact that municipalities invested in building plots, estimated the value too high and already spent the notional revenue or made a revenue. (NVB, 2011)

1.2.3. Mortgage regulations

Thirdly, the regulations concerning mortgage loans have changed dramatically over the last year. The next three recent measures (Vereniging Eigen Huis, 2010) have a big impact on the eligibility of private housing (note that some points are updated with more recent information from other sources):

- NHG² (National Mortgage Guarantee): From January 1, 2011 tightened standards are set, based on Nibud³ calculations. The maximum mortgage loan has decreased, mainly because of a decrease in spending capacity through an increase of the pension and health insurance contributions. For households with a low income the effects are relatively bigger than for the higher incomes.
- AFM (Authority Financial Markets): From August 1, 2011 the mortgage standards are tightened even more. The maximum mortgage loan is 104% of the VON price (no legal charges) and the interest-only mortgage is limited to 50% of the total loan. This repayment obligation applies on the NHG mortgages, which is 80% of the total amount of mortgages.
- Banks: are stricter and more cautious in providing mortgage loans. This is due to a value decrease of the collateral in the past few years. Besides this, the AFM uses stricter standards for mortgage loan provision. Banks fear a damage of their reputation and a fine of the AFM, so they do business well within the limits. (Vereniging Eigen Huis, 2010)

1.2.4. Consequences

The combination of the above measures have big consequences for the housing market. For first-time buyers it will become more difficult and almost impossible to enter the market of owner-occupied private housing. The above measures add up to previous measures: discharging the purchase subsidy (March 2010) and the end of the Central Government participation in mortgage loans for first-time buyers⁴ (July 2010). Often, these buyers have an income that is too high for social housing either.

Arrangements for transfer between different housing is locked. First-time buyers stand at the beginning of this 'moving chain' which can lead to three till seven relocations. Because these first-time buyers do not have to sell their dwelling before buying a new dwelling, they

² NHG is the National Mortgage Guarantee.

³ National Institute for Budget information.

⁴ Local Governments still provide mortgage loans for First-time buyers.

are extremely important for the current housing market and the attached arrangements for transfer. (Vereniging Eigen Huis, 2010)

1.3. Problem statement

As mentioned before, many households will experience difficulties when entering the private housing market. The real problem group however are the households with an annual gross income between €34,000 and €43,000 (11-12% of all households⁵ (Statline, 2011a)). These households have an income that is too high for the social housing sector and too low to get a decent mortgage loan. Therefore, these are the households that is focussed on during the research.

1.3.1. Housing prices

Housing prices have increased rapidly in the last decade. The degree of affordability has decreased and in combination with the aforementioned developments this results in an overall decrease of appropriate housing for the target group.

1.3.2. Mortgage lending

The problem for real estate developers is that it becomes harder to sell their product to customers. Households with an income between €34,000 and €43,000 (with a corresponding mortgage of resp. €153,000 and €201,000⁶ (Nibud, 2011)) are often able to afford an owner-occupied private dwelling, but they cannot get the corresponding mortgage loan and end up in an even more expensive rental housing sector. Therefore, the focus is on bridging the gap between what people reasonably are *willing to pay* and what they *can* finance. And on bridging the gap between social housing and private housing.

1.3.3. Additional housing costs

A problem not previously appointed are the growing additional housing costs. This growth is mainly due to the increasing energy costs. (COELO, 2011) Because of the increasingly expensive electricity and gas prices, energy bills will rise exponentially over the next years (see figure 1) and become of great importance to the housing expenses and corresponding rent and mortgage capacity and hence the affordability ratio. (Bouwfonds, 2011)

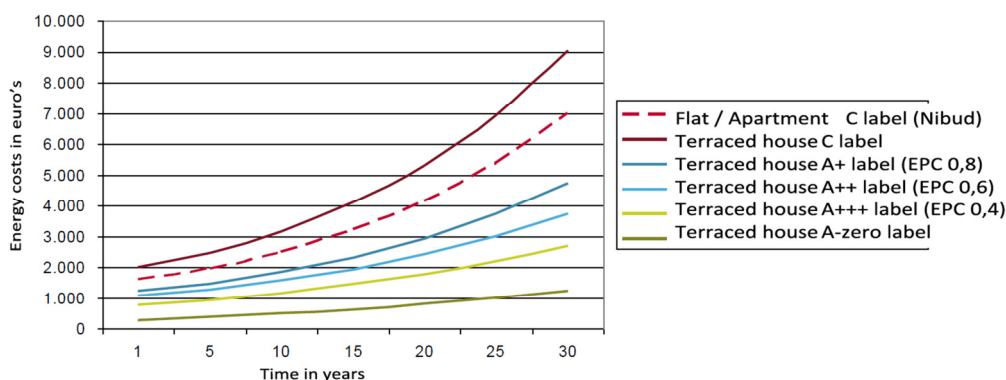


Figure 1, Expected increase of energy costs for various energy labels (based on historical data, period 2000-2010) (Bouwfonds, 2011)

⁵ This is an approximation, due to a lack of adjustment possibilities. The used percentage represents incomes between €35,000 and €45,000. It is assumed that this percentage is equal to the 34-43 income bracket.

⁶ With a mortgage interest rate of 5.25%.

1.3.4. Statement

In the research the above three problem areas are the starting point and in developing a solution it is attempted to tackle problems in all three areas. The problem statement below combines the different problems to one integral solution-focused question.

Problem statement

What financial measures contribute to an improved financial accessibility of owner-occupied private housing for households with an income between €34,000 and €43,000?

1.4. Research objective

The main research objective is to make owner-occupied private housing attainable for the aforementioned target group by providing possible solutions in the three areas (problems); housing prices, mortgage lending and additional housing costs (section 1.3). This is attempted by stating various measures that can increase this feasibility for the target group. In addition, a financial measure is developed in the event that existing measures are not sufficiently contributing to this objective.

Research objective

Stating and developing financial measures to make owner-occupied private housing attainable for households with an income between €34,000 and €43,000.

The expected result is an exploratory report on the three problem areas and corresponding existing measures, supplemented with new and innovative measures. The report should contribute to an attainable owner-occupied private housing sector for the indicated target group.

1.5. Research questions

To structure the process of answering the problem statement, sub questions are drawn up and listed below.

Research question:

What financial measures contribute to an improved financial accessibility of owner-occupied private housing for households with an income between €34,000 and €43,000?

The sub questions that structure the process in answering the problem statement are listed below:

- ✓ RQ 1: From what elements is a housing price composed, how and by whom is this price influenced and what relevant measures can be taken to improve the financial accessibility of the target group?
- ✓ RQ 2: How does a mortgage lending process look like, what conditions influence the height of the loan and what relevant measures can be taken to improve the financial accessibility of the target group?
- ✓ RQ 3: From what elements are the additional housing costs composed, how are these influenced and what relevant measures can be taken to improve the financial accessibility of the target group?

- ✓ RQ 4: What conflicts occur between the three problem areas and what existing measures can be distinguished?
- ✓ RQ 5: What new and innovative financial measures can contribute to the financial accessibility of the target group?

1.6. Research design

The research is conducted according to the research design below. A list of exploratory interviews is enclosed in appendix A, together with the expert meetings. The final model is enclosed in appendix C.

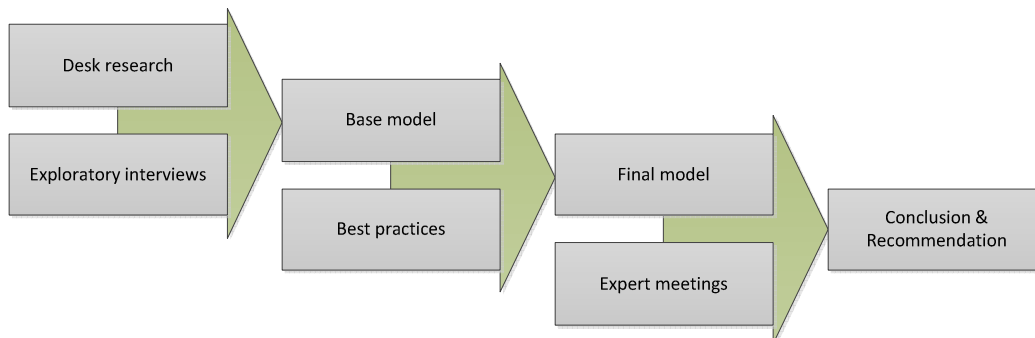


Figure 2, Research design of the final thesis

1.7. Reading guide

This thesis consists of three main parts with several chapters per part. The first part is composed of three chapters: *Exploration of the three problem areas* [2], *Conflicting areas and existing measures* [3] and *Stakeholders* [4]. In chapter two, a theoretical orientation is made per problem area, from general information to the more specific measures. In chapter three the problem areas of the previous chapter are connected to look for conflicting areas and existing measures. The stakeholders operating in the problem areas are described in chapter four, together with the relevant topics that were discussed during the exploratory interviews.

The second part consists of two chapters: *Developing measures* [5] and *The Housing Investment Plan* [6]. In chapter five some additional measures are listed and in chapter six the *Housing Investment Plan* is introduced and elaborated.

In the third and final part *Conclusion and Discussion* [7], the final conclusions are stated and a discussion on the research objective is given together with a cautionary note on the research and recommendations for future research are presented. Furthermore, a reflection is inserted with a personal view on the discussed issues and the proposed *Housing Investment Plan*.

2. EXPLORATION OF THE THREE PROBLEM AREAS

In the exploration a theoretical orientation is made on the three problem areas of the research: housing prices, mortgage lending and additional housing costs. These subjects are elaborated in the next sections, from general information on the subjects to more specifically the measures.

2.1. Housing prices

2.1.1. Housing price elements

To avoid misunderstandings on the interpretation of the housing costs, below the definition of the overall-costs is given.

The overall-costs include all costs, including the land (if long-term building lease is out of the question) and value added tax (VAT), in order to realize housing. (Onderzoeksinstituut OTB, 2005)

Elements

These overall-costs are constructed from different elements, which are stated below. (NVB, 2011)

Construction costs

The construction costs of a building include the costs directly related to an architectural element. The construction costs consist of; direct labour costs, material costs, equipment costs and subcontracting costs. (Brink Groep, 2008)

Extra quality by developers

The extra quality that developers add to their projects can include a variety of different efforts to make the projects more wanted. These can be of an urban, architectural and service nature.

New governmental requirements

Government requirements are defined in regulations, and thereby inevitable expenses in a project. The main recent influence on the construction costs are the tightening energy requirements. These are a result of the aim to become energy neutral in the future.

Land costs

The costs to acquire land for housing projects are the land costs. Most available plots are owned by the municipality of that location and are allocated for projects in return for a price per square meter. This price is composed by the acquisition costs, site preparation, plan costs, interest and profit and risk. Different methods are used to determine the land prices: the residual land value method (most commonly used), land ratio method, comparative method and cost price method. (Dienst RO/EZ, afdeling Vastgoedontwikkeling, 2009)

Additional costs

The additional costs are costs made for the work needed to develop a plan from the very beginning to completion, excluding the contract price, land costs and VAT. Examples of additional costs are architects and advisors, charges for installation, fees and rent. (Brink Groep, 2008)

Development costs

These are the operational costs a developer makes during the development, from start to finish. Besides this, the developer also charges a compensation for risk and profit. (Brink Groep, 2008)

Value Added Tax

The new housing tax is 19% on top of the total housing costs (or 16% of the total) and is thereby a constant.

Development of the elements

The proportions of the above elements change over time, due to several developments in part of the elements. The proportions⁷ are stated in the line chart and the pie charts below and show the development over time. (NVB, 2011)

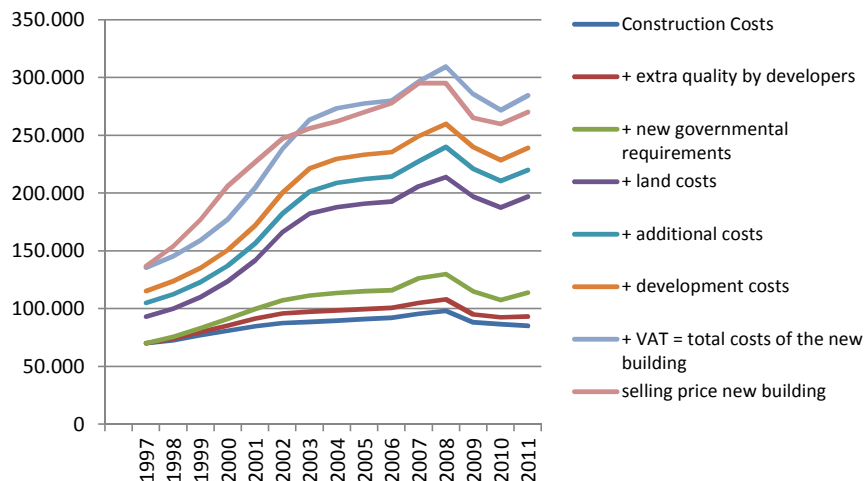


Figure 3, Price and cost development of the average new home (NVB, 2011)

⁷ These proportions are derived from the average new dwelling, are indicative and used to illustrate the ratio.

In these two pie charts the development of the proportions over the last ten years is illustrated.

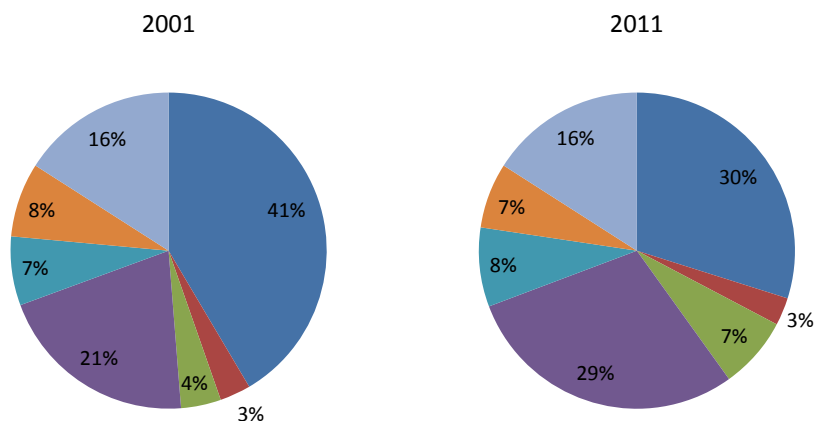


Figure 4, Cost development of the average new dwelling (NVB, 2011)

The *extra quality by developers*, *additional costs*, *development costs* and *VAT* have been constant in relation to the total costs. This is because these costs are calculated and controlled as a percentage of the total costs.

The *construction costs*, *new governmental requirements* and *land costs* have changed over the past ten years. The construction costs decreased in proportion and the share of land costs and new governmental requirements increased. The underlying causes for these changes are mapped in the next section.

2.1.2. Influencing factors

In this subsection the above main three causes for the rising housing prices are interpreted and their respective influences are explained.

Construction costs

The relative decrease of the *construction costs* is due to the fact that these costs have been constant over the past ten years, while all other expenses increased. For example, the real construction costs for the average new dwelling were €84.900 in 2001 and, after some small fluctuations, €85.000 in 2011. (NVB, 2011) And this while the absolute construction costs increased with 27% during the same period. (Statline, 2011b)

Part of this difference can be attributed to the interference of the *construction costs* and the *new governmental requirements*. In the *NVB* documentation, these two components are separately discussed. In the *CBS* statistics some of the governmental requirements are not included in the calculation.

For the other part, this difference indicates that times have changed: developers cut on unnecessary construction costs, organizations work more efficiently and new contract forms have been designed. Due to this, a small difference between the construction costs of 2001 and 2011 is possible.

Governmental requirements

Due to *new governmental requirements* costs have increased over the last years, and are still rising. The main factor are the energy requirements. This has everything to do with the national and international desire to become energy neutral in the near future. This is translated to gradually tightening EPC standards⁸ (new buildings) and demanding energy labelled housing (both new buildings and existing stock). Before January 2011, the EPC standard for new housing was 0.8, but with the new legislation this standard is tightened to 0.6 and will be 0.4 in 2015. In 2020 all new housing has to be energy neutral. (Agentschap NL, 2011) The actors that influence these mandatory measures are the Ministry of Internal Affairs and the European Union. The extra measures that have to be taken to meet these requirements entail higher investments that are reflected in higher housing prices.

Land prices

The main cost-raising factor in the overall costs of new housing are the *land prices*. The average land prices have increased with 260% in the last fourteen years (1997-2011), which means that developers pay three and a half times more for a square meter now than they did fourteen years ago. (NVB, 2011) These increased costs make it difficult for developing companies to sell their projects for market oriented housing prices. Currently, average selling prices are even lower than the total costs. (NVB, 2011) This creates frictions on the housing market and puts the project development under pressure.

The rapidly increasing land prices have mainly been the consequence of a planning policy which the government embedded since the '80s to effectuate new dwellings near urban locations, the so-called 'Vinex-policy'. According to *Rietdijk*, director of NVB Association for developers and builders, this policy encouraged the scarcity that we face now, and is the cause of the rapidly increased land prices and housing prices. (NVB, 2010)

Most land is in the hands of municipalities. Property companies (*grondbedrijven*) of the different municipalities facilitate the land allocation. Municipalities that performed an active land policy, where annually an amount of land revenues is already booked in their municipal budget, will experience problems now and in the years to come. (NVB, 2010) This because the booked revenues from land allocation are not met in the current construction sector, with a turbulent economic situation.

Before the economic downturn in 2008, the residual land value method had a positive effect on municipal budget. The range between the selling price and the overall construction costs is equal to the land price, and because this difference grew due to rising selling prices and constant construction costs, this range increased over the last decades. In the current economic situation the residual land value decreases due to lower selling prices. The main problem is that municipalities do not apply this valuing method correctly. The residual land value method consists of leverage. One third of the overall costs exists of land costs. When the price of a dwelling decreases by 5%, the land costs should decrease with 15%. This leverage is applied too slow, mainly because plans are developed and based on assumptions of the land price developments, which are often estimated too optimistic in a downtrend. (Muskee, 2010)

⁸ EPC (*energieprestatiecoëfficiënt*) is an energy performance standard.

2.1.3. Measures

In the previous subsection the actors and factors that influence the housing price are stated. From this it is clear that the *land price* is the main issue with the highest potential to achieve a lower housing price. Therefore, in this subsection the emphasis is on the land price and how this factor can be lowered, on the short and long term. Besides this, the optimisation of the construction costs discussed in the *Hurks Betaalbare Woning*⁹ document is stated. The land price measures are accounted to the municipalities, the latter optimisation to the project developing companies. Lowering the housing price artificially by for example *Koopgarant* is not discussed in this section.

Short term measure

On the short term it is favourable and necessary to lower the land prices by depreciation. Despite the use of the residual land value method, the current land prices are still too high and cause delayed and cancelled developments in the housing market. The municipal land policy is still very exploitation driven: the maximization of land revenue is the providing power, not the market value. (NVB, 2011)

By depreciating on current land prices, new projects can proceed and housing can be developed for market-oriented prices, maintaining quality of the building. In the current situation the average land costs are 35% of the total net construction costs, while the desired quota is 22%. (NVB, 2010) This indicates that depreciation is inevitable to effectuate a healthy future land price.

Long term measures

The most structural measure is to use one consistent and up-to-date land valuation method. In the current system different methods, models and expectations are used. The most common method is the residual land valuation method, but more than once too optimistic prospects are used in a downtrend, which result in an impractical exploitation. The land price is calculated according to parameters which apply in normal market conditions (read: the property is marketable and no distorting elements like incentives are taken into account).

For a long time, appraisers disregarded these incentives when determining the value of real estate. Because municipalities base their land prices on general indicators, and ignore these non-transparent individual agreements, the land prices are artificially high which discourages the development of certain functions on specific locations. According to NEPROM, the incentives should be taken into account in determining the market-oriented commercial value, which is part of the normalized residual value method. (NEPROM, 2011)

Hurks Affordable Housing

In the *Hurks Affordable Housing* document of September 2nd 2011, various optimisations are stated which provide an affordable dwelling. In this subsection, only the optimisations that lower the overall construction costs are stated. These are some examples of possible measures, and do not cover the entire spectrum.

⁹ *Hurks Affordable Housing* is an internal document on measures to come to affordable housing.

The first optimisations have to do with minimizing the land costs: no large lots, no square meter prices higher than initially agreed and calculated, no parking costs and no losses of interest or other costs that arise from land development or anterior agreements. (Hurks, 2011)

Furthermore, the additional costs can be reduced by elaborating some general aspects which can be applied in the development of all affordable dwellings. By doing this, a serial process is originated, by which the initial costs can be spread over all dwellings (initial-costs-fund). A 30% saving is possible for the additional costs. (Hurks, 2011)

2.2. Mortgage lending

2.2.1. The mortgage lending process

Before discussing the process of mortgage lending it is important to know what a mortgage loan is. When the decision is made to buy a dwelling, there are two ways to finance this purchase. The first way is to use equity capital: a dwelling is bought with the capital an owner possesses. This however, is not often the case and has to do with the relative disadvantages¹⁰ that come with using this equity capital. The second way to finance a property is to take a loan, a mortgage, at the bank. This latter option is discussed here.

A mortgage loan is a loan in which real estate is used as collateral on the loan. This loan consists of three parts: the value of the dwelling and the amount of the loan, the repayment profile and the interest at which the loan is provided. (CHF and Nibud, 2011) In the next three subsections these parts are discussed in more detail.

Loan amount

The loan is the amount borrowed to finance a dwelling. The higher the price of the dwelling and the higher the corresponding mortgage, the higher the monthly mortgage costs will be.

It is possible to have a mortgage loan which is higher than the value of the property. This is when the so-called purchase and financing costs (including transfer tax¹¹ and notary fees) are financed with the mortgage. The mortgage loan is limited to 106% of the market value for existing housing and 104%¹² for new dwellings. This as a protection against the risk of having a debt after selling the property in the future. In case of a planned renovation, an appraiser estimates the expected value after renovation, and this can be translated to a corresponding mortgage loan. (CHF and Nibud, 2011)

There are some exceptions on the above:

- If there is an outstanding debt after sale of the previous dwelling. Besides the 104% of the value of the new dwelling, it is possible to co-finance the outstanding debt of the previous dwelling. This provided that the total mortgage does not exceed the income-dependent maximum capacity.

