Optimal financing commercial property of a Dutch housing association

A case study of housing association Mitros

Master thesis of Arjen Muilwijk

UNIVERSITY OF TWENTE.

Mitros

University of Twente
2012

Author: A.J. Muilwijk
Study: Master of Business Administration
Track: Financial Management

1st supervisor: Drs. G.C. Vergeer RA
2nd supervisor: Prof. Dr. N.P. Mol
Supervisor Mitros: Drs. R. Blokland RT

Abstract

In January 2011, new regulations for housing associations were introduced in the Netherlands. These regulations include a more strict division between social and commercial activities for housing associations. According to the regulations, commercial property should be financed without State aid. Housing associations responded very negatively to the regulations, emphasising the importance of these activities for the liveability of neighbourhoods and claiming that it would be very difficult or even impossible to finance them without State aid.

Commercial financing (without State aid) is a new topic for many Dutch housing associations. In this report, I analyse the optimal financing structure for commercial projects of one Dutch housing association, Mitros, given the specific characteristics of Mitros, its environment and the conditions demanded by lenders. I also study how determinants from corporate financing theories work out for this specific case.

First I extract determinants of optimal financing from corporate financing literature on capital structure, debt maturity and variability of interest rates. I analyse these determinants for the Mitros case to see how they work out in this specific situation. I also add specific case determinants which are relevant for Mitros optimal financing structure. Then I will analyse different debt sources and discuss the specific conditions demanded by lenders in the Mitros case. Finally, I will translate the qualitative analysis into a WACC calculation for Mitros commercial projects, in order to calculate the optimal capital structure.

Applying the optimal financing determinants in the Mitros case, the determinants predict low costs and risks of debt and equity for Mitros commercial projects. Case specific determinants were added to the model, of which supervision by an independent supervisor, which decreases both financial distress costs and information asymmetry costs, is the most important one. Furthermore, I found that long debt maturity and fixed interest rates best fit with the long life time of real estate and the fact that Mitros is a risk averse organisation. Banks are, not surprisingly, the most appropriate debt source for Mitros commercial projects. Estimated interest rates demanded by a sample of 5 banks vary between 0.75% and 2.2% above EURIBOR and maximum loan-to-value varies between 60% and 90%. Maximum debt maturity varies between 7 and 15 years.

To find the optimal financial structure, an extended WACC formula has been formulated. At the debt costs side, I did not only look at the interest rate but also at transaction and maintenance costs of debt. Furthermore, the tax shield was discounted to compensate for the fact that Mitros is loss-making and will only benefit from the tax shield in the future. Costs of equity were calculated with the CAPM using a Dutch real estate industry beta. Applying the formula to a present-day example of a EUR 5 million project provides a WACC for the cheapest bank of 4.67 (average of all five banks: 5.05) and shows that the optimal capital structure maximises the amount of debt available.

This report contributes to Mitros by giving advice on how to finance its commercial projects. It provides a clear in-depth analysis of the determinants of Mitros financing costs, risks and benefits and an extended WACC formula to calculate appropriate discount rates for its commercial projects. The findings may also be relevant for other Dutch housing associations, because there will be many similarities with them. This research contributes to literature by combining several corporate financing theories into one model. This model may be useful for analysing financing costs, risks and benefits of other companies. Also, this research identified the existence of an independent supervisor as an important determinant of financial distress and information asymmetry costs. This may also be true for other industries with such a supervisor. Finally, the traditional WACC formula was extended with transaction costs, maintenance costs and discounting of the tax shield.

Preface

This master thesis is the final report for my master study Business Administration at the University of Twente. It is already some time ago that I started looking for interesting research topics. I came in touch with housing association Mitros and learned about the recent developments and new regulations in the Dutch housing association environment. For me, this was the beginning of an intensive period including an internship and graduate research that finally lead to this report.

The world of housing associations was a new world to me. During my internship and my research, I learned a lot about the unique Dutch social housing system, the valuable contribution of housing associations to Dutch housing markets and the important role of financing these activities. A lot of good work is being done by housing associations in providing housing to people who cannot afford a house on the private market, and with the development of impoverished districts. Numerous scandals during the past few years however have given the Dutch housing association industry a bad reputation. Although my research is not on these topics, I hope that a better understanding of Dutch housing associations will lead to more appreciation for them.

In my research, I looked at the financing of commercial property of housing association Mitros. The role of financing is very important for housing associations, and it was interesting for me to learn how it is organised.

Some people have been very important to me during my research and internship and I would like to thank them on this place. First I want to thank Richard Blokland, treasury manager at Mitros and my supervisor there. I want to thank Richard for the pleasant cooperation during the internship, the support for my research and his valuable lessons about treasury management. I want to thank Henny Offermans and Vivian Chocolaad, who were my colleagues at Mitros treasury department during my internship, for the good and valuable time I had during my internship. I want to thank Rob Rötscheid, financial director at Mitros, for his interview. I want to thank Henk Otterloo (ABN AMRO), Claus Telaar (Deutsche Bank), Fred Reynaers (Bank Nederlandse Gemeenten), Derk Graver & Audrey de Werker (Rabobank) and Siger Seinen and Paul Vermeulen (ING) for their interviews. The interviews with Richard Blokland, Rob Rötscheid and the bank representatives have given me valuable input that has been necessary to do my research and write this report.

Finally, I would like to thank my supervisors from the Finance & Accounting group of the University of Twente, Ger Vergeer and Nico Mol, for their comments, support and cooperation. This has helped me a lot to improve my report.

Enschede, March 20th, 2012

Arjen Muilwijk

Content

1 Introduction