¹⁰ No savings available and a smaller Mortgage interest deduction (depending on future legislation and regulations).

¹¹ Transfer taxes do not apply to new housing.

¹² Also known as the LTV (loan-to-value) ratio.

- When re-financing an existing mortgage. This applies only when it is on the same dwelling and not higher than the existing mortgage and all additional costs.
- When lending less than the income-dependent maximum mortgage. In that case, the mortgage can be higher than 106% of the value of the property. (CHF and Nibud, 2011)

The maximum mortgage loan is depending on the annual income, the debts from other loans, capital and the height of the mortgage interest. In determining this maximum, a mortgage adviser frequently uses the so-called GHF-standard¹³ to determine which percentage of the income can be used in financing a mortgage loan. (AFM, 2011)

Repayment of the loan

Repayment includes the debt retirement of a part of the mortgage loan. The way of repayment determines the monthly costs. There are three basic options: the first is to repay the debt on a monthly basis during the term of the mortgage loan. The second is to save money to repay the loan after a period of time, usually after thirty years. The final option is not to repay the loan¹⁴. A combination of these options is possible, for example a loan where part of the mortgage is repaid and part is not. (CHF and Nibud, 2011)

Mortgage interest rate

The interest rate is the main component of the mortgage costs. When the interest rate is high, this influences the maximum mortgage loan in a negative way, and vice versa. This interest rate can be fixed for certain periods of time, the so-called interest period (5, 10 or 20 years). The advantage is that the interest does not change and thereby the certainty of constant monthly expenses. If the mortgage has to be adjusted or pay off takes place, some banks charge a penalty when doing so.

Generally, the interest rate is lower when the interest period is shorter. A shorter interest period means that changes in the interest rate occur sooner because a new interest period has to be set, with the interest rate at that moment. This is a considerable risk since a small increase of the interest rate can increase the mortgage costs and thus the housing costs dramatically. (CHF and Nibud, 2011)

The mortgage interest rate is formed by different cost factors incurred by the bank. The first factor is the purchase price the bank has to pay to provide the mortgage loan, also known as the *base lending rate*. The maturity of the loan and the supply of money in the market influence this purchase price. The second factor are the bank's operational costs like personnel expenses, housing costs, distribution costs and costs of capital (reservation of equity to bear losses). The third and final factor is risk interception, when for example a customer cannot meet the payment or when a loan has to be repaid due to a relocation of the customer. The latter two factors are included in the *mortgage specific expenses*. Besides this the above mentioned interest period and the loan-to-value ratio influence the interest rate. (Nationale Nederlanden, 2011)

¹³ The GHF-standard (*Gedragcode Hypothecaire Financieringen*) is a code of conduct on mortgage credit.

¹⁴ This option is no longer applicable, by current legislation. This is discussed in the next subsection.

2.2.2. Influencing factors

The maximum height of mortgage loans is depending on numerous factors. Therefore, only the direct influences are stated point wise in this section.

Housing ratio

The housing ratio¹⁵ for the NHG is composed annually in close consultation with the Nibud. Depending on the income and costs development on household level, the permitted housing ratios increase or decrease. For 2011, the housing ratio show a decrease of the mortgage capacity of one percentage point. The impact on the maximum mortgage loan is illustrated in the table below. Note that these numbers are calculated for a 10 year fixed interest rate of 5.0%. The low income households are particularly restricted in their mortgage capacity.

Table 1, Development of the housing ratio and impact on loan capacity (Vereniging Eigen Huis, 2010)

Gross income (€)	Housing ratio 2010 (%)	Housing ratio 2011 (%)	Max. Mortgage loan 2010 (€)	Max. Mortgage loan 2011 (€)	Difference (€)/(%)	
25,000	30.8	29.4	119,530	114,097	-5,433	-4.5
33,000	30.8	29.4	157,780	150,608	-7,172	-4.5
50,000	32.8	31.6	254,584	245,270	-9,314	-3.7

According to NHG and Nibud, the decreasing housing ratio are a consequence of the fact that consumers generally have less to spend. Their spending capacity decreases because of an increase of the pension contribution and the healthcare insurance contribution. In addition, the tax credit and employed person's tax credit decreased. These changes have a relatively big influence on the mortgage capacity with low incomes, and less with higher incomes. (Vereniging Eigen Huis, 2010)

AFM directive

The *Autoriteit Financiële Markten*¹⁶ (AFM) promotes a fair and transparent financial market. It is an independent supervisory authority for the savings, borrowing, investment, pension and insurance markets. (AFM, 2011)

From August 1, 2011, new mortgage rules are applied for consultants and banks because many agencies are concerned about the relatively high mortgage debts in the Netherlands and the high interest-only part of mortgages. These rules are recorded in the code of conduct on mortgage credit and apply to new mortgages. The rules mainly exist of three elements:

- Mortgages higher than 104% of the value of a new property are not allowed.
 - The interest-only mortgage is limited to 50% of the market value of the property.
 - The number of possible exceptions in case of insufficient income are further reduced.
- (AFM, 2011)

An additional problem which also influences the mortgage loan capacity in a negative way is the fact that banks are very reserved in providing loans, because they fear loss of reputation and a fine from the AFM. Therefore they avoid the boundaries of the above rules and deteriorate the loan capacity even more.

¹⁵ The housing ratio indicates what part of the income is spent on housing and in particular on mortgage costs.

¹⁶ Authority of Financial Markets

According to the DNB, the loan-to-value (LTV) even has to be reduced to 90% in the next years or decades. Households need to contribute personal capital as a buffer on the housing market. (Vastgoedmarkt, 2012)

Mortgage interest rate

The mortgage interest rate has always been a dominant factor in the demand for private housing. This applies to both the absolute level and the month-to-month changes. When the interest rate steadily declined in the period 2001-2006, the number of transactions increased sharply. When the interest rate increased sharply in 2006-2008, the number of transactions decreased just as sharply as it increased before. (NVB, 2011)

The development of the interest rate has a major impact on the loan capacity, because the monthly interest cost is the main factor of the monthly housing costs and thereby has a large share in the aforementioned housing ratio. To illustrate the influence of the interest rate on the maximum mortgage loan, table 2 is inserted.

Table 2, Influence of interest rate on loan capacity (Nibud, 2011)

Gross income (€)	4.75%	5.25%	5.75%	6.25%	6.75%
33,500	157,338	153,182	149,253	145,542	142,037
37,500	176,125	171,472	167,074	162,920	158,997
43,000	206,765	201,164	195,877	190,889	186,184
50,000	252,406	245,984	239,901	234,144	228,698

From this table it can be concluded that an increase of the interest rate of 0.5% has a negative effect on the maximum mortgage loan in the order of €4,000 to €7,000, depending on the gross annual income.

The development of the interest rate is illustrated in the line charts below, specified for the variable interest rate and the 5-10 year fixed interest rate.

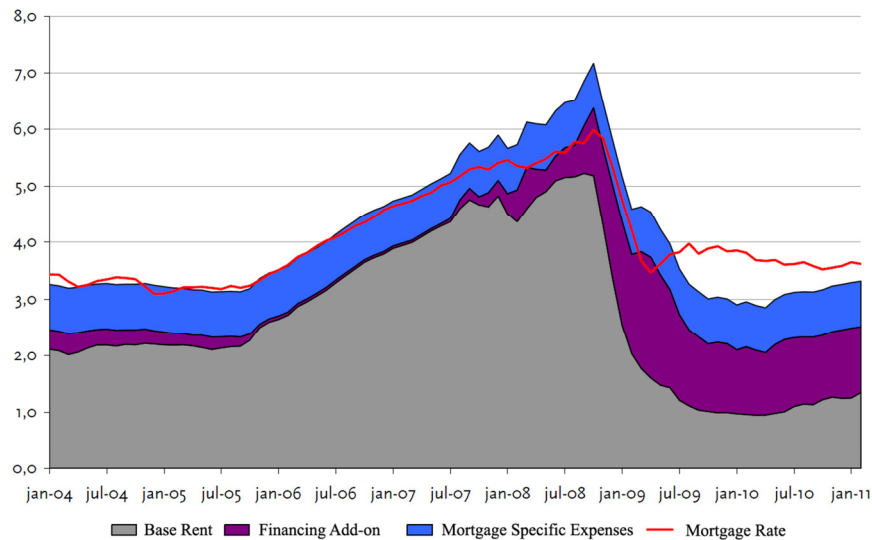


Figure 5, Composition of the variable interest rate (2004-2011) (NMa, 2011)

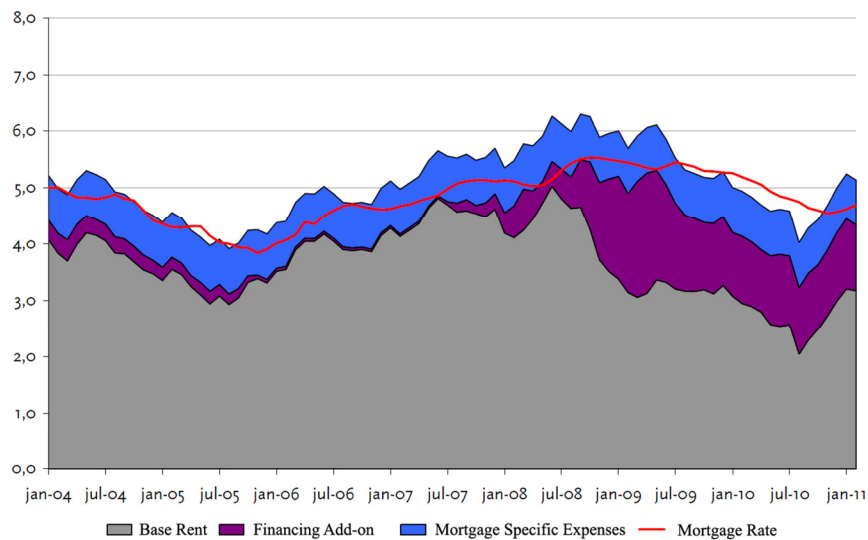


Figure 6, Composition of the 5-10 year fixed interest rate (2004-2011) (NMa, 2011)

In both charts the *Financing Add-on* has increased rapidly since July 2007 and stabilized since January 2010. A strong increase of the *Base Rent* and the *Financing Add-on* had a negative influence on the mortgage margins, which even led to negative margins. (NMa, 2011)

Competition

At first, it seems like there are a lot of mortgage companies in the Dutch mortgage business: 70 to 90 different commercial providers. However, most of these providers are subsidiary companies of the bigger organizations and after processing these connections the number of real independent providers is much lower, see table 3. (NMa, 2011)

Table 3, Market shares of Dutch mortgage business in 2004 and 2011 (NMa, 2011)

Provider	2004	2010
Rabobank	25.7%	30.2%
ING	21.7%	20.2%
ABN Amro	14.3%	20.0%
SNS	11.2%	6.7%
Fortis	8.4%	-
AEGON	1.3%	5.6%
BNP Paribas	0.5%	7.7%
Overig	16.8%	9.6%
Concentration level¹⁷	1,579	1,883

From this data it is clear that the top three mortgage providers accounts for 70.4% and that competition decreased over the past seven years. The concentration level gives a good indication of the degree of competition. The higher the level, the lower the competition. Compared to 2004, competition decreased in the mortgage business. The sudden increase of the aforementioned margin can indicate this decrease of competition. (NMa, 2011)

NHG

Despite the aforementioned rules concerning the housing ratio and the resulting decrease of the maximum mortgage loan, the NHG has an advantage which increases the maximum mortgage loan. In the unfortunate event that structural payment problems arise and the property has to be sold, the guarantee fund reduces the risk for the bank by taking care of the remaining debt. By reducing this risk for the bank and the bank's confidence in NHG, a lower interest rate is possible up to 0.8%. This means an annual saving of hundreds of euros. The only *quid pro quo* is a tax deductible premium of 0.7% of the mortgage and the only restriction is the cost limit of the mortgage loan of €350,000¹⁸. (Stichting WEW, 2011)

Single- and double-income household

In the past the Nibud decided to limit the loan capacity of double-income households because a large part of their earning capacity is already spent. Single-income households generally have the ability to acquire extra income. This philosophy is gradually changing into a situation where one third of the second income can be used in the calculation of the maximum mortgage loan. This is established because the double-income household benefits from tax credit and a limited loss of income when considering children. For the low-income double-earning households this means an increase of the loan capacity up to 22.4% (with an interest rate of 5.4%), see table 4. (De Hypotheekshop, 2011)

¹⁷ The concentration level is calculated by squaring the market shares and adding the results.

¹⁸ The cost limit is gradually downscaled to the original limit of €265,000 in 2014.

Table 4, Development of loan capacity (interest rate 5.4%) comparing 2012 to 2011 (De Hypotheekshop, 2011)

Main income (€)	Single earner	Second income				
		10,000	15,000	20,000	25,000	30,000
20,000	71,234	129,111	155,824	178,085		
	72,718	109,077	127,256	145,436		
	-2.0%	18.4%	22.4%	22.4%		
22,500	93,494	144,694	166,954	189,215		
	95,164	137,459	158,607	179,754		
	-1.8%	5.3%	5.3%	5.3%		
25,000	111,303	155,824	178,085	200,345	222,606	
	112,416	157,382	179,865	202,349	224,832	
	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	
30,000	133,563	178,085	200,345	222,606	244,866	271,579
	134,899	179,865	202,349	224,832	247,315	269,798
	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	0.7%
35,000	155,824	200,345	226,316	248,947	271,579	299,034
	157,382	202,349	224,832	247,315	269,798	292,281
	-1.0%	-1.0%	0.7%	0.7%	0.7%	2.3%
40,000	181,053	226,316	253,029	280,483	303,857	332,425
	181,646	227,058	249,764	272,469	295,175	317,881
	-0.3%	-0.3%	1.3%	2.9%	2.9%	4.6%
45,000	207,023	257,110	284,935	308,680	337,619	361,734
	210,362	257,110	280,483	303,857	327,230	350,604
	-1.6%	0.0%	1.6%	1.6%	3.2%	3.2%
50,000	237,446	289,388	313,403	342,813	372,865	403,658
	241,898	290,278	314,468	338,658	362,847	387,037
	-1.8%	-0.3%	-0.3%	1.2%	2.8%	4.3%
60,000	302,744	358,395	389,560	415,531	447,809	474,150
	309,867	361,512	387,334	413,156	438,979	468,801
	-2.3%	-0.9%	0.6%	0.6%	2.0%	2.0%

In this table the development in the loan capacity of the target group is marked grey. All single-income households give in on their loan capacity in 2012, ranging from -0.3% to -2.3%. For the double-income households, the loan capacity generally increases in 2012 up to 22.4%. The upper two rows in the table show a considerable increase of the loan capacity, while the third, fourth and fifth row show a decrease of 1.0%. This seems like a small decrease, but adds up to the decreasing loan capacity in the past few years.

2.2.3. Mortgage types

There are many different mortgage types available, with different characteristics and related advantages and disadvantages. In this section these types are distinguished and stated according to the AFM classification (AFM, 2011). It is important to note that from August 1, 2011, the interest-only mortgages are limited to a maximum of 50% of the market value of the property.

Overall, there are three possible mortgage types:

- Interest-only mortgage, no repayment¹⁹.
- Save money to repay once the term of the loan has expired²⁰.
- Monthly repayment, repay during the term of the loan.

¹⁹ Limited to a maximum of 50% of the market value.

²⁰ Limited to a maximum of 50% of the market value.

In the next mortgage options intermediate forms of the above three types are applied. There are more options, but the below mentioned are the most common ones.

Interest-only mortgage

In case of the interest-only mortgage no repayment is done during the term of the loan. The only monthly payment is the interest. The maximum loan capacity of this mortgage is lower than the market value. Therefore it is important to have personal capital to contribute or an additional mortgage on which you repay.

At the end of the term (with a maximum of 30 years) the loan has to be repaid. This is possible by selling the dwelling, by using savings to repay the loan, or by settling a new mortgage loan. It has to be taken into account that the interest on this new loan may not be tax deductible.

Advantages

- The lowest monthly costs.
- Optimal tax privilege because of the mortgage interest deduction.
- It is a simple mortgage option, which is easy to combine with other mortgages types.

Disadvantages

- The maximum loan capacity is well below the market value of the property.
- Because no repayment is done, no asset is accumulated either.
- The lender (bank) can oblige a life insurance.

Credit mortgage

The credit mortgage works like a bank account on which a negative balance is possible. Money can be withdrawn and deposited as long as the limit (loan amount) is not exceeded. Every month the interest has to be paid and the maximum capacity is depending on the market value of the dwelling and the income.

Advantages

- Decide when and what amount is repaid.
- Amounts paid may be easily withdrawn again.
- The interest is fully deductible for the income tax.

Disadvantages

- The interest rate cannot be fixed for a longer period of time.
- The maximum loan capacity is lower than the market value (approximately 75% of the market value).

Hybrid mortgage

The hybrid mortgage is a combination of a savings mortgage and an investment mortgage. Each month a premium is paid which consists of two parts, a risk-part and a savings/investment-part. The risk-part consists of the premium for a life insurance and with the savings/investment-part the loan is saved. During the term of the mortgage it is possible to switch between saving and investing, depending on the interest rates and equity prices.

Advantages

- Flexibility: decide how the premium is used.

- A mortgage with a desirable tax.
- With good investment results, the mortgage loan can yield more than the required amount.

Disadvantages

- All activities (loan, savings, investment and insurance) are provided by one bank: intermediate switching to another lender is more difficult.
- Switching between saving and investing can be expensive activities.
- With bad investment results, the mortgage loan can yield less than the required amount and a remaining debt is a fact.

Investment mortgage

The investment mortgage is repaid at the end of the term. During the term a monthly premium is paid and invested in stocks and bonds. At the end of the term these investments should be enough to repay the mortgage loan. An investment mortgage has a lot of liberties, because - except for the monthly premium – it is free to determine the amount of money saved and what funds it is invested in.

Advantages

- Optimal tax privilege because of the mortgage interest deduction.
- Being free to determine the amount of money saved and how it is invested.
- With good investment results, the investments can make a lot of money.

Disadvantages

- Relatively high administrative costs.
- Investing in stocks is a risky business.
- With bad investment results, the results do not cover the mortgage loan and a remaining debt is a fact.

Traditional life mortgage

During the term of the loan a monthly interest payment is done. No repayment is done during the term and the only payments are the monthly premiums of the life insurance. The premium consists of a savings and a risk part, the savings part is to ensure a certain amount of money. In addition, the insurer contributes an annual amount of money as profit sharing. The height of this additional amount can vary from year to year and therefore gives no certainty that the loan can be repaid at the end of the term. Mostly, a floor return of 60% of the mortgage is guaranteed. In practice, the actual return is usually higher and the mortgage loan can be repaid.

Advantages

- A fixed monthly premium is paid.
- Optimal tax privilege due to the mortgage interest deduction and because no repayment is done.
- If the actual yield is high, more money is saved than the height of the mortgage loan.

Disadvantages

- Because of the varying profit sharing, the actual yield can be too low to repay the whole mortgage loan and a remaining debt is a fact.
- Relatively high administrative costs.

Endowment mortgage

During the term of the loan only the monthly interest payment is done. To repay the loan at the end of the term, an endowment policy is taken. The insurance premium consists of a savings and a risk part. Repaying the entire loan at the end of the term is guaranteed, because the height of the premium is fixed as such that the savings cover the loan. One of the features of this mortgage type is that the savings interest rate is just as high as the mortgage interest rate. Due to this, the monthly costs are constant, even with a varying interest rate.

Advantages

- It is guaranteed that the entire loan can be repaid.
- The housing costs are constant, even in case of an increasing interest rate.
- The accumulated capital is tax-free.

Disadvantages

- The savings are never higher than the mortgage loan.
- The link between the mortgage and the savings-account give little flexibility.
- It is a relatively expensive option when the mortgage and savings interest rate are low.

Constant payment mortgage

In case of a constant payment mortgage the monthly payment consists of an interest and repay part. Although the payment is constant, the division gradually changes. At the start of the loan the biggest part of the payment is the interest, and a small part the repayment. As the term proceeds, the repayment part becomes bigger and bigger. The remaining loan gets smaller, which leads to smaller interest payments. The only negative aspect of this option is that the payment becomes a little bigger every month, because an increasingly smaller part of the payment is related to the tax-deductible interest. The tax privilege gets smaller.

Advantages

- A simple and clear mortgage option.
- High tax privileges in the running-in-period, so low monthly costs.
- It is guaranteed that the entire loan is repaid at the end of the term.

Disadvantages

- The net housing costs increase.
- In the running-in-period only a small repayment is done.
- It is an overall expensive mortgage option.

Conventional mortgage

With a linear mortgage, every month a fixed amount of money is paid, so the loan and the interest annually decrease. From that, the monthly costs decrease, but so does the tax-deduction.

Advantages

- The loan is being repaid from the start.
- The mortgage costs decrease every month.
- Less remuneration than with other mortgage types.

Disadvantages

- The expenses are relatively high at the start of the term.
- Over the years the tax privilege decreases.

Generation mortgage

First-time buyers often experience difficulty in financing their first property. A generation mortgage gives family members the opportunity to help first-time buyers finance their dwelling. Three types are distinguished: lend or donate money for a part of the purchase price, guarantee the mortgage loan, finance a part of the mortgage (as a co-debtor). For the latter option sufficient financial resources or income are obligatory.

Advantages

- Possibility to finance more than usually possible with personal income.

Disadvantages

- If the personal income does not grow, the family can be held responsible for vacant posts.
- If a family member dies, the heirs are then financially involved in the generation mortgage and could be liable for the mortgage generation.
- It is desirable to get a life insurance for the family concerned, which causes additional costs. (Rabobank, 2009)

Green mortgage

The green mortgage is a mortgage option when building or buying an environmental-friendly dwelling. When strict requirements are met, a discount of 1% on the interest rate can be realized for a period of ten years. A green certificate is obliged and the maximum amount that can be financed in this way is €34,034, with a maximum purchase price of €272,268. (Agenschap NL, 2010)

Advantages

- A lower interest rate for ten years.

Disadvantages

- A green certificate is needed.
- The favour is limited to €34,034.

Overview

To have a clear and brief overview of the different mortgage options and to compare them, table 5 is inserted. The generation and green mortgage are not included because these are always used in combination with other mortgages and therefore cannot be rated like the stand-alone mortgage types.

Table 5, Mortgage options with characteristics

Mortgage options	Repayment during term	Repayment guaranteed	Investment	Savings	Insurance	Fixed costs	Personal capital	Risk
Interest-only	≥ 50%					✓	✓	**
Credit	0%			✓		✓	✓	***
Hybrid	0%		✓	✓	✓			**
Investment	0%		✓					***
Traditional life-	0%				✓	✓		**
Endowment	0%	✓			✓	✓		*
Constant payment	100%	✓				✓		*
Conventional	100%	✓						*

As mentioned before, the minimum repayment during the term is 50%. There are exceptions though: mortgages that make use of investments, savings or insurances where capital is generated. Basically, these mortgages have a 0% repayment during the term, but generate capital to accommodate this shortcoming at the end of the mortgage term.

The risk column is added to give an indication of the risk levels of the different mortgages. These levels are in proportion to the other mortgage risk levels, and are solely based on the characteristics stated in this subsection.

2.2.4. Measures

As from August 1, 2011, it has become more difficult for banks to provide customized mortgage loans, and thus to create a higher loan capacity. There are only a few measures left in maximizing the mortgage loan, and these are stated in this section.

Energy saving measures

Energy saving measures can be excluded from the calculation of a NHG maximum loan, with a maximum of €8,500. This means that measures up to €8,500 can be financed, independent of the income and thereby contribute to a higher mortgage loan than usually possible. All on the condition that the NHG standards are met. This increased maximum loan can also be applied when it concerns the purchase of a dwelling with a certified energy A⁺⁺ label or an EPC-report with a maximum of 0.6. (Stichting WEW, 2012)

Interest discount

Because of the big influence of the height of the interest rate on the loan capacity, a discount on this rate results in an increase of the loan capacity. On a mortgage with NHG a discount up to 0.8% is possible, because this guarantee covers part of the risk the bank normally runs. (Stichting WEW, 2011)

Besides the above measures to maximize the loan capacity, there are also measures to maximize the range of feasible housing without having to maximize the loan capacity. These are stated below.

Start-up loan

The start-up loan is a service of the SVn (*Stimuleringsfonds Volkshuisvesting*) and the concerning municipality and bridges the difference between the acquisition costs of a dwelling and the maximum mortgage loan according to the NHG standards. The height of the start-up loan depends on the annual income, the personal capital and the conditions of the municipality.

The start-up loan has a fixed interest period of 15 years and a term of 30 years. The first three years no interest nor repayment has to be paid. The municipality has drawn up the conditions that have to be met to be considered for this loan. Besides this, the municipality determines the maximum sum of the loan. (SVn, 2010)

Koopgarant

In case of *Koopgarant*, the customer gets a discount up to 50% of the market value of the dwelling, but nevertheless becomes the sole owner of the property with its powers and responsibilities. When the owner wants to sell the dwelling, the housing corporation or developer repurchases the property and the value development is divided according to a fixed formula. The share in the value development of newly built dwellings is limited to 1.5 times the discount and 50% of the value development. Value development due to an improvement of the dwelling done by the owner is excluded from the appraisal and belongs entirely to the owner.

Besides the fact that this measure increases the possibility for low-income households to buy a dwelling, it also provides certainty when the customer wants to sell the property, and it reduces value decrease. (Op Maat, 2011)

Slimmer kopen®

Slimmer kopen has been developed by housing corporation Trudo and can be obtained via a license. It is quite similar to the *Koopgarant* option, the only difference is that the corporation or developer can choose between *Slimmer kopen* with a repurchase right and *Slimmer kopen* with a repurchase obligation. The latter is equal to the *Koopgarant* agreement. (Stichting Trudo, 2010)

Koop Goedkoop®

With *Koop Goedkoop* housing and land is separated and the land is issued with a ground lease. The purchase price is therefore only connected with the building, and thus the purchase costs are substantially lower than a similar dwelling including land. For the use of the land a rent is paid (ground lease). This is a discounted rent, starting with a 100% discount in the first year, and after that year the discount annually decreases by 10%, until the initial rent is reached after ten years. This results in lower monthly expenses in the first ten years. The ground lease is tax deductible.

Koop Goedkoop is applicable to dwellings that are defined as such by housing corporations. Every potential buyer is eligible for this settlement but the established tenants have right of way. No income or age requirements are set. (Starterskoopadvies.nl, 2011)

Kopen naar wens

With *Kopen naar wens* (former *Sociale koop*), both the building and the land are released in a so-called perpetual building lease. The customer has no legal title on the property yet, because this measure is based on the principle of deferred payment: customers pay only part of the market oriented price to the corporation. The rest of this price is contracted via a claim by the corporation to the buyer. After the deferred payment is settled, the corporation delivers the legal ownership to the customer. The minimum rate a customer has to pay is 50% of the value of the building; this means a 35% payment on the market value of the building and land, and a 65% deferred payment. Unlike the *Koopgarant* option, *Kopen naar wens* has no repurchase obligation, a repurchase right however is a possibility. (Woonlab, 2011)

Overview

In the table below the different measures of this subsection are compared on different conditions. Most options are initiated and provided by housing corporations, which limits these options to the service area of the corporations. The discount rates of the options can go up to 50% of the market value and are therefore good solutions for households with medium-low incomes, which would otherwise be dependent on commercial rental housing.

Table 6, Measures to maximize the range of feasible housing

Measure options	Organization	Validity level	restrictions on right of ownership	arrangement for repurchase	Discount
Energy saving	NHG	National	NA	NA	NA
Interest discount	NHG	National	NA	NA	Up to 0.8% on interest rate
Start-up loan	SVn	Municipal	No	NA	First 3 years no interest nor repayment
Koopgarant	Housing corporation	Organization level	No	Repurchase obligation	Up to 50% of market value
Slimmer kopen®	Housing corporation	Organization level	No	Repurchase right or repurchase obligation	Up to 50% of market value
Koop Goedkoop®	Housing corporation	Organization level	Ground lease	Repurchase right	Land costs limited to lease with discount first 10 years and tax deductible
Kopen naar wens	Housing corporation	Organization level	Yes, right of ownership only after full payment	Repurchase right	Deferred payment

2.3. Additional housing costs

2.3.1. Additional housing cost elements

The additional housing costs are all housing costs that come on top of the mortgage costs, varying from the energy bill to the property tax (*ozb*). The numbers in this section are based on a standard more person household with a mortgage-financed dwelling.

The ratio between the mortgage costs and the additional housing costs is illustrated in the pie chart below and is an average of households. This ratio can vary because of different housing prices in the various municipalities.

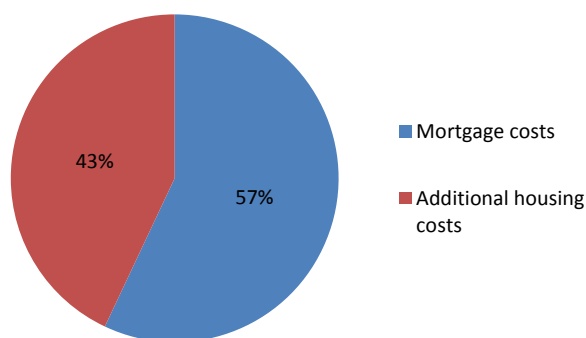


Figure 7, Ratio between mortgage costs and additional housing costs (COELO, 2011)

The additional housing costs are 43% of the total housing costs and this represents €3,919 per year in 2011, which is 12% of the average disposable income of households. (COELO, 2011) In the chart below the different components of the additional housing costs are stated including the absolute costs per element.

The biggest component is the price of energy and water (32%) and the taxes on this component (16%). The total energy costs per household are therefore 48% of the total additional housing costs. When translating these costs to the total housing costs, energy and water including taxes are over 20% of the total housing costs and 6% of the average disposable income of a household.

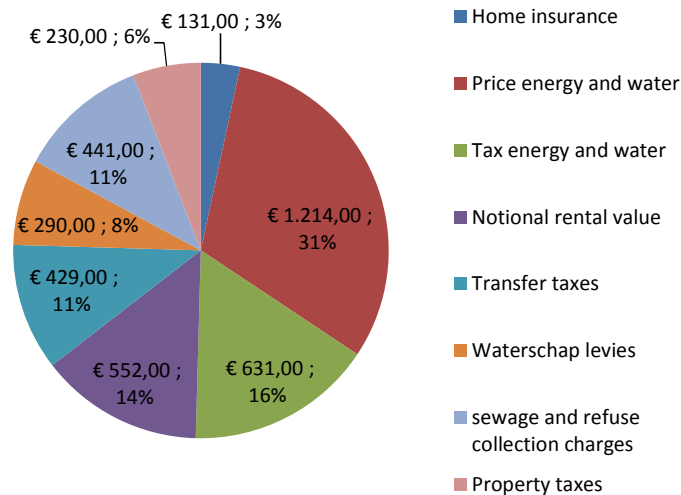


Figure 8, Components of additional housing costs (annual costs) (COELO, 2011)

Because energy is the main cost factor of the additional housing costs and all other costs are more or less constant over time, the forecasts for this factor are included in this subsection.

Forecasts

According to the *Bouwfonds Woonlastencalculator*, the increasing energy costs will have a substantial influence on the feasibility of housing. The degree of increasing energy costs is depending on the energy performance of the dwelling. The data in the line chart of figure 1 is based on historical data between 2000 and 2010.

The development of these energy costs will have a big influence on the share of energy costs in the total housing costs, the importance of sustainability and the energy payback time of investments in this field.

2.3.2. Measures

In the previous subsection it became clear that the energy costs are the main expenses of the additional housing costs and that these costs will increase exponentially in the future. Therefore, the emphasis in this section is on these energy costs and how these can be controlled and confined. This can be established by using the *Trias Energetica* strategy.

Trias Energetica

Trias Energetica is a strategy to build sustainable housing, and is focused on moderating energy use. The strategy is a three layer roadmap. The first step and foundation of this strategy is the prevention of energy utilisation by:

- Taking care of an architectural shell with high insulation rates
- Preventing cold bridges
- Minimizing piping
- A sun facing orientation
- A passive shading device

The second step is the use of a maximum amount of sustainable energy like:

- Solar energy
- Wind energy
- Biomass
- Thermal storage

The third and final step is the efficient use of finite resources like a:

- High efficiency boiler
- Shower heat recovery (Rockwool Benelux B.V., 2005)

Saving potentials

In essence, the three steps above reinforce each other when applied in the dwelling and can reduce energy consumption and thus monthly expenses. There are a lot of different calculations on the saving potentials of the different energy performance certificates. Below an output of one of these calculations is stated and displays the annual energy costs per energy label and housing type classification.

Table 7, Annual energy costs in euros per energy label and housing typology (NEPROM, 2011)

Energy label	EPC	Apartment	Terraced house	End/semi-detached house
C		1,819	2,207	2,532
A	0.8	1,273	1,383	1,554
A⁺⁺	0.6	1,138	1,223	1,314
A⁺⁺⁺	0.4	830	893	934
A0	0.0	497	423	423

In the table the C-label is stated as reference of the annual energy costs of the existing building stock. The A-label dwellings are primarily new building EPC values. When comparing this data to the energy costs of an average household in figure 8, it becomes clear that a C-labelled dwelling is used in the additional housing costs calculations.

Building housing with lower EPC values can save up to 83% of the energy costs (when comparing a C-labelled dwelling with a A0-labelled dwelling). Keeping into mind this data, it is obvious that the energy ambition of a housing project has quite a large influence on the additional housing costs. Additional investments at the start of the project might be interesting to reduce the housing costs in the operational phase.

EPC reduction measures

To get a better understanding of the EPC values and possible reductions, a shortlist with measures is inserted. When incorporating one or more of these measures, a significant reduction on the energy costs is possible. The numbers in the table below are based on an average terraced house and listed in order of effectiveness.

Table 8, EPC reduction and effectiveness for terraced housing measures (Earth energie advies, 2010)

Measures	EPC reduction	Investment (€)	Effectiveness (costs per Δ EPC of 0.01)
Self-regulating grille (parallel flow)	0.0599	50	8
Heat recovering shower pipe, connected to mixing tap	0.0645	450	70
R-value roof=3.5 (instead of 3.0)	0.0152	244	160
Air-tightness qv:10=0.625 (instead of 1.0)	0.0304	500	164
R-value facade=3.5 (instead of 3.0)	0.0055	96	175
Solar water heater (with collector of 4.40m ² , south, 43 degrees)	0.1560	3,600	231
Heat pump with ground heat exchanger	0.3232	9,800	303

A combination of the above measures is possible and can further reduce the EPC and the energy costs. It is important to keep in mind that these numbers are related to an average dwelling and therefore not apply to all dwellings and that not all measures are applicable because of legislation, aesthetics (*Amenities Committee*) or technical reasons.

3. CONFLICTING AREAS and EXISTING MEASURES

In this chapter the problem areas of the previous chapter are connected to look for conflicting areas and existing measures. In the first section the connections between the *Housing prices* and the *Mortgage lending* are stated, with the existing integral measures. In the second section the *Housing prices* and *Additional housing costs* are discussed, and in the third section the Mortgage lending and Additional housing costs are scrutinized. In the figure below these connections are illustrated in the *housing triangle*.

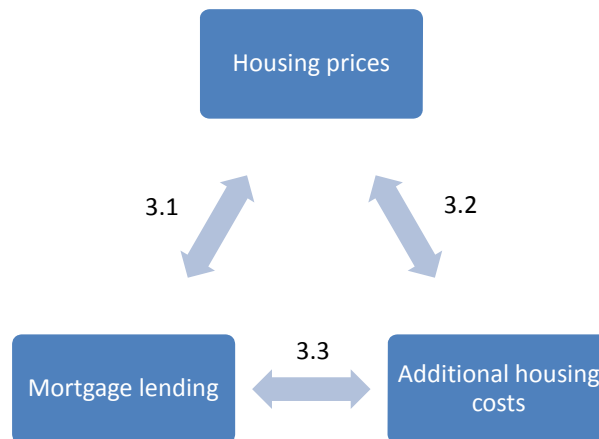


Figure 9, Three conflicting links

3.1. Housing prices – Mortgage lending

3.1.1. Conflict

In section 2.1 it became clear that the *Governmental requirements* and *Land prices* are the main cost-increasing elements in the pricing of dwellings over the last fifteen years. These elements have increased exponentially, in particular the *Land prices*. Although the total costs of housing continue to rise, the selling prices have been falling since 2008 and decreased with 10% so far. (Koot, 2011)

From section 2.2 it can be concluded that multiple factors influence the mortgage loan capacity. During the last few years this influence has turned out to be negative and the loan capacity decreased. *Housing ratios* have decreased due to a shrinking spending capacity; a *new code of conduct* on mortgage credit was set because of a growing concern about the high Dutch mortgage debts and the large interest-only share; a lack of (inter)national *competition* makes it possible for a few providers of mortgages to dominate the market.

In first instance, the above two developments combined seem to be no problem, but for the fact that the housing prices and mortgage loan capacity have not decreased equally. The loan capacity has decreased more than the housing prices did, which leads to a funding shortfall. This shortfall is the conflict between the housing prices and mortgage lending and is one of the main causes of the lack of transactions in the housing market.

3.1.2. Measures

An existing measure to narrow the aforementioned gap is expanding the loan capacity of double-income households. Because this type of households benefits from tax credit and a limited loss of income when considering children, part of the second income can be taken into account in the calculations for the loan capacity. This is a measure by which more specified and household-related characteristics are used in determining the loan capacity, more household-related characteristics can be important in this regard. For the table on the development of loan capacity, see table 4.

This measure has been undermined by the AFM, because according to this supervisor financial reserves of these double-income households can dry up if a higher loan is obtained. Pressured by a fine, banks like Rabobank, ABN Amro and ING do not apply the extended loan capacity for this type of households. The fact that a supervisor acts like a legislator and does not follow the calculations of an independent institute can be questioned. (NRC, 2012)

Besides this there are also measures to maximize the range of feasible housing without having to maximize the loan capacity. For an overview of these measures and specifications, see table 6.

The third and final measure in this section is lowering the housing price. This can be realized by developing smaller housing on smaller plots, optimization of the building process and an initial-costs-fund.

3.2. Housing prices – Additional housing costs

3.2.1. Conflict

In the current housing market the focus is more than ever on developing dwellings with market-oriented sales prices with a pre-set target group. In a demand-driven housing market, developers have to incorporate the target group's needs and wishes in a dwelling that has to be affordable. With the increasing pressure on the housing costs and a limited household loan capacity, the emphasis seems to be on confining the costs (maintaining quality) and thereby the housing prices.

It is possible though that confining the costs is not the best economic solution, because in the end the total housing costs are important. The main problem is that traditionally the housing price is the determining financial factor and additional housing costs are underestimated. This while increasing energy costs change the ratio between housing costs and additional housing costs, toward the latter.

3.2.2. Measures

The introduction and obligation of the energy label since January 1, 2008 is a measure which gives attention to the energy performance and thereby the additional housing costs. Dwellings can be compared based on the energy costs, which covers almost half of the additional housing costs. An additional advantage is that the information provided by the label causes the property to be sold 24 days sooner than other dwellings without a label. (NVM, 2011)

Since January 2011 the new EPC standard for new buildings is set at 0.6 and contributes to the energy performance focus and to lower additional housing costs. This prevents short-term thinking and balances the aforementioned ratio.

3.3. Mortgage lending – Additional housing costs

3.3.1. Conflict

In the mortgage lending process the maximum mortgage loan is depending on the annual income, the debts from other loans, capital and the height of the mortgage interest. The aforementioned development of additional housing costs are not directly related to the loan capacity. Via the Nibud calculations of the monthly expenses a small line can be distinguished and a limited loan capacity increase is possible when the property is provided with energy saving measures. However, this extra loan capacity is insufficient to effectuate a proper energy saving.

This is underlined in a letter of the chairmen of Bouwend Nederland, NEPROM and NVB, addressed to the Department of Finances. They state that for mortgage companies the energy efficiency is no key aspect in determining the loan capacity, while the total housing costs of energy efficient dwellings will turn out to be much lower. (partners Lente-akkoord, 2011)

In table 8²¹ below the calculated extra loan capacity is specified per housing typology and per energy label. From this table it can be concluded that the existing extra loan capacity is not proportional to the potential savings of energy efficient housing.

Table 9, Extra loan capacity, existing and reasonable, per label and per housing typology (Bouwfonds, 2011) (NEPROM, 2011)

Euros per mortgage loan	Label A (EPC 0.8 - 1.4)	Label A+ (EPC 0.6 - 0.8)	Label A++ (EPC 0.4 - 0.6)	Label A+++ (EPC 0.0 - 0.4)	Energy neutral (EPC 0)
Existing extra loan capacity	3,500	5,000	8,500	8,500	8,500
Reasonable extra loan capacity					
Apartment	-	-	9,622	13,984	18,692
Terraced house	-	-	11,175	15,835	22,429
Corner house/semidetached	-	-	12,128	17,552	24,748

3.3.2. Measures

One of the few current measures is the extra loan capacity for energy saving measures. This enables a customer to finance up to €8,500 extra, independent of the income. Housing with a certified energy A⁺⁺ label or an EPC-report with a maximum of 0.6 also apply for the entire extra capacity.

In addition, there are companies which provide boilers/solar panels etc. in a financial- or operational-lease. In this way the costs for these installations are not included in the loan and a lower mortgage amount is possible. These leasing contracts are however not applied on a big scale though and are not project-based.

²¹ This table consists of data from two sources which is the explanation for the missing amounts in the first and second column.

3.4. Conclusion

From all three conflicting areas it can be concluded that there is a lack of integral vision on the current problems of the housing market. There are no real umbrella measures that significantly reduce the gap between housing prices and mortgage lending and that incorporate the additional housing costs in the mortgage lending process. One of the examples for this is table 9, where the existing extra loan capacity is limited to €8,500 while potential savings are much higher and additional costs for the A⁺⁺⁺ and energy neutral dwellings are higher. In essence, this is an umbrella measure with high potential, except for the limitation of €8,500.

Besides this there are measures that also have a high potential, but which are not supported by all parties involved. This is the case in the questionable AFM restrictions in subsection 3.1.2. These different opinions damage the consumer confidence and therewith deteriorate the current conditions in the housing market even more.

The lack of integral vision can partially be ascribed to the well-defined but restricted roles of the actors that operate in the three different areas. These actors all have their own interests, intentions and contributions which might not always be on the same wavelength. From this it is clear that there is a need for connecting measures and cooperating stakeholders, to satisfy the customer and to adapt to changing economies and the changing housing market.

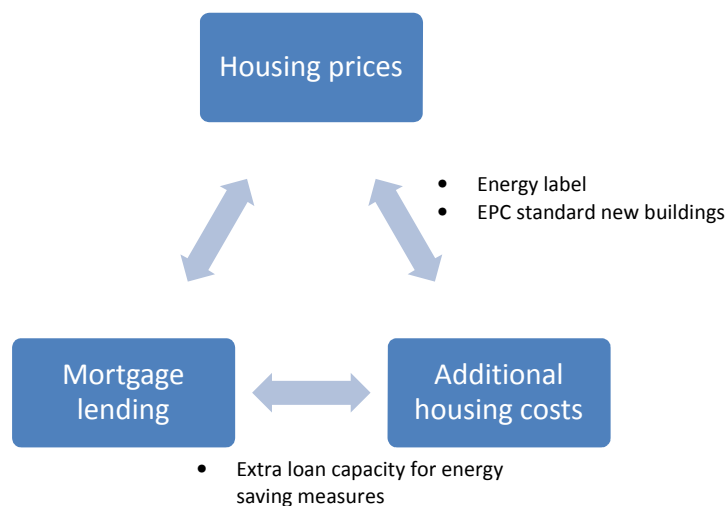


Figure 10, True integral measures

4. STAKEHOLDERS

In this chapter the stakeholders that operate in the *housing triangle* are stated to get a better understanding of the different interests and the changing roles. In addition, exploratory interviews are discussed per relevant and mentioned topic.

According to R.E. Freeman, stakeholders are defined as:

“Any group or individual who can affect or be affected by the achievement of the organization's objectives.” (Freeman, 1984)

Because the subject of this research includes numerous stakeholders that are more or less involved in the process and the overview would otherwise be vague, the number of stakeholders is limited to the organizations that have a direct link (power/interest) to this research, both currently and in the future (due to changing roles).

4.1. Stakeholders and their role

In this section the stakeholders that operate in the three problem areas are described, limited to the parties that work in or add value to the owner-occupied private housing;

- Project developer
- Housing corporation
- Municipality
- Institutional investor
- Bank
- Installer
- Energy supplier

4.1.1. Project developer

A project developer develops market-oriented real estate concepts for own account and risk and the return on investment is leading. The profit from the development is used for the business continuity and therefore not in the concerning area. Project developers are involved at the start of the feasibility phase of a real estate process. In this phase the draft design activities are worked on and the feasibility is geared to financial, urban, social and market-oriented aspects. The developers can add value by their developing capability (project and process management), their vision on the real estate market and by risk-bearing participation in land and/or construction operation. (KEI, 2005) Within the housing market, a large part of their sales consists of private housing and tenement housing is developed by or sold to corporations.

There are five different types of project developers: independent developers, developers affiliated with a construction company, developers affiliated with a housing corporation, developers affiliated with an institutional investor and developers affiliated with a financial institution. (Huisman, 2004) Because this research is done in close cooperation with *Hurks vastgoedontwikkeling*, the focus is on the second type, the project developer affiliated with a construction company. In the remainder of the report this type is meant when *the project developer* is mentioned.

The developers affiliated with a construction company originated when contractors purchased (strategic) land, as a form of acquisition for their core activities. An important advantage of this legal form of enterprise is that both parties know each other's methods and that know-how is integrated in the designing process. (Huisman, 2004)

Changing role

The role of the project developer is changing. Where previously the market was supply-driven, now it is demand-driven. Together with the tightened funding requirements this requires a new and different business model. The housing market is customer directed, where the project developer helps defining the desired product. (Brinkgroep, 2010)

4.1.2. Housing corporation

A housing corporation (association or foundation) is an organisation that develops, manages and rents feasible rental housing in a non-profit way. Corporations are active in the field of public housing, for a target group that is insufficiently or not able to provide in their own accommodation. The surplus value of these corporations is the social commitment: solving problems that the sector does not address. The target group is specified to households with an annual income up to €33,614 (based on the former health insurance limit). Nowadays corporations are also active in developing private housing and improving the liveability of the districts their housing stock is in. (KEI, 2009a) (Rijksoverheid, 2011b)

Changing role

Due to the economic and political climate the revenues of most housing corporations are falling. A weaker economy causes housing sales to fall, which was one of the main positive balance sheet items. The European rules, that oblige corporations to rent at least 90% of their property to households with an income below €33,614. These developments lead to a stronger focus on the primary target group; a withdrawal to the core business. (Smink, 2011)

4.1.3. Municipality

The primary task of the municipality is guarding the public interest. This is secured in the *Structuurvisie* (document of vision on spatial policy) outlining a policy framework for housing. Categories and percentages of social housing and private commissioning are outlined. (KEI, 2009c) For the residents a *Bestemmingsplan* (land-use plan) is very important because this document includes the land-use. (Overheid, 2012)

One of the most important policy instruments however is the land allocation. This is a collective term of the different options that a municipality can transfer the dispositional right to market participants. These options are: (judicial) transfer of property, establishment of a limited right (long-term building lease), granting an individual right (rent, lease). (Coumou & Mulder, 2008)

Changing role

The municipality can take part in the housing market in four roles: planning role, entrepreneurial role, visionary role and facilitating role. The figure below defines these roles for the method of control.

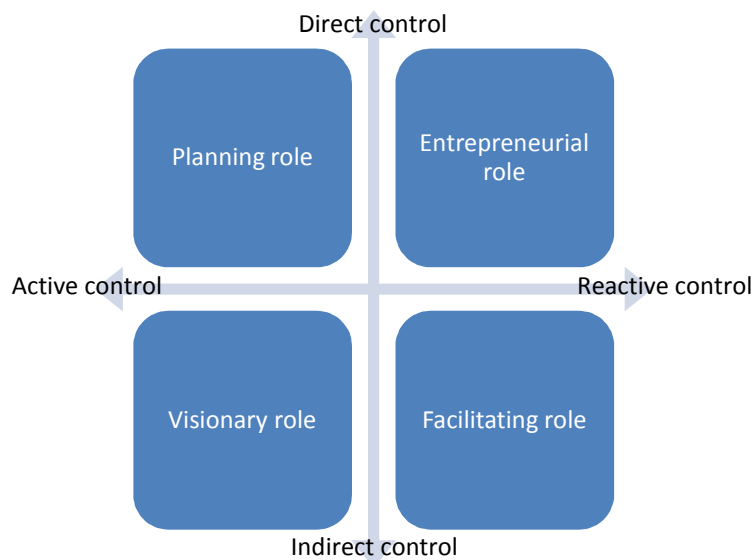


Figure 11, Control model for municipal organization (Wicherson, 2011)

According to (Wicherson, 2011), there has been a shift from a direct to an indirect role. In the past few years municipal organizations mainly controlled in a planning and entrepreneurial role but from 2011 on this has changed to a more modest position in a visionary and facilitating role. This is a mainly a result of less development resources due to the current economic situation.

4.1.4. Institutional investor

An institutional investor is a financial institution which seeks long-term investments like real estate for available funds. The objective is to manage the assets that are contributed by the participants. The policy is often focused on obtaining a stable investment income from rent (direct return) and the increase in value (indirect return). Investments in dwellings are interesting for investors because, despite a lower direct return, the risks are lower. The investor clearly has a longer bond with the real estate (return horizon of 10 to 15 years) than the project developer, but a shorter bond than the housing corporation. (Keeris, 2001) (KEI, 2009b)

Changing role

Institutional investors play a rather stable role in the real estate sector. Their focus however is depending on developments in the various submarkets. Currently, the focus is shifting to the commercial rental market. This submarket only covers 3% of the Dutch housing stock, which creates an unbalance and hardly gives freedom of choice to the customer. Therefore, this market has a clear potential to grow and institutional investors are ready to invest in the commercial market. Investors currently develop 2,000 dwellings in the medium-priced rental sector (between €650 and 1,000 per month) and could grow to 10,000 a year, depending on national and local policy. (IVBN, 2011)

4.1.5. Bank

Banks are the main loan providing organizations and provide mortgage loans to home buyers and loans to market participants like project developers. A bank determines the height of the loan, mainly depending on the income of the concerning household. The maximum loan capacity is regulated and monitored by the AFM. Of all stakeholders discussed in this section, the bank is the stakeholder with the smallest interface with the housing market and has its core business in the financial market.

Changing role

The role of the bank did not change over the past years, but the conditions under which mortgage loans are provided have changed. It has become more difficult to get a mortgage loan and the loan capacity decreased. All in all, this resulted in stagnating transactions and uncertainty among consumers.

4.1.6. Installer

The installer provides technical and electro-technical installations for existing and newly built housing and takes care of the maintenance and service of the installations. The advice on installations however is taken care of by installation consultants.

Changing role

Due to a growing sustainability awareness, tightened EPC standards and increasing energy costs, the consultancy companies are more and more advising in the energy target that developing companies are pursuing. The installer is contacted in an earlier stage because of his expertise and because this early collaboration can result in less failure costs and less extra costs. Installations can be integrated and coordinated in the design in an early phase to get an optimal performance of the installation in the dwelling. The direct contact with the customers and the many areas they can oversee, can make the installer a manager in this customer contact. (Uneto-Vni, 2010)

Furthermore, customers no longer want separate installations but an integral solution. This requires a new business model, no longer based on a *cost-plus method* but on *customer value pricing*. (Uneto-Vni, 2010)

4.1.7. Energy supplier

An energy supplier is an organization that is concerned with the supply of electricity and gas to households and companies. This energy is transported via the grid that is managed by the network administrator. The customer of the energy pays a standing charge, variable costs and an energy tax, which is charged by the energy supplier and handed over to the government. This tax is established to stimulate a lower energy use.

Changing role

In 2004 the energy supplier and the network administrator were separated, mainly to guarantee the supply of energy. To promote competition between the energy suppliers, the energy sector has been released and the customer can freely make a choice for an energy supplier. (Rijksoverheid, 2011c)

Furthermore, energy suppliers are gradually applying a new business model. From selling as much energy as possible with a very thin margin, to advising customers about their energy consumption and helping them save energy. An example from energy company *Eneco* is the

interactive thermostat, developed by *Eneco* to give the customer real-time information about the energy consumption. (Leeuwen, 2012)

4.2. Review of the interviews

During the literature study a number of exploratory interviews have been conducted to get more information about the stakeholders' interests and motives in the current housing market. In this section some similarities and differences that originated from these interviews are stated. A list of the interviewees is enclosed in appendix A.

4.2.1. Consumer confidence

One clear similarity that resulted from the interviews is the fact that the consumers lack of confidence is very high because of the turmoil in the market. This is also a macroeconomic impact that was not previously appointed in the research.

The CBS keeps the records for *consumer confidence*. The most recent figures are inserted below and show a discouraged consumer confidence in the last four years and currently a very low confidence (minus 37). The consumer confidence is composed of the *economic climate* and *willingness to buy* sub-indicators. (CBS, 2011)

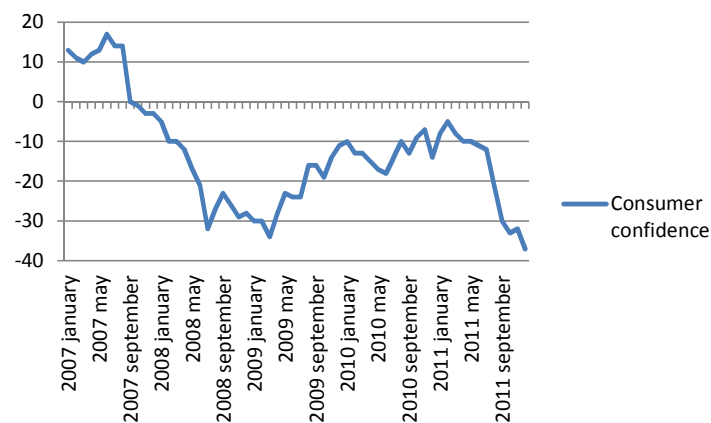


Figure 12, Consumer confidence 2007-2011 (Statline, 2011c)

The consumer confidence is a difficult factor to respond to, mainly because it is a macroeconomic element and depends on numerous known and unknown factors that have direct and indirect influences on the consumer confidence.

The majority of the interviewees are convinced that the low consumer confidence is the main cause of the current lack of transactions, but hardly know how to cope with this market changing influence.

4.2.2. Loan capacity

There are different opinions on the loan capacity and the tightened standards. Most interviewees argue that the loan capacity decreased and that first-time buyers experience the most problems. Most interviewees agree on the fact that the loan capacity should be raised for the target group to initiate an increase of transactions in the housing market.

Furthermore, the loan capacity should be linked to the total housing costs, including additional housing costs.

One interviewee on the other hand argues that the overall loan capacity did not decrease by the tightened standards. Although the capacity has decreased in absolute terms, the real capacity has increased because of decreasing housing prices and increasing incomes. The loan capacity did decrease for low income households and more customization is desirable, but the *AFM* restricts this in the new code of conduct. Because banks do not want to risk fines from the *AFM*, a margin of safety is incorporated which does decrease the loan capacity. (J. Molenaar, Rabobank Nederland, 2011)

4.2.3. Sustainability measures

Most interviewees agree on the fact that the extra loan capacity of €8,000 for energy efficient housing (A⁺⁺ or EPC<0.6) is insufficient to make individual energy efficient housing feasible. Mr Molenaar from *Rabobank Nederland* would also like to see a higher capacity for this type of housing but is restricted by the rules established by the *AFM*. On the other hand he believes that an €8,000 extra investment can be enough to develop energy efficient housing.

4.2.4. Mortgage competition

Some interviewees doubt whether there is sufficient competition in the Dutch mortgage industry. According to them, more competition can lead to lower mortgage interest rates. According to Mr Van Santvoort from *Van Santvoort Makelaars*, this lack of competition has to do with the limited number of Dutch banks and the lack of foreign banks.

4.2.5. Land prices

Different opinions regarding land prices are expressed during the interviews. Some interviewees state that depreciation is inevitable and necessary to revive the housing market. Others think that there is little financial space to lower the land prices and that land is often bought too expensive to depreciate. The municipality of Eindhoven is not willing to depreciate on the land, mainly because they believe that this is not the solution and will not initiate a flow through in the housing market. In addition, the municipality is not willing to withdraw the risks of the project developers.

4.2.6. Marketing

Marketing is becoming more and more important in real estate. According to the interviewees a customer directed approach is necessary and has to be implemented in an early stage. In this way, the developing company is aware of the customers' requirements earlier in the process and the customer has a better financial understanding and can give feed-back to the developing company. Besides this, the potential customer can be emotionally committed to the project in an early phase, resulting in a lower market risk. Good marketing can even provide an increase in value of the project/property. Panel surveys are essential in a good marketing strategy and provide valuable information to add value.

4.2.7. General impression

From the interviews the general impression is that all interviewees (stakeholders) think that everything is possible and that there are various possible solutions to the problem, except for the solutions that relate to their own specialism. The stakeholders that can have major influence on the current situation point the finger to each other and the so-called *circle of blame* is a fact.

There are still many different views in the construction industry which result in misunderstandings and in a lack of action to try to get the housing market moving again. Furthermore, another sector is involved when it comes to financing a dwelling. The financial sector (bank) provides the resources that is needed to buy a dwelling, in exchange for a monthly repayment including interest. In this system the financial sector and construction industry have no knowledge interaction and know just little of each other's business. That is how misunderstandings like in section 4.2.3. are caused.

5. DEVELOPING MEASURES

In this chapter the previous chapters are used as input in developing measures to make owner-occupied private housing feasible for households with an income between €33,614 and €43,000. Some measures are also applicable to a wider range of households.

In the housing market numerous measures can be defined and drawn up for the different stakeholders to accomplish a higher feasibility for the target group. In this chapter the focus is on measures that can be initiated and facilitated by a project developer or in close cooperation with the stakeholders mentioned in section 4.1. This enables specific and tangible measures for project developing companies.

5.1. Housing prices

Standardization

On the side of the construction costs and developers' margins a lot has been done already (NEPROM, 2012), but the building process and product can be more efficient and failure costs²² can be reduced by standardization. In a sector where failure costs cover 11% of the total turnover, and in the context of the current tendency of the market it is essential to force back the avoidable failure. According to a research among different stakeholders in the construction sector the highest reduction is possible by a better focus on the workability during the projects' design phase, which can further reduce the technical adjustments. Standardization in process and product at an early stage can result in lower failure costs. (BouwKennis BV, 2011)

An example of standardization is the single elaboration of a basic dwelling by an architectural adviser (as a permanent partner), who takes care of a permit-ready design on a project-exceeding basis (read: product-based). Façade variants are chosen or developed project-based together with an architect. This standardization causes a limited engineering per project and has a reducing influence on the failure costs. (Hurks, 2011)

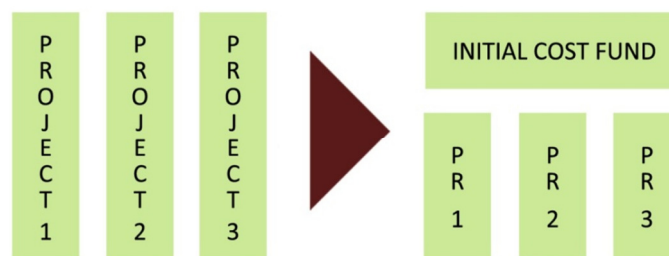


Figure 13, Implementing the initial cost fund

For an innovative and structural vision on standardization in the building industry, *Legalisering van de bouw* (by Hennes de Ridder, 2011) can be a real eye-opener. This book describes the new construction industry in 50 characteristics, compared to the current (opposite) approach.

²² Failure costs are all costs made for the finished product, that arise from avoidable failure.

5.2. Mortgage lending

Financial situation customer

For both the project developer and the customer it is important to have a clear view of the financial situation of the customer and its loan capacity according to the up-to-date regulations. In combination with the customers' requirements/wishes this gives a good insight in the range for the product: the lower bound is shaped by the wishes, the upper bound by the loan capacity.

To both parties it is important to be aware of this range in an early stage, where there is still enough room for manoeuvre and the requirements can be translated into a suitable product. Therefore, the communication with potential customers about the product and location has to be initiated by the project developer in an early stage, as became clear during the interviews (subsection *Marketing* 4.2.6.).

In line with this, mortgage advice can be facilitated by the project developer: in the form of a mortgage advisor joining a meeting, or (in a preliminary phase) by explaining the different mortgage types and additional measures to finance the dwelling (subsections 2.2.3. and 2.2.4.). This gives insight in the opportunities and helps the customer to make choices.

5.3. Additional housing costs

Reduction packages

From subsection 2.3.1. it is clear that the share of additional housing costs in the total housing costs is increasing and thereby the monthly housing costs increase, independent of the tightened regulations on the primary mortgage costs. These total housing costs are leading in the monthly costs and it is therefore important for the project developer to make this clear to the customer in an early phase.

In line with the standardization of 5.1.1. it is possible to offer product-based EPC reduction packages. Since sustainability is becoming more and more important and customers start to realize that sustainable housing is better and saves money, it is important to meet this demand (P. van Santvoort, Van Santvoort Makelaars, 2011). Different packages can be proposed with corresponding additional investment, possible additional loan capacity and monthly savings.

5.4. Conclusion

It is clear that aforementioned measures are important to keep developing private housing for medium-income households. For the project developer it is necessary to be active and facilitating in all three areas, to provide accurate information to the customer and to develop good value for money, in both the purchase (housing price) and use (housing costs).

These are measures that are more or less in line with the existing conduct of business. For the future it will be important to work together with other stakeholders to develop and optimize an integrated system. This teamwork also demands role adjustments to synchronize objectives and a solid platform to do so.

Chapter three shows that the tightened financial standards are currently the most limiting influences, together with the low consumer confidence of subsection 4.2.1. This, in combination with the aforementioned solid platform, provides the idea to initiate a new concept for funding the housing market where the construction industry has more influence on and insight into pre-financing projects and mortgage loan conditions. In this case, mortgage loans are financed by the *Housing Investment Plan (HIP)* which is founded by the stakeholders involved in private housing. Since this research is performed in cooperation with a project developing company, the funding concept is elaborated from this point of view.

6. THE HOUSING INVESTMENT PLAN

In this chapter the Housing Investment Plan is elaborated. From the base model with corresponding conditions, via the model options and best practices to a final model including goals, benefits and boundary conditions. To get a good impression of the model it is also important that it can be compared to the traditional model. The latter is explained in section 2.2. and illustrated in figure 14.

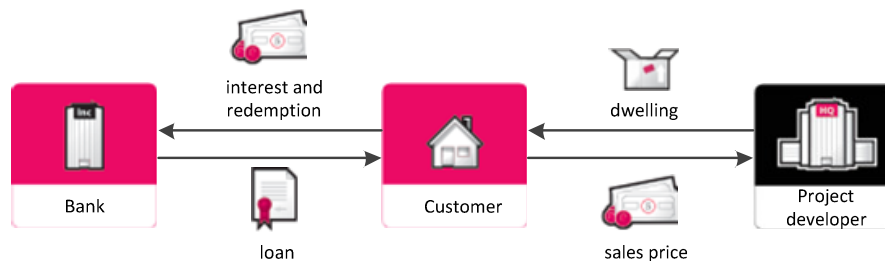


Figure 14, The traditional model

6.1. Starting point

The starting position is establishing the proposed plan. The particular (primary) purpose of the assigned capital is providing mortgage loans to households with medium incomes (consistent with the research objective). The main future costs and payments of the plan are the over-all costs for the dwellings. Other expenses are; NHG guarantee deposit commissions, profit/risk fees and dividend.

In figure 15 the base model is illustrated. This imaging technique is derived from the *Board of Innovation*, an international office specialized in business model innovation which developed their own toolset. In appendix B the 16 available blocks are stated with corresponding annotation: six *players* and ten *objects*. A *player* is a type of actor that can participate in the plan. The categorization consists of *My company*, *Company*, *Consumer*, *Non-profit*, *Government* and *Supplier*. The *objects* are the resources to negotiate and to do business with other actors. These are divided into ten categories: *product*, *service*, *experience*, *exposure*, *money*, *less money*, *reputation*, *data*, *right* and *credits*. (Board of Innovation, 2012)

6.1.1. Base model

The base model consists of two main actors participating in the investment plan. On the one hand the project developer, responsible for bringing in the newly-built dwellings. And on the other hand the investor that brings in the required capital to finance the loans. The customer purchases the newly-built dwelling from the plan and a mortgage loan is provided.

Cooperation between a project developer and an institutional investor is nothing new. However, the way of cooperation and the more mutual interest of both stakeholders is. In this model their inter-relational roles have changed. Often the institutional investor is the client of the project developer and purchases the dwellings after completion, or purchases dwellings from a project developer that wants to reduce the sales risk. In the HIP however,

both parties participate together to meet the demand for private housing for medium-income households.

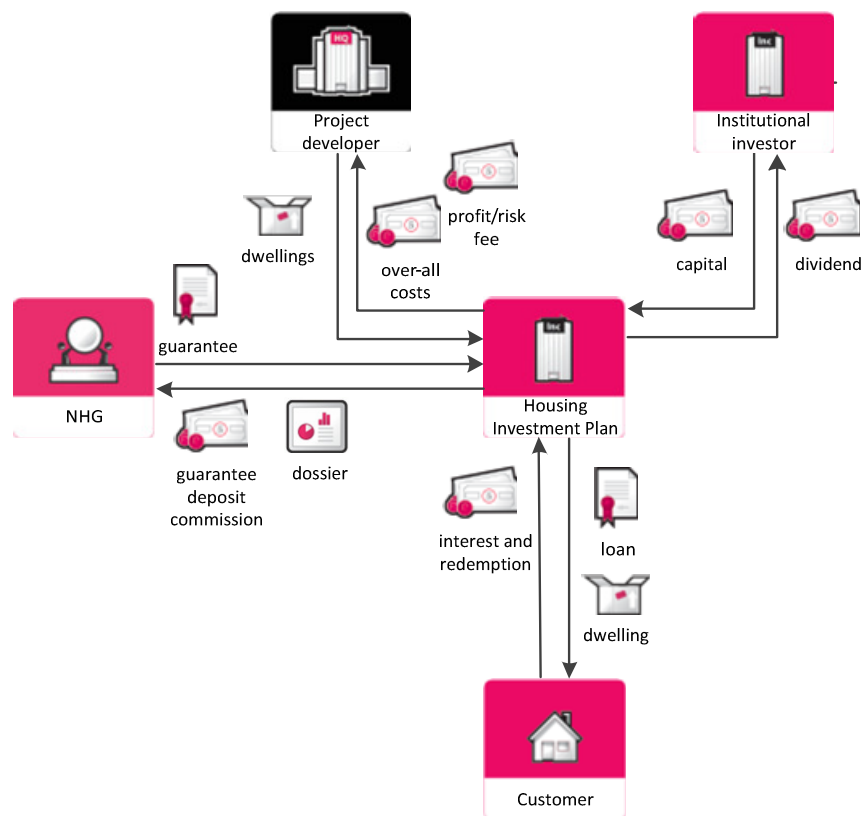


Figure 15, The base model

6.1.2. Management aspects

Two management aspects are important in this model: the production costs of the dwellings and the maximum loans that can be provided for the different incomes. The production costs can be optimized by the standardization of subsection 5.1 and the initial-cost-fund concept can be applied in this well-defined investment plan. The project developer provides standardized dwellings with different optional additions/extensions, based on the customer wishes and limited by their loan capacity. A standardized high quality product also provides extra safety for the investors and reduces the investment risks. The maximum loan capacity is linked to the NHG guarantees, and therefore discussed below.

6.1.3. Minimizing risks

To minimize the risk that a household cannot meet the monthly payment or that an outstanding debt remains at the end of the loan period, two safeties are embedded:

- ✓ Only a limited number of mortgage types is used. Based on [table 5](#) a selection is made to reduce the risks. A 100% repayment during the loan term and fixed or decreasing monthly costs are conditions in choosing a mortgage type. This narrows

down the list to two possible types: the constant payment and the conventional mortgage.

- ✓ An *NHG* guarantee for all dwellings. This is a way to reduce the risk of loss of capital due to a forced sale. To obtain this guarantee a single commission of 0.7% of the sale price has to be paid. Furthermore, the obligations have to be met and a dossier has to be met. Some of the most relevant boundary conditions are discussed below.

6.1.4. *NHG* boundary conditions

To receive a guarantee for the dwellings some requirements have to be met, the most important ones are listed here.

- ✓ Commission of 0.7% of the market value of the property.
- ✓ Cost limit of €265,000 (temporarily at €350,000).
- ✓ Height of loan limited to 104% of the market value (newly-built housing).
- ✓ At least 50% repayment during the term.
- ✓ Housing ratio limited to 30%.
- ✓ Maximum of €8,000 for energy saving measures excluded from the calculation.
- ✓ Maximum of €8,000 for A⁺⁺ or EPC < 0.6.
- ✓ Documentation according to *NHG* standard. (Stichting WEW, 2012)

6.1.5. Affordability

The mortgage loan capacity for the target group is the most important element for the success of this way of financing, because this is currently the most restrictive element in the opportunity to purchase a dwelling. If a low fixed interest rate can be established for the duration of the loan (thirty years) with a 100% repayment within the term, a higher loan is possible. For the target group this results in the actual ability to purchase a dwelling, instead of being dependant on the rental market. The target group sets great value on this opportunity and therefore it is likely that there will be sufficient demand for the HIP, with due observance of a good housing quality.

6.2. Modelling options

In this paragraph variations on the model of the previous section are made. The *players* are fixed and variations are only made in the actions of the *players* and the *objects* that connect them. The options below all have to do with the role and the level of participation of the *player*, and are separately executable. This does not automatically mean though that there are no indirect influences on the participation of the other *players*.

6.2.1. Project developer

In the base model the project developer participates in the HIP in its traditional role by developing and selling dwellings. In addition, the developer can also invest in the plan with equity capital (figure 16). By doing this, on the one hand a yield is made on the invested capital which on the other hand enables the project developer to sell dwellings to the investment. But even more important, the investment is a sign that the project developer has confidence in the housing investment plan. Since this capital is paid into the investment plan, it cannot be used for other purposes for at least thirty years. Therefore, this investment should be limited to a reasonable amount, that does not interfere with the developers' core business. A one-time investment at the start-up of the plan can be sufficient to show confidence in the plan by financial commitment.

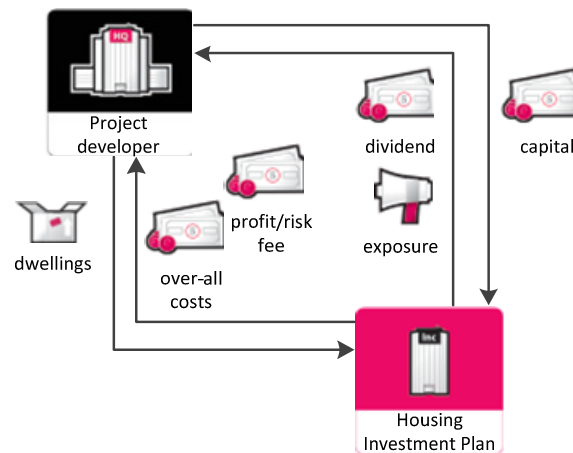


Figure 16, The project developer invests in the model

6.2.2. Institutional investor

Most institutional investors have time horizons up to fifteen years and do not want to commit to investments that have longer time spans. This is conflicting the aim of the HIP, that is to provide mortgage loans for thirty years. It is therefore important on the one hand to look for ways to provide an exit instrument for investors who wish to do so and on the other hand to protect the HIP from a sudden liquidity problem.

An example of a suitable solution, introduced by ASR in the ASR Dutch Prime Retail Fund, is a mutual investment plan with the possibility for investors to sell their shares back to the fund or on the secondary market²³, see figure 17. The first-mentioned is only possible if the liquidity of the plan is not jeopardized and therefore visualized with a dotted line. The fiscal structure - with support from the Department of Finances - increases the participation attractiveness for all kinds of Dutch and foreign exempt and taxable institutional investors. (PropertyNL, 2012)

²³ The secondary market is the market for shares that have already been issued.

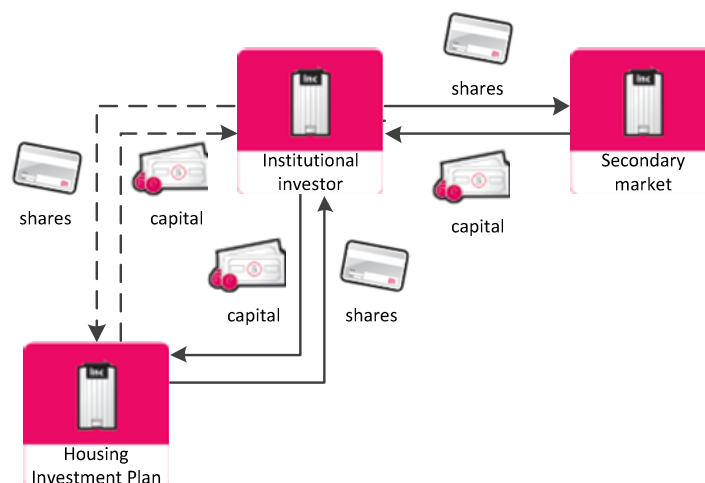


Figure 17, Exit instrument for institutional investors in the form of shares

Another possible solution is to look for a specific institutional investor with a long-term horizon that is consistent with the 30-year mortgage loan period and with the even longer term of the HIP. Pension funds for example participate in long term investments, but are only involved in Dutch mortgages with 5% of the pension fund assets due to the complex structure, low liquidity, limited transparency on the underlying mortgage loans and the refinancing risk. In Denmark pension funds participate on a bigger scale in mortgage loans, this is explained in section 6.4.

6.2.3. Customer

In the base model the customer only participates during the term of the mortgage loan by paying a monthly interest and repayment. The customer could also take a pro-active attitude in the purchase of a dwelling by saving money in a pre-mortgage period, see figure 18. By doing this in combination with the housing investment plan, an equity capital can be made by the customer to lower the LTV-ratio (loan-to-value) and thereby the mortgage costs and to increase the loan capacity. The *Bausparen* concept, an example of a comparable system, is described in section 6.4. To establish this system and to make it more attractive to save money for a future dwelling, the government is an essential *player* to add to the model (see section 6.3).

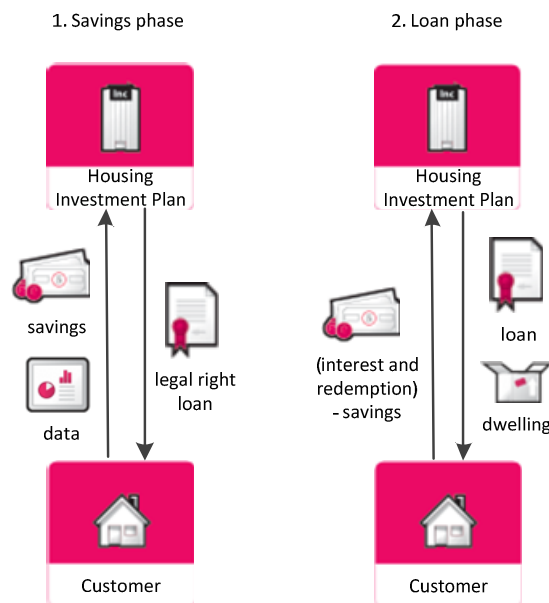


Figure 18, Making equity capital with a savings account to lower the LTV-ratio

Besides this, opening the savings account can provide valuable information for the HIP and its participants, long before the actual dwelling is even developed. The interest and commitment in the purchase of a dwelling in this early phase enables the HIP to anticipate in the customer requirements. This is established by creating accounts where customers can enter their gross annual income, household characteristics, location and housing preference and expected date of purchase. The larger this database will get, the more valuable and useful it will become: customers that have corresponding accounts can be clustered and demand-driven projects can be developed. Together with the standardization of section 5.1. this way of project development is more efficient and nevertheless customized.

6.3. Expanding model options

In this section relevant *players* are discussed which can be added to the model to get a broader basis and possibly a better overall system.

6.3.1. Government

The government, and more specifically the Department of Finances, is an important *player* in the approval and operation of the HIP. The pro-active attitude and the corresponding pre-mortgage savings can be encouraged by the Department of Finances. Since future LTV-ratios decrease by the contribution of this equity capital and thereby lower mortgage interest deductions are realized, tax-friendly saving accounts can be enabled to promote this combination of saving and financing into a single product. An example of such a tax-friendly measure is to exclude these savings from taxation in *box three*²⁴, and can encourage people to open a savings-account at the housing investment plan (figure 19). More governmental support is discussed in section 6.4.

²⁴ Box 3 includes the flat tax on savings and investments and is 1.2%, with an exemption of approximately €20,000.

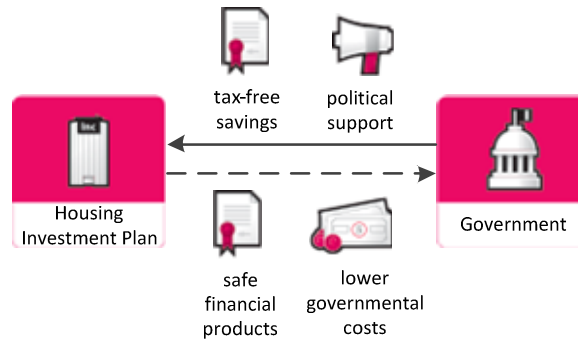


Figure 19, The government as an important player to promote the HIP

6.3.2. Energy supplier

During the operational life of the investment-plan-dwelling various *players* provide the owner of housing related services and products. From energy suppliers and grid operators to cable companies, they all have an interest in the development of new dwellings. This while these companies traditionally do not participate during the development phase and their core business takes place in the operational phase, often in direct contact with the owner.

With the investment plan as a platform for all *players* in the housing sector, these companies can be added to the model and can participate in the development of the dwellings or in a collective discount on their services or products. Energy suppliers and installers for example can attend in the design phase and develop efficient installations to provide lower additional housing costs during the entire operational life. This is consistent with the changing roles of energy suppliers to help their customers save energy and installers in customer value pricing (see section 4.1.). A simple and clear example of a possible cooperation between an energy supplier and the housing investment plan is illustrated in figure 20.

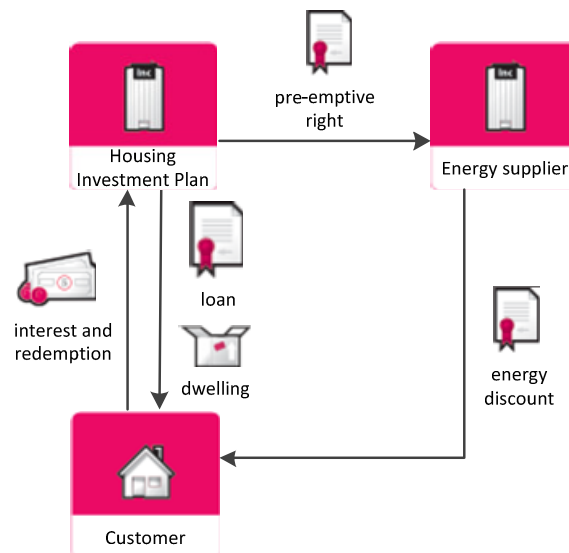


Figure 20, Linking the energy supplier to the HIP

6.4. Best practices

To create a good working investment plan it is important to look for best practices. These are existing and proven financial structures that provide transparent and market-oriented mortgage loans. In this section two cases are described: the Danish mortgage model and the German *Bausparen* (Contractual Savings for Housing).

6.4.1. Danish mortgage model

In 1795 Danish investors decided to establish a mortgage bank and issued mortgage bonds to finance the mortgage loans. This was set-up in 1795, when a big fire destroyed one out of four dwellings in the capital city Copenhagen and insufficient capital was available.

One particular feature of the Danish model is the fact that the Danish mortgage banks are actually no banks but mediators in the process of mortgage lending. Mortgages are financed by issued long term bonds, where an investor invests directly in the underlying mortgage. So when a Danish customer wants to purchase a dwelling and a mortgage loan is required to do so, the customer can go to the mortgage bank. To finance the loan the mortgage bank issues bonds for the size of the mortgage loan, which are available in all kinds of series. A series is determined by the term of the bond, interest rate and fixed-rate interest period and is unlimited in size. The mortgage bank can issue new bonds when new mortgages are provided. (De Hypotheekadviseur, 2010) For a clear and consistent overview of this model figure 21 is inserted.

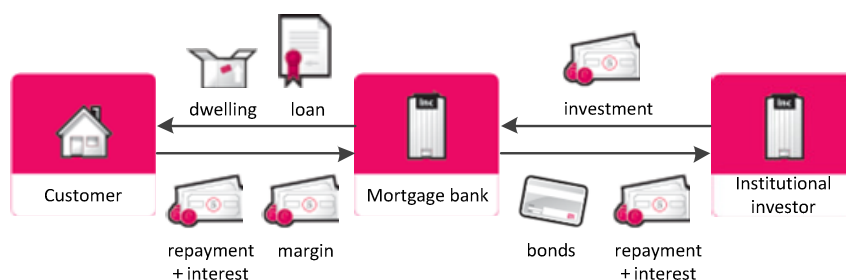


Figure 21, The Danish mortgage model

Example

Suppose that a customer needs a constant payment mortgage loan of €100,000 with a fixed interest rate and a term of 30 years. The corresponding bond series of the mortgage bank has a coupon of 4%. The current market interest rate is 4.25%, so the market price of the bonds is €0.97 each. The bank must then issue 103,057 (100,000 divided by 0.97) bonds to finance the mortgage loan of €100,000. The mortgage interest rate for the customer consists of the current market rate plus an add-on for the bank (usually about 0.8%). The cash flow for the first year looks like this:

<i>Customer</i>		<i>Bank</i>	
Mortgage interest rate (4.25% x €100,000):	€4,250	Coupon (4% x €103,057)	€4,122
Repayment mortgage loan, year 1:	€1,710	Repayment bond loan, year 1:	€1,838
Financing cash flow customer:	<u>€5,960</u>	Financing cash flow bank:	<u>€5,960</u>
Margin customer (0.8% x €100,000):	€800	Compensation for bank:	€800
Total cash flow customer:	<u>€6,760</u>	Total cash flow bank:	<u>€6,760</u>

The repayment of the bond loan takes place by repaying bonds to the investor for the nominal value of €1. At the end of year 1 there are 101,219 outstanding bonds (103,057 minus 1,838) left for the mortgage loan of €98,290 (€100,000 minus €1,710).

The interest and repayment on the mortgage loan is directly used by the bank to settle the interest and repayment on the bond loan. The higher repayment on the bond loan is counterbalanced by the higher interest rate on the mortgage loan. This will make up for the difference between the principal of the mortgage loan and that of the bond loan. Because the cash flows are identical, the bank does not run a market risk. This risk is absorbed by long-term investors like pension funds. The bank does cover the credit risk though and receives compensation in the form of a financial add-on. (SEH, 2010)

Repayment

After issuing the bonds, the mortgage interest rate is fixed, independent of the fluctuations of the market interest rate. This fixed mortgage rate means that customers have insight in the monthly housing costs for the entire term of the loan. By means of a *call-option* the customer can still profit from fluctuations of the market interest rate, which is also possible due to the structure of the bonds and the direct link to the mortgage loan.

This so-called *call-option* means that the bonds can be repaid at the nominal value of €1 at any moment in time. When the market interest rate decreases it is possible to do additional repayments and to get a re-issued mortgage loan at the lower rate to reduce the monthly housing costs, at a constant mortgage loan. Furthermore, it is possible to repay the mortgage loan with a discount when the market interest rate increases, which results in a lower mortgage loan, at constant monthly housing costs. In the latter situation, the repayment is done by buying back the issued bonds and re-financing the loan.

Based on historical interest rate developments between 1980 and 2010 the table below shows a comparison between a Danish and a traditional *constant payment mortgage*. From table 10 it can be concluded that the Danish mortgage loan is considerably less expensive than the traditional variant. The repayment of €79,102 in the Danish model instead of the €100,000 repayment in the traditional model can be ascribed to the possibility to lower the mortgage debt when the interest rate increases. The lower interest payments are possible due to the opportunity to adjust the mortgage interest rate when the market interest rate decreases. (SEH, 2010)

Table 10, Comparing a Danish mortgage to a traditional mortgage (SEH, 2010)

Unit (€)	Danish mortgage	Traditional mortgage		
fixed-rate interest period	N.A.	30 years	10 years	5 years
Repayment	79,102	100,000	100,000	100,000
Interest + financial add-on	158,373	298,938	235,844	198,332
Gross payment	237,474	398,938	335,844	298,332
Tax deduction	63,349	119,575	94,338	79,333
Net payment	174,125	279,363	241,506	218,999

Advantages

The advantages of the Danish mortgage model are listed below.

- ✓ Significantly lower housing costs for the customer, due to a wide range of bonds with high liquidity and a low credit risk profile.
- ✓ Transparent system for customers.
- ✓ Insight into maximum monthly housing costs.
- ✓ Full repayment during the term.
- ✓ The market risk and credit risk are separated and assigned to respectively the investor and the bank. This reduces the system risk and provides a stable financial sector.
- ✓ A call-option to reduce either the height of the mortgage loan or the monthly housing costs.
- ✓ Lower tax deductions, full repayments during the term and lower mortgage interest rates provide better government finances.

Disadvantages

The disadvantages of the Danish mortgage model are listed below.

- ✓ Restrictive LTV-ratio of 80% of the market value.
- ✓ The interest rates on call-options are higher than the interest rates on bonds without this option.

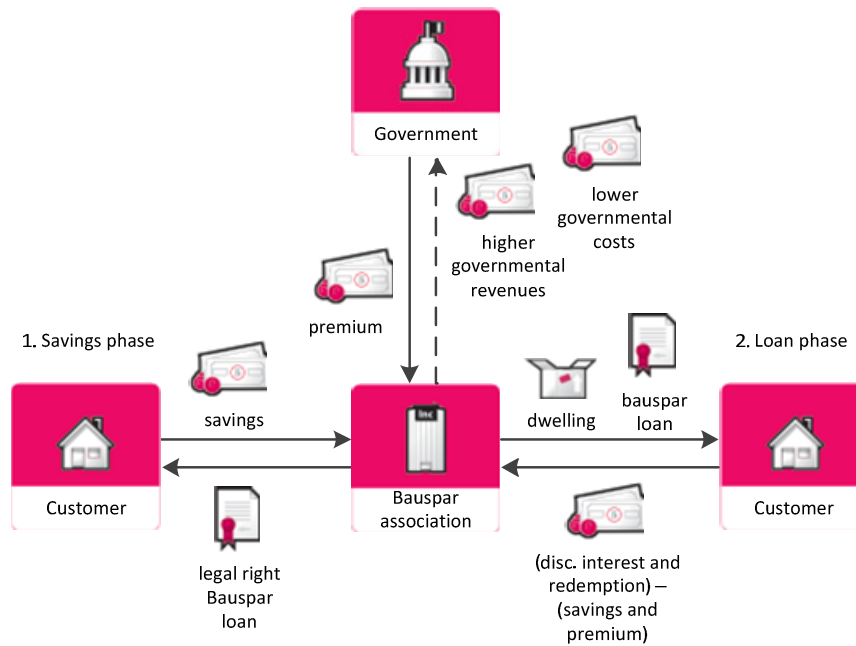
6.4.2. German *Bausparen*

Bausparen (Contractual Savings for Housing) made big contributions to the reconstruction of Germany after World War II and has a long history. It is a simple and effective financial instrument for building personal funds. Customers have control over their savings and therefore need fewer loans. Furthermore, these customers can purchase loans at lower, fixed interest rates which contribute to the stability of the personal financing and stabilize the market as a whole.

Bausparen progresses in two phases: the savings phase and the loan phase. During the savings period, the customer saves a specific amount on a monthly basis, thereby building up the balance in the customer's *Bauspar* account. The loan phase begins with the so-called *allocation*: the contractually stipulated *Bauspar* sum is paid out to the customer. This sum is made up of the balance saved up by the customer and the *Bauspar* loan and monthly payments are made by the customer to repay the loan.

Government involvement is of crucial importance for the long-term success of *Bausparen*, a premium enables the state to make *Bausparen* even more appealing. This premium can compensate for inflation and functions as a seal of approval, since the government pursues safe financial products for its citizens' assets. Their financial involvement is justified by the fact that the state also profits from a sound housing construction industry: private capital is mobilized for housing construction, asset is accumulated and an essential contribution is provided to the social safety net and retirement funding. Higher tax revenues from sale taxes on housing construction revenues as well as payroll and income taxes are indirect benefits that answer for government involvement. (Schwäbisch Hall, 2010)

In figure 22 the *Bauspar* model is illustrated. The government involvement is clearly visible and the main customer advantages are stated in the model.

Figure 22, The german *bauspars* model

Germany's largest *Bauspar* institution and market leader is Schwäbisch Hall, with 6.8 million customers totalling nearly 250 billion euros and 7,000 employees. The company sells its financial products through the approximately 1,200 cooperative banks. The amendment of the German *Bauspar* Institutions Act in 1991 made it possible for *Bauspar* institutions to establish affiliated companies in foreign countries. In combination with collapsing planned economic systems in Eastern Europe and the transition towards market economies, Schwäbisch Hall introduced *Bausparen* in Slovakia (1992), the Czech Republic (1993), Hungary (1997), Romania (2004), and China (2004). These affiliated companies have a total of 3.4 million customers with nearly four million *Bauspar* contracts and 7,600 employees. (Schwäbisch Hall, 2010)

Advantages

The advantages of the German *Bausparen* are listed below.

- ✓ The LTV-ratio stays within tolerable limits because of the personal asset accumulation and thus the foundation for solid housing construction financing.
- ✓ Lower mortgage interest rates and a smaller mortgage loan provide lower monthly housing costs.
- ✓ The system does not depend on the capital market. The closed system makes it possible to provide low interest rates on the loans and developments in the capital market hardly have any influence on the customer and the system.
- ✓ Fixed interest rates that apply for the whole term.
- ✓ A legal framework is created by the German legislator to protect customers' savings.
- ✓ A premium is paid by the government on top of the savings and compensates for inflation.

Disadvantages

The disadvantages of the German *Bausparen* are listed below.

- ✓ The system requires a long start-up time for the accumulation of capital.
- ✓ The system is dependent on governmental support, which can be a risk. Not so much for the premium, but more for the approval and the tax and legal cooperation. Without the legal framework this system would not be possible. For future implementation in other countries this is an important focus.

6.5. Final model

Together with some of the stated modelling options and expanding model options and with the previous best practices in mind, a final model is composed and illustrated in appendix C. This model gives way to a new financing approach and is an extended version of the base model of section 6.1.

6.5.1. Explaining the model

The model consists of five *players*: the project developer, pension fund, customer, government and NHG. In addition to their traditional role and participation level, some *players* add *objects* to their activities to improve the functioning of the HIP, which will eventually benefit their individual goals. These goals of both the players and the housing investment plan are stated in table 11, together with the *objects* used to achieve these goals. The underpinnings of the different *objects* are added in the form of references to other parts of this chapter.

Table 11, Goals, objects and added objects per player

	Goal(s)	Object(s)	Added object(s)
Housing Investment plan	Providing fundable private owner-occupied housing for households with incomes between €34,000 and €43,000	NA	Transparent mortgage loans(6.4.1.), mortgage bonds(6.4.1.), saving accounts(6.4.2.), NHG dossier(6.1.4.)
Project developer	Business continuity by developing profitable market-oriented dwellings	Market-oriented dwellings	One-time investment (6.2.1.)
Pension fund	Long-term investments of pension contributions with an optimal profit and minimal risk	Long-term investment	NA
Customer	Building capital and maximum enjoyment and independency for minimal costs and risks	Interest and repayment	Savings(6.4.2.), Data(6.2.3.)
Government	Safe financial products for its citizens' assets	Political support	Tax-free savings(6.3.1.), premium(6.4.2.)
NHG	Promoting homeownership and improving its quality	Guarantee	NA

From this table it can be concluded that the goals of all *players* are in line with and supportive to the goal of the Housing Investment Plan: Providing fundable private owner-occupied housing for households with incomes between €34,000 and €43,000.

Savings account

According to this innovative business model the customer opens a *Housing investment plan*-savings account at an early stage, long before the dwelling is actually purchased. This customer is urged to do so by the government, who makes this type of savings fiscally interesting because no property taxes are indebted. In addition, a premium is paid when the customer purchases the dwelling. A monthly direct debit is established and extra deposits are possible. In table 12 some savings examples are stated, containing monthly debits, with total savings at the end of the term. The height of the monthly savings and the number of instalments are variable and the annual savings interest rate is currently fixed at 3% and will fluctuate parallel to the mortgage interest rate and therefore parallel to the market interest rate.

Table 12, Saving examples of various saving amounts per month with different saving terms

		Savings per month (€)			
		30	50	75	100
Number of instalments (in months)	60 (5 years)	€1,911	€3,185	€4,778	€6,371
	96 (8 years)	€3,201	€5,335	€8,003	€10,671
	120 (10 years)	€4,127	€6,878	€10,317	€13,757
	180 (15 years)	€6,696	€11,159	€16,739	€22,319
	240 (20 years)	€9,673	€16,122	€24,183	€32,244

From this data it can be concluded that savings can accumulate significant equity capital, used as input for the owner-occupied dwelling. Considering average monthly savings of €65 in combination with the mean number of instalments (120 months), this provides an accumulated equity capital of €8,942. When for example a dwelling of €180,000 is purchased and the mortgage loan is reduced with these savings, the total sum of mortgage costs over a period of 30 years is once more reduced with over €8,000.

The choice for the number of instalments has to do with the savings account type. An account that is set up by students in a pre-purchasing phase will last approximately five to ten years, and can accumulate a maximum capital of around €13,000. In the savings accounts with terms of 15 or 20 years it is likely that parents open the accounts for their children. The savings per month and the number of instalments above are indicative and other combinations are possible.

The savings account is easily accessible via the website of the HIP and next to the fact that the savings schedule and the accumulated amount at the end of the term can be checked, the account also contains a personal profile where customers can enter their gross annual income, household characteristics, location and housing preference and expected date of purchase. So besides the fact that the customer has an up to date profile of his savings and the targeted savings in year x, the investment plan receives large quantities of useful information about the future housing demand. Not only in terms of numbers, but also locations, housing typologies, number of bedrooms et cetera.

The government premium that is mentioned earlier is an important extra incentive for future homeowners to start a savings account in the HIP instead of another savings options. An example of a government premium is given by (Schwäbisch Hall, 2010): In the Czech Republic the premium is 10% on top of the savings out of a maximum €800 per year. Using a percentage for the premium can stimulate saving a significant amount every month and the maximum is applied to control government contribution. The height and maximum of the Dutch government premium is not stated in this report, since this needs further research and consultation with the Department of Finances.

Furthermore, it is possible to do a one-time deposit to cover the savings and speed up the savings phase or move on to the loan phase and get a mortgage loan. This is also limited to the target group and the relative advantages of the savings account lapse.

Contract of sale

When the contract of sale is signed, the saving phase is ended and the second phase (loan phase) starts. The sales price is reduced with the accumulated savings and the government premium, and for the remaining sum for the HIP dwelling a mortgage loan is issued, with an NHG guarantee. The capital is obtained by selling to the pension fund the same amount in the form of bonds. The loan is a 30-year constant payment loan with a fixed interest rate (based on the available market interest rate on the day of issue) and a 100% repayment within the period, and consequently the issued bonds also have a 30-year term with the same fixed interest rate (also based on the available market interest rate on the day of issue) and are issued for the same amount of money and the same repayment profile. This balancing principle is called *match-funding* and an example is illustrated in figure 23.

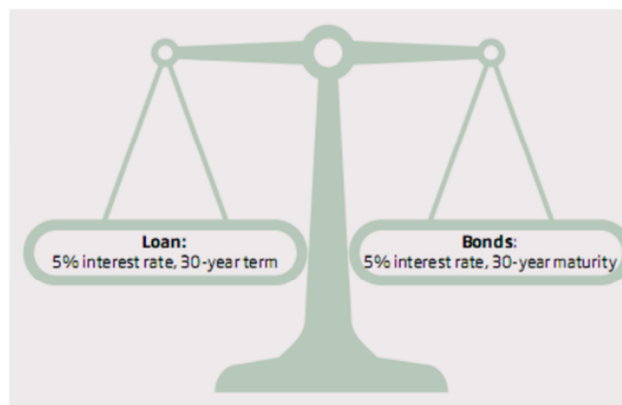


Figure 23, The match-funding principle (Realkreditraadet, 2011)

6.5.2. Example

To get a better view of the financial benefits of this way of mortgage lending, table 13 shows a comparison of a HIP mortgage with a traditional mortgage for different incomes. For this comparison a constant payment mortgage loan with a 30-year term, a fixed interest rate and 100% repayment within the term is used. The 1% and 2% discounts on the current long-term mortgage interest rate are on a structural basis and will move with the market interest rate. For the housing ratio the NHG boundary conditions are applied. (Stichting WEW, 2012) The most recent mortgage interest rates are applied. (MAX Producties, 2012)

Table 13, Comparing loan capacities of the HIP mortgage loan and the traditional mortgage loan

	HIP mortgage low	HIP mortgage High	Traditional mortgage loan	Difference (+HIP)	Difference (+HIP)
Loan capacity \ Interest rate	4.8%	3.8%	5.8%	-1.0%	-2.0%
income €34,000	€152,000	€171,500	€143,500	+€8,500 (+5.9%)	+€28,000(+19.5%)
income €39,000	€175,000	€197,000	€165,000	+€10,000 (+6.1%)	+€32,000(+19.4%)
income €43,000	€196,500	€221,000	€185,000	+€11,500 (+6.2%)	+€36,000(+19.5%)

On average, the mortgage loan capacity increases with 6% and 19.5% due to the lower interest rates of the *Housing Investment Plan*. By means of the average saved equity capital of the *savings account* example, the capacity increases with another 5% and a total increase of capacity of approximately 11% and 24% is realized. The 2% lower mortgage interest rate is a feasible rate when comparing this to the Danish situation and the low risk of the proposed *Housing Investment Plan*. The 1% discount is only inserted to provide a clear insight in the exponentially increasing loan capacity by lowering the interest rate.

6.5.3. Defining benefits

Since the *Housing Investment Plan* is only possible when all stated *players* participate in the plan, it is important to define the benefits for each individual *player*. These benefits come up to the goals and encourage the mobilization of the (added) objects of table 14.

Table 14, Relative benefits of the HIP per player and linked to the individual goals

	Goal(s)	HIP Benefits
Housing Investment plan	Providing fundable private owner-occupied housing for households with incomes between €34,000 and €43,000	NA
Project developer	Business continuity by developing profitable market-oriented dwellings	The transparent and safe mortgage loans create the demand for market-oriented dwellings in the fund. These can be developed and business continuity is maintained. Furthermore, the data collected during the savings phase is relevant and can be used to enhance the market-orientation.
Pension fund	Long-term investments of pension contributions with an optimal profit and minimal risk	The liquid, safe and transparent mortgage bonds provide a low-risk investment without credit risk.
Customer	Building capital and maximum enjoyment and independency for minimal costs and risks	A transparent and safe mortgage loan with a low interest rate reduces the monthly mortgage costs and increases the loan capacity. The savings account in combination with the government premium also contribute to a higher loan capacity.
Government	Safe financial products for its citizens' assets	The 100% repayment, the low mortgage interest rate and the HIP savings account strengthen the public finances.
NHG	Promoting homeownership and improving its quality	The transparent and safe mortgage loans reduce the foreclosure sales and thus the credit risk is borne by NHG.

6.5.4. Boundary conditions

To ensure a transparent mortgage loan and therewith a transparent *Housing Investment Plan*, it is important to state and apply clear boundary conditions. The conditions stated in table 15 are partly founded on the requirements of the NHG (see subsection 6.1.4.) and added with extra conditions to increase the transparency, safety and flexibility of the plan and its products. Some of these conditions are indicative and subject to changes in the long term.

Table 15, Boundary conditions of the NHG, supplemented with additional HIP conditions per phase

Phase	Conditions NHG	Additional HIP conditions
Savings phase		Income between €34,000 and €43,000 (at opening savings account)
		Minimum savings of €30 per month for at least five years and depending on income (and hence the loan capacity) or a capital deposit
		Savings interest rate set on 3% and depending on fluctuations of the market interest rate
		Exit option: during the savings phase it is possible to withdraw the money. The tax-exempt is then levied retrospectively and no government premium is paid
Loan phase	0.7% commission of market value	No additional condition
	Cost limit of €265,000	Cost limit depending on housing ratio in combination with income and interest rate
	Height of loan limited to 104% of market value (newly-built housing)	Limited to 104% and reduced with the amount of savings of savings phase
	Minimum of 50% repayment during the term	100% repayment during the term to minimize risk and maximize transparency
	Housing ratio limited to about 30% (varying between 29.0% and 31.5% and depending on interest rate and income)	No additional condition
	Maximum of €8,000 for energy saving measures excluded from calculation	No additional condition
		Exit option: during the loan phase the dwelling can be sold. The HIP has the right of first refusal and when the dwelling is sold within five years after purchase, the premium is paid back to the HIP

6.5.5. Phasing and future add-ons

The model as it is presented in this research is a mature system, with a prior start-up phase. During this start-up phase the model is not fully operational yet and some compromises have to be done to make it work. Since the savings account needs a minimum of five years before the accumulated equity capital can substantially lower the LTV ratio and increase the loan capacity, this is the start-up phase of the system.

The competitive interest rate already increases the loan capacity, so in the first years of the HIP can already benefit the plan, without having a savings account. Households who then want to purchase a dwelling in the future can get a savings account and start accumulating equity capital. In short, this means that when the system is launched on the market, the higher incomes of the target group are the first households eligible to purchase dwellings, since for some of them (with incomes between €40,000 and €43,000) the discounted interest rate provides them of enough loan capacity to purchase a HIP dwelling without a savings account. A boundary condition that should be set here is that all customers unable or unwilling to purchase a dwelling at the start of the HIP, should open a savings account and start saving to build equity capital.

In course of time, when the model is fully mature, it is possible to add *players* to the *Housing Investment Plan* and implement *value capturing* in the model. *Value capturing* is a collective term of instruments which makes it possible to directly or indirectly skim appreciation of related products or services, to be used for the funding of the activities that effect this appreciation. In this research, value capturing comprises the ability to financially involve *players* from the operational phase of the HIP dwellings in the development of these products. An example of a potential additional *player* can be an energy supplier. This party has a big interest in the dwellings because they can provide the owners with energy during the entire operational life of the dwelling. For example, the energy supplier can provide hardware of the energy supply (installations) at a competitive price and receive the pre-emptive right to provide the energy of these dwellings for a competitive price. In this way the energy supplier is added to the model as a partner and can anticipate in the early stages of developments.

Besides the fact that the model can be extended with new *players*, it can also be extended to other target groups and other submarkets, for example respectively higher income households and the rental market. The latter can be extra interesting when for example a previous dwelling of a customer is purchased by the HIP to give way to the sale of the newly-built dwelling. The previous dwelling can then be rented or sold to another customer. This can have a high potential since it can stimulate the flow through in a stagnating housing sector. The add-ons discussed in this section are mind setting options and not elaborated in this report.

6.6. Conclusion

The proposed final model is a combination of the base model that originated from the objective to design a more integral and solid financial system to provide mortgage loans and the strengths of two foreign best practices: the *Danish mortgage model* and the *German Bausparen*.

The bank in its traditional and capital providing role is no longer involved in the model and will have a mediating role at most. Pension fund capital is used to finance the mortgage loans and market risk and credit risk are borne by respectively the HIP and the pension fund. These lower risks allow for competitive interest rates and in combination with HIP savings, housing costs can be significantly lower than the traditional costs and hence loan capacities increase.

The savings account and the mirrored bonds based on *match funding* in combination with the constant payment mortgage loan provides a safe and transparent system and is therefore customer friendly. In a time with failing difficult financial constructions, a stagnant housing market and major economic uncertainties, these models are very important to inspire customer confidence.

One of the main disadvantages of the implementation of the Danish mortgage model is the fact that a lower LTV-ratio is implemented, which means that customers need to bring in capital to get a mortgage loan: something that is not generally accepted any more in the Netherlands. This is intercepted by means of the savings phase, which is incorporated in the model to take care of structural savings long before a dwelling is obtained and which provides additional benefits for both the customer and the project developer and pension fund. Furthermore, this lower LTV-ratio creates a more solid financial system with less credit risk and a higher resistance to devaluation.

It can be concluded that with a slight change of roles through *added objects* of just a few *players* an innovative model can be composed in which goals and benefits of all *players* are represented. It is important to tune the supply to the demand, also and especially when it comes to financial products. In the *Housing Investment Plan* this is established by linking the demand for long term mortgage loans to the supply of long term bonds with the same interest rate, repayment and period structure. For the customer this investment plan does not change anything significant, the difference is in the efficient way in which the funding is engaged.

Below, a shortlist of the most important advantages of the HIP is stated.

- ✓ Attainable housing for households with incomes between €34,000 and €43,000.
- ✓ Safe and transparent mortgage loans with reduced LTV-ratios.
- ✓ Insight into maximum monthly housing costs.
- ✓ Safe and stable products for investors.
- ✓ Reduced system risk.
- ✓ Business continuity for project developer and availability of data collection of future customers.
- ✓ Better government finances.
- ✓ System is not dependant on financial market.

7. CONCLUSION AND DISCUSSION

This final chapter of the research consists of three sections. In the first section the final conclusions are presented by answering the research questions stated in the introduction. The second section consists of the discussion on the most important findings, whether the expected research goals are reached and recommendations are derived for future research. In the third and final section a reflection is given on the research, with an outlook on future implementations.

7.1. Conclusion

In this section the research questions of the introduction chapter are answered. These questions were drawn up during the start-up phase of the research and based on the literature that was studied beforehand. Below, these research questions are stated once more and answered in the next subsections.

Research question:

What financial measures contribute to an improved financial accessibility of owner-occupied private housing for households with an income between €34,000 and €43,000?

- ✓ RQ 1: From what elements is a housing price composed, how and by whom is this price influenced and what relevant measures can be taken to improve the financial accessibility of the target group?
- ✓ RQ 2: How does a mortgage lending process look like, what conditions influence the height of the loan and what relevant measures can be taken to improve the financial accessibility of the target group?
- ✓ RQ 3: From what elements are the additional housing costs composed, how are these influenced and what relevant measures can be taken to improve the financial accessibility of the target group?
- ✓ RQ 4: What conflicts occur between the three problem areas and what existing measures can be distinguished?
- ✓ RQ 5: What new and innovative financial measures can contribute to the financial accessibility of the target group?

7.1.1. Conclusion on main research question

In the main research question the measures that contribute to an improved financial accessibility of owner-occupied private housing for the target group are asked for. In this research measures are distinguished on different levels. First the measures from the different problem areas are stated without cross-pollination. Next the conflicting areas between the different problem areas are described, with corresponding existing measures. Then some measures for the project developer are mentioned and finally a new model is introduced to make a major contribution to the financial accessibility of private housing for the target group.

From the existing measures in the different problem areas it is concluded that these measures do not provide a structural improvement of the financial accessibility. Measures are too limited to provide a solid basis: limited budget, limited target group, limited duration of the measures etc. Furthermore some measures weaken and limit other measures, which

indicates the lack of integration between the three problem areas. Besides this, there are even measures introduced by one organization and undone by another.

From the three conflicting areas it can be concluded that there is a lack of integral vision on the current problems of the housing market. There are no real umbrella measures that significantly reduce the gap between housing prices and mortgage lending and that incorporate the additional housing costs in the mortgage lending process. There is a need for connecting measures and cooperating stakeholders, to satisfy the customer and to adapt to changing economies and the changing housing market.

Measures that have high potential to improve the financial accessibility of housing for the target group are standardization and the initial-costs-fund method, excluding energy saving measures from loan calculations, NHG mortgages with interest rate discounts and finally the *Housing Investment Plan* that is introduced in this research.

The tightened financial standards and the low customer confidence, in combination with the need for a solid platform, resulted in a new funding concept for private housing: the *Housing Investment Plan*. Together with some of the stated modelling options and expanding model options and with two best practices in mind, a final model is composed (see appendix C). This plan consists of multiple stakeholders working together to get a transparent and safe model that contributes to an improved financial accessibility by offering competing mortgage loans including a fiscally attractive savings account in a pre-mortgage phase, lowering the LTV value and increasing the loan capacity. The plan makes a good platform for the implementation of a standardized but diverse process and product and thus provides the ability to develop competing housing prices and energy efficient dwellings.

In the next subsection the sub questions are answered that provide more information about the answer on the main research question above.

7.1.2. Conclusion on sub questions

In this subsection the five sub questions are answered. These provide more insight in the answer on the main research question of subsection 7.1.1.

RQ 1: From what elements is a housing price composed, how and by whom is this price influenced and what relevant measures can be taken to improve the financial accessibility of the target group?

In section 2.1 the answers to these questions are given. The housing price is composed of seven elements:

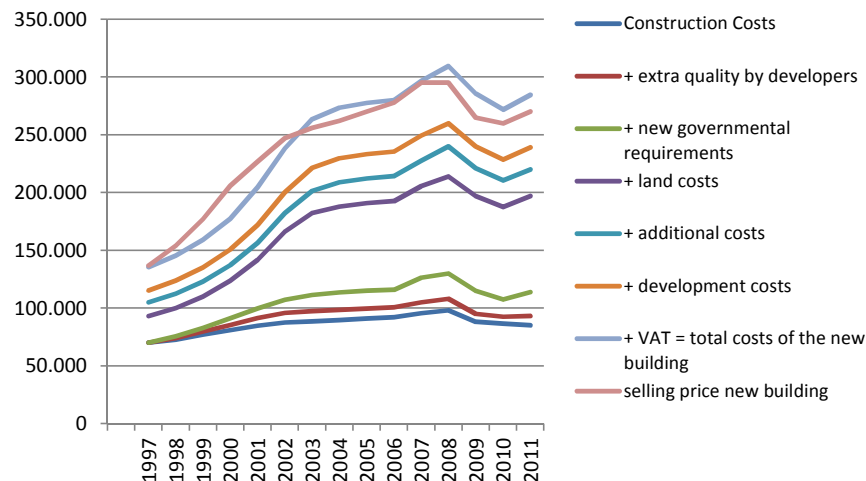


Figure 24, Price and cost development of the average new home (NVB, 2011)

From the figure above it can be concluded that the *construction costs*, *new governmental requirements* and *land costs* have changed significantly over the past ten years. The *construction costs* have decreased since all other costs increased and this element has been constant over the past decade. The costs of *governmental requirements* have increased mainly because of the tightening EPC standards. The *land prices* have increased dramatically (260%, 1997, 2011) due to planning policies in the '80s to effectuate new dwellings near urban locations (Vinex) which encouraged the scarcity we face now.

To improve the financial accessibility of the target group on the short term, it is necessary to lower the land prices by depreciation to proceed developing new projects with market-oriented prices. On the long term the most structural measure is to use one consistent and up-to-date land valuation method and to include developers incentives in the calculations. Finally, various optimisations are possible in providing affordable dwellings and the introduction of an initial-costs-fund can save up to 30% of the additional costs.

RQ 2: How does a mortgage lending process look like, what conditions influence the height of the loan and what relevant measures can be taken to improve the financial accessibility of the target group?

In section 2.2 the answers to these questions are given. For the mortgage lending process section 2.2 can be read. The maximum height of the mortgage loan is depending on numerous factors. Therefore, only the direct influences are listed below.

- ✓ Housing ratio
- ✓ AFM directive
- ✓ Mortgage interest rate
- ✓ Competition
- ✓ NHG
- ✓ Single- and double-income household

The financial accessibility can be improved in two ways here. First, the loan capacity can be maximized by excluding up to €8,000 from the calculation if a dwelling is purchased with an EPC-report with a maximum of 0.6. An interest discount on NHG guaranteed mortgages is another way of maximizing the loan capacity. Second, there are also measures to maximize the range of feasible housing without having to maximize the loan capacity. These are stated in table 6 and the discounts can go up to 50% of the market value and can thus be good solutions in providing medium-low incomes a private dwelling.

RQ 3: From what elements are the additional housing costs composed, how are these influenced and what relevant measures can be taken to improve the financial accessibility of the target group?

In section 2.2 the answers to these questions are given. Additional housing costs are 43% of the total housing costs and 12% of the average disposable income of households. In the pie chart below (figure 25) the elements of the additional housing costs are illustrated and it is clear that energy costs is the main component, covering 48% of the total additional housing costs.

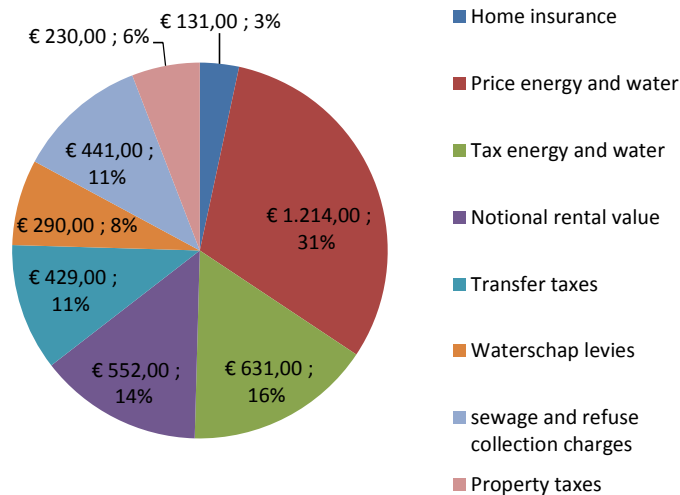


Figure 25, Components of additional housing costs (annual costs) (COELO, 2011)

Since energy costs cover a big share of the total costs and will increase exponentially in the future, the emphasis is on these energy costs and how these can be controlled and confined. The measures can take place in the three subareas of the *Trias Energetica*: preventing energy utilisation, maximizing the amount of sustainable energy and efficient use of finite resources. In section 2.3.2. the saving potentials are stated per energy label and housing type and show the savings that can be achieved by making a dwelling more energy efficient. Some EPC reduction measures are stated with corresponding effectiveness. By comparing the EPC reduction and the investment costs (effectiveness) to the annual savings of these investments, a realistic long-term advantage can be established. Finally, over time the investment costs will decrease and energy costs will increase, which means that energy saving measures will become more and more effective.

RQ 4: What conflicts occur between the three problem areas and what existing measures can be distinguished?

In chapter three the conflicts between the three problem areas are discussed and the existing measures are stated.

Housing prices - Mortgage lending

Housing prices and mortgage capacities did not decrease equally. Since 2008, the loan capacity has decreased more than the housing prices did. This leads to a funding shortfall, which is one of the main causes of the lack of transactions in the housing market. One of the existing measures to narrow down this gap is by expanding the loan capacity of double-income households. This unfortunately has been undermined by the AFM, because according to this supervisor financial reserves of these households can dry up if a higher loan is obtained. This means that the extended loan capacity is not applied by the bank and the measure currently has no power. Measures to maximize the range of feasible housing are stated in section 2.2.4. Another measure is to lower the housing price by optimization of the building process and an initial-costs-fund.

Housing prices - Additional housing costs

With the increasing pressure on the housing costs and a limited household loan capacity, the emphasis of developers seems to be on confining the costs (maintaining quality) and thereby the housing prices. This however might not be the best economic solution, because in the end the total housing costs are important and increasing energy costs change the ratio between housing costs and additional housing costs, toward the latter. An existing measure to embed these additional costs is the obligation of the energy label in 2008. This secures the energy performance and therewith the additional housing costs to the marketability of a dwelling and levels the aforementioned ratio.

Mortgage lending - Additional housing costs

The additional housing costs are not directly related to the loan capacity; the increase of loan capacity is limited to €8,500 when the property is provided with energy saving measures. This extra loan capacity is insufficient to effectuate a proper energy saving. One of the measures currently prepared is linking the real savings of energy saving measures to the extra loan capacity, providing a higher limitation. Furthermore, energy efficient installations are provided in financial- or operational-lease constructions in order to reduce the additional housing costs without increasing the necessary loan capacity.

In general

From the three conflicting areas it can be concluded that there are no real umbrella measures and that the measures with a high potential are very limited or not supported by all parties involved. There is a need for connecting measures and cooperating stakeholders.

RQ 5: What new and innovative financial measures can contribute to the financial accessibility of the target group?

The tightened financial standards, the stagnating transactions, the lack of umbrella measures and the changing roles of stakeholders and review of the exploratory interviews, provides the idea to initiate a new concept for funding the housing market, where the construction industry has more influence on and insight into pre-financing projects and mortgage loan conditions.

The new measure that is introduced in chapter six is the *Housing Investment Plan*: a new way of financing private dwellings with changing roles of the involved *players* and added *objects*, to contribute to the financial accessibility of the target group (see appendix C). The model is an answer to the problems of tightening financial standards and stagnating transactions and provides a safe and transparent system and functions as a solid platform for future add-ons. These add-ons can be additional *players* or for example the exploitation phase (*value capturing*) or additional objects of the existing players.

The model is explicitly designed to provide fundable private owner-occupied housing for households with incomes between €34,000 and €43,000. This is done because the target group experiences the most problems regarding the current mortgage lending restrictions. When the model grows mature and the products and loans provided are proven and in great demand, the model could be released for other income brackets as well.

The HIP is a promising plan with a primary focus on improving the mortgage loan capacity. To come back to the three problem areas; in first instance this HIP measure is mainly a solution for the restricted mortgage lending problem. Besides this, the plan makes a good platform for the implementation of a standardized but diverse process and product (see section 5.1 and 5.3) and thus provides the ability to develop competing housing prices and energy efficient dwellings.

7.2. Discussion and future research

In this section the research objective is discussed, together with a cautionary note on the research and finally recommendations for future research are presented.

7.2.1. Discussing the research objective

The research objective is stated in section 1.4 and is focussed on stating and developing financial measures to make owner-occupied private housing attainable for households with an income between €34,000 and €43,000. This will be done by providing possible solutions in the three problem areas: housing prices, mortgage lending and additional housing costs.

The research objective is achieved by stating existing financial measures in chapter two and furthermore providing measures a project developer can take to enhance the existing role

and contribute to a better financial situation in the three areas (chapter five). A new and innovative measure is stated, explained and constructed in chapter six. This *Housing Investment Plan* (HIP) is composed in response to the conclusions of chapter three and the results of chapter four and is primarily equipped to improve and renew the mortgage lending process. This however, does not mean that the *Housing Investment Plan* does not contribute to the housing prices and additional housing costs.

It was during the research that it became clear that the mortgage lending process is the most problematic and therefore most relevant area of the three, and that this aspect is the foundation for attainable owner-occupied private housing for the target group.

It can be concluded that the research objective is achieved by providing a solid and transparent platform with competitive products and future expansion and add-on possibilities.

7.2.2. Cautionary note

Since the *Housing Investment Plan* is a new investment model and the main outcome of this research, the HIP is the main subject of the cautionary note.

Because of the limited time span of this research, not all aspects of the model could be checked and just a limited number of modelling options are stated. It is a theoretical model, provided with practical validation of, inter alia, general role changes, exploratory interviews, best practices and expert meetings.

Furthermore, it is decided not to determine the entity of the HIP because this is merely a fiscal and legal elaboration of the plan and because of the lack of expertise. Some general fiscal, legal and political aspects about the plan which came up for discussion during an expert meeting are listed below and can contribute to future research.

- ✓ There has to be a clear causal relationship between the savings account and the purchased dwelling. The savings phase should therefore be limited to ten years, otherwise the legislator might not be willing to agree on the box three tax concession.
- ✓ Existing saving products could be transferred to the HIP savings account.
- ✓ To get a solid basis for the model a sign of approval of the government is an absolute requirement and therefore an active lobby has to be effected.
- ✓ From the view of the Department of Finances the HIP has to be budget neutral and preferably have a positive balance. This means that at least the loss in income and costs due to the implementation of the plan should be compensated for.

Besides this, the HIP and the other measures mentioned have just a limited influence on the entire housing sector and a transformation of the sector is needed to get a healthy, diverse and properly functioning housing market. A small example for this are the aforementioned NHG conditions concerning energy saving measures. Several studies have shown that the potential savings of energy efficient dwellings are up to three times the maximum sum (€8,500) which can be excluded from the calculated maximum loan capacity. All this while it is indicated that energy efficient dwellings are more marketable than the rest of the housing stock. During the research this restriction resulted in preferring the risk-reducing features of the NHG guarantee to the possible savings of a more energy efficient dwelling.

Finally, it needs to be mentioned that the housing market, like all markets, is subject to the market forces and ever changing laws, regulations and restrictions, resulting in changing roles of stakeholders and their *objects*. The current situation is used as a basis and cause of the new and innovative measure. This however, does not mean that the HIP does not apply under other economic conditions. The plan provides a transparent and safe mortgage process and is therefore *future-proof*, but works best in a stable market, without the current turmoil.

7.2.3. Recommendations for future research

During the research some interesting new questions come up which cannot be answered within the scope of the research or because there is no time for it. These recommendations for future research are listed below.

- ✓ Elaborating the fiscal and legal possibilities of the *Housing Investment Plan*.
- ✓ Elaborating a real case with use of the HIP model and proposing this to the stakeholders involved.
- ✓ Elaborating different entities and organisational structures for the *Housing Investment Plan*.
- ✓ Elaborating the start-up phase by looking for a smart bridging period.
- ✓ Research on the possibility of expanding the model to other submarkets like for example the private rental market.
- ✓ Research on the possibility of expanding the model with additional stakeholders by means of value capturing for example.
- ✓ Research on the possibility of matching the housing prices to the increased mortgage loan capacity.

7.3. Reflection

In my opinion, this research only provides part of the solution, more research is required and other measures need to add up in revising the housing market. The *Housing Investment Plan* provides a first step in improving the financial health of the sector and creates an entity that provides both the product and the loan in a competitive, transparent and safe service.

This stable financial funding provides opportunities for both an improved product plan and additional housing costs plan. Within the framework of the HIP both the product and the process can be optimized to add quality and provide competitive housing prices with lower additional housing costs. When for example both the energy supplier and the installer are linked to the model, an integrated value capturing system is established where incentives for providing energy efficient or even energy neutral systems are rooted in the system.

Parts of the model are already proven financial structures in other European countries with similar economic conditions. Multiple Dutch experts aim at the implementation of a Danish mortgage model in the Netherlands and some entrepreneurs even took the first steps in implementing this system. German *bausparen* is also a proven structure and can add great value to the model by means of lower LTV-ratios and with that lower system risks and lower mortgage interest rates.

In my opinion the past few years proved us that the current financial system does not work and does not urge us to repay our loans; minimizing the repayment is even rewarded with maximum tax deduction. This is one of the many wrong incentives, which make it difficult and almost impossible to create a transparent and safe system.

The first steps are taken by the NHG and AFM by lowering the maximum loan capacity and LTV-ratio and increasing the minimum repayment. But in the current system these measures only create more stagnation and again cause the wrong incentives. The proposed HIP is a very good first big step towards the aforementioned transparent and safe system. A system where total housing costs are decisive and form an incentive to both develop and live in low energy housing with constant and guaranteed monthly housing costs!

The *Housing Investment Plan*: a flywheel with lots of opportunities!

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APPENDICES

APPENDIX A

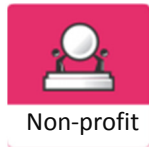
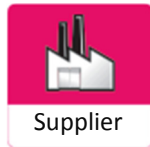
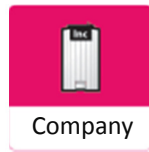
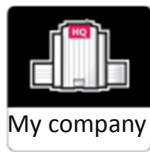
List of exploratory interviews and expert meetings

Name	Organization	Position	Date
<i>Exploratory interviews</i>			
Ms. Van Helvoirt	Tactisch Bedrijfsbureau- Sector Grond en Vastgoed	Strategic command economist	23/11/2011
Mr. Van Hofwegen	Hurks bouw zuid	Head of calculations	28/11/2011
Ms. Ummels	Hurks vastgoed zuid	Project manager	30/11/2011
Mr. De Jong-Tennekes	NHG	Policy advisor	30/11/2011
Ms. Van Liebergen	Hurks vastgoed zuid	Project manager	01/12/2011
Mr. Rietdijk	NVB Bouw	Director	01/12/2011
Mr. Van Santvoort	Van Santvoort Makelaars	Director	02/12/2011
Mr. Leijten	Hurks vastgoed zuid	Director	05/12/2011
Ms. Van Gelder	Hurks vastgoed zuid	Project manager	05/12/2011
Mr. Van de Ven	Hurks vastgoed zuid	Director	05/12/2011
Mr. Van den Broek	Hurks bouw zuid	Director Special projects	07/12/2011
Mr. Paro	Hurks bouw zuid	Buyer	07/12/2011
Mr. Horsten	Tactisch Bedrijfsbureau- Sector Grond en Vastgoed	Strategic policy adviser	08/12/2011
Mr. Molenaar	Rabobank Nederland	Finance director	08/12/2011
Ms. Van der Ven	Hurks vastgoed zuid	Concept developer	08/12/2011
<i>Expert meetings</i>			
Mr. Kleimeer	Nieuwe Hollandse BedrijfsFinanciering	Specialist corporate finance	NA
Mr. Ligthart	Horlings accountants and taks consultants	Tax AP (associated person)	NA

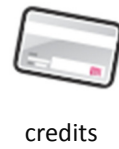
APPENDIX B

Board of Innovation

Six players

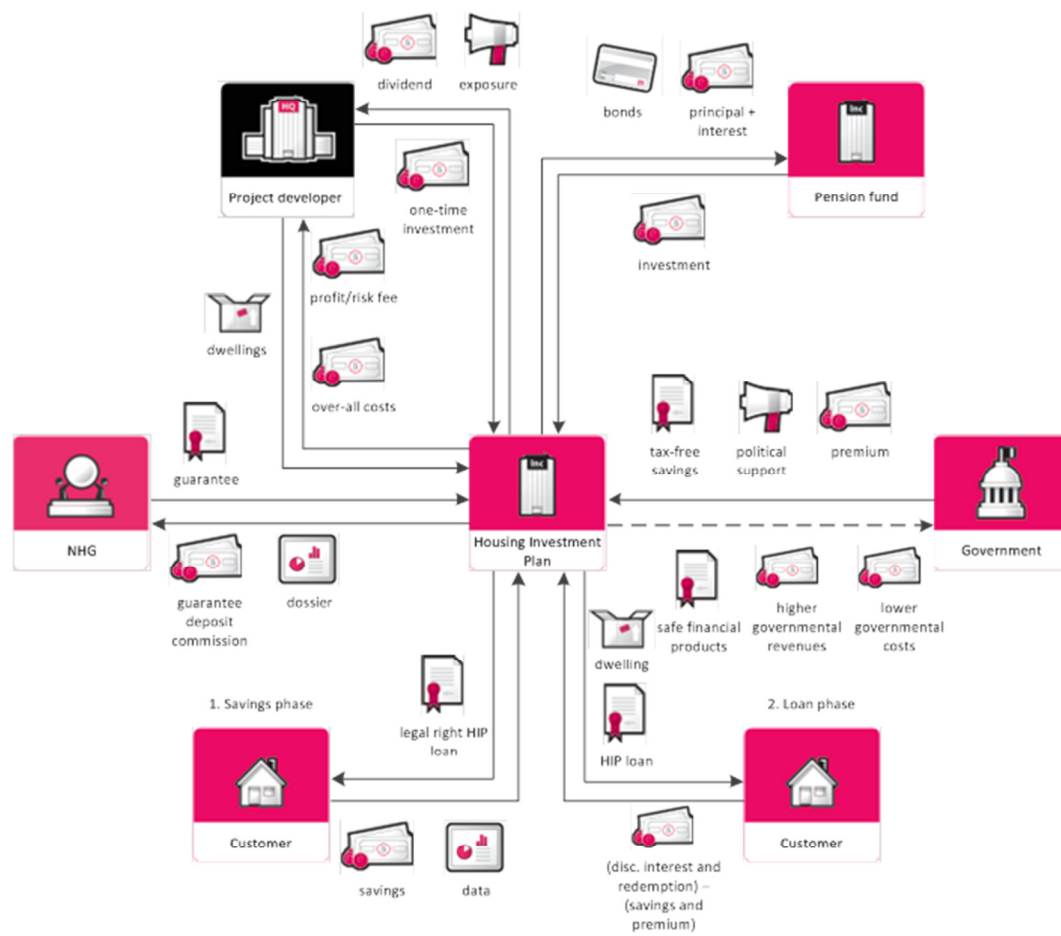


Ten objects



APPENDIX C

Housing Investment Plan



EXTENDED SUMMARY

PRIVATE HOUSING WITHIN REACH**Making private housing attainable for medium income households**

Author: J.P.M. Oberdorf BSc

Graduation program:

Construction Management and Urban Development 2011-2012

Graduation committee:

Prof. dr. ir. W.F. Schaefer (TU/e)

Ir. B. van Weenen (TU/e)

Ir. K. Waijers PDEng (Hurks vastgoedontwikkeling)

Date of graduation:

21-03-2012

ABSTRACT

Due to several different developments in the housing market it has become more difficult for medium income households to find an attainable private dwelling with corresponding mortgage. This has a negative influence on the number of transactions and deteriorates the flow through in the private housing sector. Since a first analysis showed that the mortgage lending restriction is the main restraining element, the emphasis of this thesis is on minimizing system risks by involving suitable stakeholders and thereby providing competitive mortgage loans. The result is a new business model that provides a structural improvement of the financial accessibility of private housing, which above all enables the medium income households to purchase private dwellings with an attainable mortgage. Furthermore, this Housing Investment Plan provides a good platform for the implementation of a standardized but diverse process and product and thus the ability to develop competing housing prices and energy efficient dwellings.

Keywords: Private housing, Investment plan, Housing price, Mortgage loan, Additional housing costs

INTRODUCTION

The housing market is a big and very diverse market with its own rules and target sectors. There are two main sectors in the housing market, which can be referred to as the private housing sector and the social housing sector. Both sectors have the same two submarkets. The first is the rental housing market where a monthly amount is charged for renting the dwelling. The second market is that of the owner-occupied housing where the owner has a mortgage loan with which the dwelling is financed on a monthly basis. This brings the total to four forms of housing.

The current problems in the housing market are complex and take place in all of the above submarkets. The real problem group are the households with an annual gross income between €34,000 and €43,000 (11-12% of all households (Statline, 2011a)). These households have an income that is too high for the social housing sector and too low to get a decent mortgage loan. Therefore, these are the households that is focused on during the research. Restricted rental rules in the social housing sector imposed by the European

Committee in 2011 and restricted mortgage regulations in the same year, in combination with the increased housing prices of the past two decades, are at the bottom of this problem and define the target group of this research.

There are three main problem areas concerning the problem, namely *housing prices*, *mortgage lending* and *additional housing costs*. These are the starting point of the research and the triptych in which this research is executed to answer the main research question: *What financial measures contribute to an improved financial accessibility of owner-occupied private housing for households with an income between €34,000 and €43,000?* The main research objective is to make this housing attainable for the target group by providing possible solutions in the three subareas and in addition by developing a financial measure in the event that existing measures are not sufficiently contributing to the objective.

EXPLORATION OF THE THREE PROBLEM AREAS

In the exploration below a theoretical orientation is made on the three problem areas of the research.

Housing prices

The housing price is composed of seven elements and are listed in figure 1.

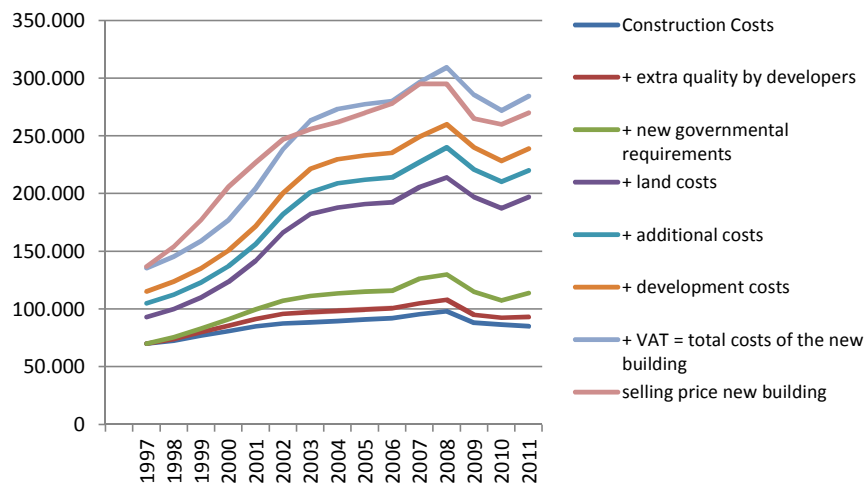


Figure 1, Price and cost development of the average new home (NVB, 2011)

From the figure above it can be concluded that the construction costs, *new governmental requirements* and *land costs* have changed significantly over the past ten years. The construction costs have decreased since all other costs increased and this element has been constant over the past decade. The costs of *governmental requirements* have increased mainly because of the tightening EPC standards. The land prices have increased dramatically (260%, 1997, 2011) due to planning policies in the '80s to effectuate new dwellings near urban locations (Vinex) which encouraged the scarcity we face now. (NVB, 2011)

To improve the financial accessibility of the target group on the short term, it is necessary to lower the land prices by depreciation to proceed developing new projects with market-oriented prices. On the long term the most structural measure is to use one consistent and

up-to-date land valuation method and to include developers incentives in the calculations. Finally, various optimisations are possible in providing affordable dwellings and the introduction of an initial-costs-fund can save up to 30% of the additional costs.

Mortgage lending

The maximum height of the mortgage loan is depending on numerous factors. Therefore, only the direct influences are listed below.

- Housing ratio
- AFM directive
- Mortgage interest rate
- Competition
- NHG
- Single- and double-income household

The financial accessibility can be improved in two ways here. First, the loan capacity can be maximized by excluding up to €8,000 from the calculation if a dwelling is purchased with an EPC-report with a maximum of 0.6. An interest discount on NHG guaranteed mortgages is another way of maximizing the loan capacity. Second, there are also measures to maximize the range of feasible housing without having to maximize the loan capacity. These are stated in table 6 and the discounts can go up to 50% of the market value and can thus be good solutions in providing medium-low incomes a private dwelling.

Additional housing costs

Additional housing costs are 43% of the total housing costs and 12% of the average disposable income of households. In the pie chart of figure 2 the elements of the additional housing costs are illustrated and it is clear that energy costs is the main component, covering 48% of the total additional housing costs.

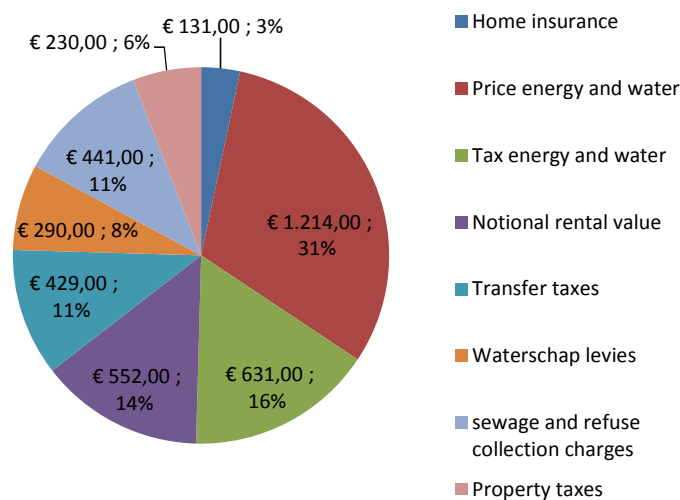


Figure 2, Components of additional housing costs (annual costs) (COELO, 2011)

Since energy costs cover a big share of the total costs and will increase exponentially in the future, the emphasis is on these energy costs and how these can be controlled and confined. The measures can take place in the three subareas of the *Trias Energetica*: preventing energy utilisation, maximizing the amount of sustainable energy and efficient use of finite resources. By comparing the EPC reduction and the investment costs (effectiveness) to the annual savings of the investments, a realistic long-term advantage can be established. (Earth energie advies, 2010) Finally, over time the investment costs will decrease and energy costs will increase, which means that energy saving measures will become more and more effective.

CONFLICTING AREAS

From an analysis of the above three problem areas and the conflicts between these areas it is concluded that there is a lack of integral vision on the current problems of the housing market. There are no real umbrella measures that significantly reduce the gap between housing prices and mortgage lending and that incorporate the additional housing costs in the mortgage lending process. One of the examples is the limited existing extra loan capacity for energy saving measures of €8,500, while potential savings are much higher and additional costs for the A⁺⁺ and energy neutral dwellings are higher. In essence, this is an umbrella measure with high potential, except for the limitation of €8,500 (see figure 3).

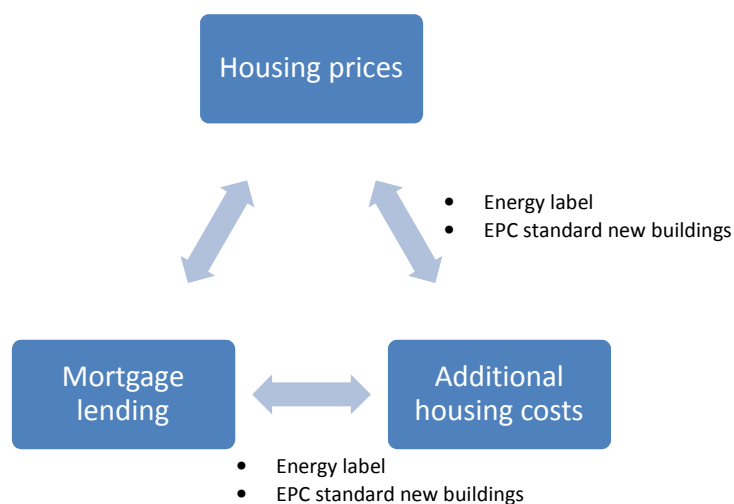


Figure 3, True integral measures

The lack of integral vision can partially be ascribed to the well-defined but restricted roles of the actors that operate in the three different areas. These actors all have their own interests, intentions and contributions which might not always be on the same wavelength. From this it is clear that there is a need for connecting measures and cooperating stakeholders, to satisfy the customer and to adapt to changing economies and the changing housing market.

DEVELOPING MEASURES

In the housing market numerous measures can be defined and drawn up for the different stakeholders in the housing sector, to accomplish a higher feasibility for the target group. In this research the focus is on measures that can be initiated and facilitated by a project

developer or in close cooperation with relevant stakeholders. This enables specific and tangible measures for project developing companies.

Standardization

On the side of the construction costs and developers' margins a lot has been done already (NEPROM, 2012), but the building process and product can be more efficient and failure costs can be reduced by standardization. In a sector where failure costs cover 11% of the total turnover, and in the context of the current tendency of the market it is essential to force back the avoidable failure. According to a research among different stakeholders in the construction sector the highest reduction is possible by a better focus on the workability during the projects' design phase, which can further reduce the technical adjustments. Standardization in process and product at an early stage can result in lower failure costs. (BouwKennis BV, 2011)

Financial situation customer

For both the project developer and the customer it is important to have a clear view of the financial situation of the customer and its loan capacity according to the up-to-date regulations. In combination with the customers' requirements/wishes this gives a good insight in the range for the product: the lower bound is shaped by the wishes, the upper bound by the loan capacity. To both parties it is important to be aware of this range in an early stage, where there is still enough room for manoeuvre and the requirements can be translated into a suitable product. Therefore, the communication with potential customers about the product and location has to be initiated by the project developer in an early stage. In line with this, mortgage advice can be facilitated by the project developer: in the form of a mortgage advisor joining a meeting, or (in a preliminary phase) by explaining the different mortgage types and additional measures to finance the dwelling. This gives insight in the opportunities and helps the customer to make choices.

Reduction packages

The share of additional housing costs in the total housing costs is increasing and thereby the monthly housing costs increase, independent of the tightened regulations on the primary mortgage costs. These total housing costs are leading in the monthly costs and it is therefore important for the project developer to make this clear to the customer in an early phase. In line with the aforementioned standardization it is possible to offer product-based EPC reduction packages. Since sustainability is becoming more and more important and customers start to realize that sustainable housing is better and saves money, it is important to meet this demand. Different packages can be proposed with corresponding additional investment, possible additional loan capacity and monthly savings.

Conclusion

It is clear that aforementioned measures are important to keep developing private housing for medium-income households. For the project developer it is necessary to be active and facilitating in all three areas, to provide accurate information to the customer and to develop good value for money, in both the purchase (housing price) and use (housing costs). These are measures that are more or less in line with the existing conduct of business. For the future it will be important to work together with other stakeholders to develop and

optimize an integrated system. This teamwork also demands role adjustments to synchronize objectives and a solid platform to do so.

A first analysis showed that the tightened financial standards are currently the most limiting influences. This, in combination with the aforementioned solid platform, provides the idea to initiate a new concept for funding the housing market where the construction industry has more influence on and insight into pre-financing projects and mortgage loan conditions. In this case, mortgage loans are financed by the *Housing Investment Plan (HIP)* which is founded by the stakeholders involved in private housing. Since this research is performed in cooperation with a project developing company, the funding concept is elaborated from this point of view.

THE HOUSING INVESTMENT PLAN

From a base model, some modeling options, expanding options, stakeholder analysis, exploratory interviews and two best practices (*German Bausparen* and the *Danish Mortgage model*), a final model is composed and illustrated in figure 4, according to the *Board of Innovation* imaging technique. (Board of Innovation, 2012) This model gives way to a new financing approach in private housing.

The model consists of five *players*: the project developer, pension fund, customer, government and NHG. In addition to their traditional role and participation level, some *players* add *objects* to their activities to improve the functioning of the HIP, which will eventually benefit their individual goals (see table 1).

Table 1, Goals, objects and added objects per player

	Goal(s)	Object(s)	Added object(s)
Housing			
Investment plan	Providing fundable private owner-occupied housing for households with incomes between €34,000 and €43,000	NA	Transparent mortgage loans, mortgage bonds, saving accounts, NHG dossier
Project developer	Business continuity by developing profitable market-oriented dwellings	Market-oriented dwellings	One-time investment
Pension fund	Long-term investments of pension contributions with an optimal profit and minimal risk	Long-term investment	NA
Customer	Building capital and maximum enjoyment and independency for minimal costs and risks	Interest and repayment	Savings, Data
Government	Safe financial products for its citizens' assets	Political support	Tax-free savings, premium

From this table it can be concluded that the goals of all *players* are in line with and supportive to the goal of the Housing Investment Plan: Providing fundable private owner-occupied housing for households with incomes between €34,000 and €43,000.

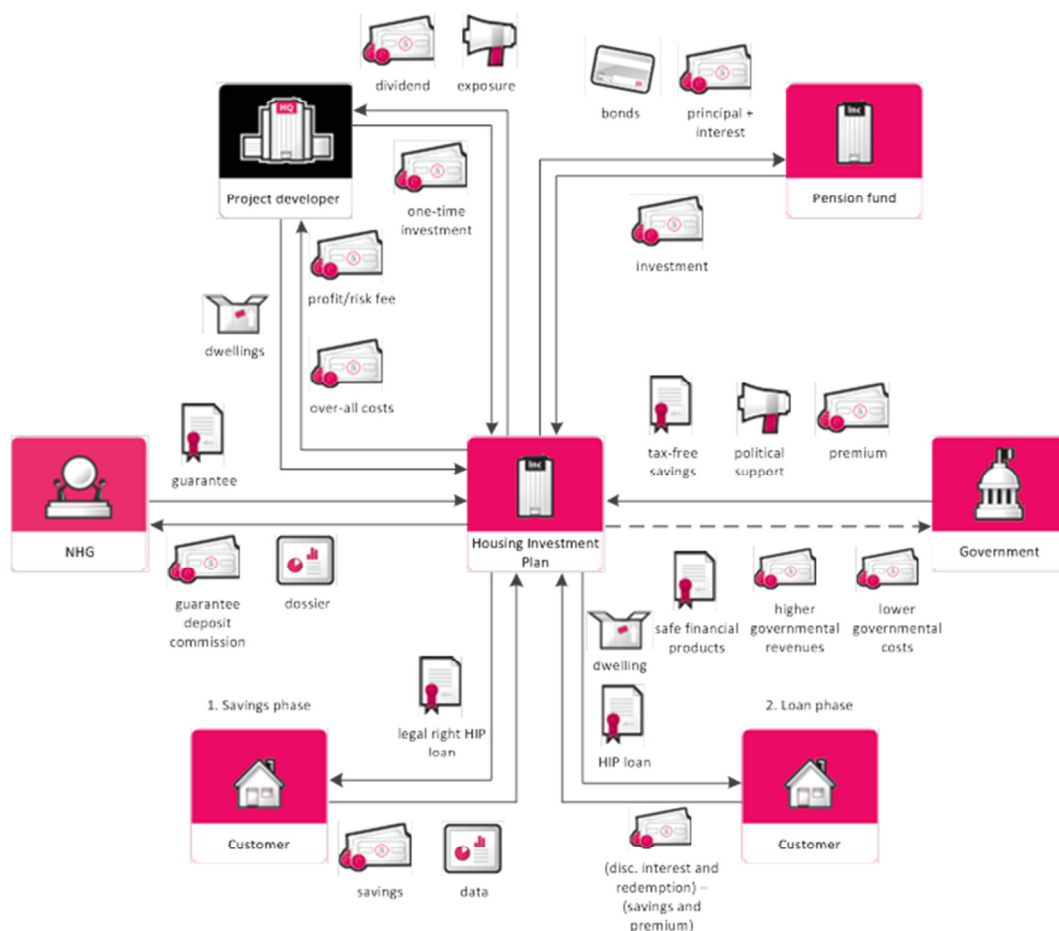


Figure 4, Final model of the Housing Investment Plan

The bank in its traditional and capital providing role is no longer involved in the model and will have a mediating role at most. Pension fund capital is used to finance the mortgage loans and market risk and credit risk are borne by respectively the HIP and the pension fund. These lower risks allow for competitive interest rates and in combination with HIP savings, housing costs can be significantly lower than the traditional costs and hence loan capacities increase.

The savings account and the mirrored bonds based on *match funding* in combination with the constant payment mortgage loan provides a safe and transparent system and is therefore customer friendly. In a time with failing difficult financial constructions, a stagnant housing market and major economic uncertainties, these models are very important to inspire customer confidence.

One of the main disadvantages of the implementation of the Danish mortgage model is the fact that a lower LTV-ratio is implemented, which means that customers need to bring in capital to get a mortgage loan: something that is not generally accepted any more in the Netherlands. This is intercepted by means of the savings phase, which is incorporated in the

model to take care of structural savings long before a dwelling is obtained and which provides additional benefits for both the customer and the project developer and pension fund. Furthermore, this lower LTV-ratio creates a more solid financial system with less credit risk and a higher resistance to devaluation.

It can be concluded that with a slight change of roles through *added objects* of just a few *players* an innovative model can be composed in which goals and benefits of all players are represented. It is important to tune the supply to the demand, also and especially when it comes to financial products. In the *Housing Investment Plan* this is established by linking the demand for long term mortgage loans to the supply of long term bonds with the same interest rate, repayment and period structure. For the customer this investment plan does not change anything significant, the difference is in the efficient way in which the funding is engaged.

Below, a shortlist of the most important advantages of the HIP is stated.

- Attainable housing for households with incomes between €34,000 and €43,000.
- Safe and transparent mortgage loans with reduced LTV-ratios.
- Insight into maximum monthly housing costs.
- Safe and stable products for investors.
- Reduced system risk.
- Business continuity for project developer and availability of data collection of future customers.
- Better government finances.
- System is not dependant on financial market.

CONCLUSION AND DISCUSSION

In the main research question the measures that contribute to an improved financial accessibility of owner-occupied private housing for the target group are asked for. In this research measures are distinguished on different levels.

Existing measures

From the existing measures in the different problem areas it is concluded that these measures do not provide a structural improvement of the financial accessibility. Measures are too limited to provide a solid basis: limited budget, limited target group, limited duration of the measures etc. Furthermore some measures weaken and limit other measures, which indicates the lack of integration between the three problem areas. Besides this, there are even measures introduced by one organization and undone by another.

Conflicting areas

From the three conflicting areas it can be concluded that there is a lack of integral vision on the current problems of the housing market. There are no real umbrella measures that significantly reduce the gap between housing prices and mortgage lending and that incorporate the additional housing costs in the mortgage lending process. There is a need for connecting measures and cooperating stakeholders, to satisfy the customer and to adapt to changing economies and the changing housing market.

Measures project developer

Measures that have high potential to improve the financial accessibility of housing for the target group are standardization and the initial-costs-fund method, excluding energy saving measures from loan calculations, NHG mortgages with interest rate discounts and finally the *Housing Investment Plan* that is introduced in this research.

Housing Investment Plan

The tightened financial standards and the low customer confidence, in combination with the need for a solid platform, resulted in a new funding concept for private housing: the *Housing Investment Plan*. Together with some of the stated modeling options and expanding model options and with two best practices in mind, a final model is composed. This plan consists of multiple stakeholders working together to get a transparent and safe model that contributes to an improved financial accessibility by offering competing mortgage loans including a fiscally attractive savings account in a pre-mortgage phase, lowering the LTV value and increasing the loan capacity. The plan makes a good platform for the implementation of a standardized but diverse process and product and thus provides the ability to develop competing housing prices and energy efficient dwellings.

Discussion

The research objective is achieved by stating existing financial measures and furthermore providing measures a project developer can take to enhance the existing role and contribute to a better financial situation in the three areas. A new and innovative measure is stated, explained and constructed and this *Housing Investment Plan (HIP)* is primarily equipped to improve and renew the mortgage lending process. This however, does not mean that the *Housing Investment Plan* does not contribute to the housing prices and additional housing costs.

It was during the research that it became clear that the mortgage lending process is the most problematic and therefore most relevant area of the three, and that this aspect is the foundation for attainable owner-occupied private housing for the target group. It can be concluded that the research objective is achieved by providing a solid and transparent platform with competitive products and future expansion and add-on possibilities.

Future research

During the research some interesting new questions come up which cannot be answered within the scope of the research or because there is no time for it. These recommendations for future research are listed below.

- Elaborating the fiscal and legal possibilities of the *Housing Investment Plan*.
- Elaborating a real case with use of the HIP model and proposing this to the stakeholders involved.
- Elaborating different entities and organisational structures for the *Housing Investment Plan*.
- Research on the possibility of expanding the model to other submarkets/with additional stakeholders like for example the private rental market/value capturing.

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J.P.M. (Jim) Oberdorf BSc
j.p.m.oberdorf@gmail.com

This summary before you is the result of a research on the financial measures contributing to an improved financial accessibility of owner-occupied private housing for medium-income households. The research is done in cooperation with *Hurks vastgoedontwikkeling* in Eindhoven and with this thesis I will finish the master Construction Management and Engineering at the Eindhoven University of Technology. This thesis is also the end of my study career at the TU/e, that started in the autumn of 2006 with the Bachelor Architecture, Building and Planning.

- 2006 – 2010 Bachelor Architecture, Building and Planning, TU/e
2010 – 2011 Committee member of the *of CoUrsE! Tour* committee 2011 (CME), TU/e
2010 – 2011 Board member of the 8th board of study association *of CoUrsE!* (CME), TU/e
2010 – 2012 Master Construction Management and Engineering, TU/e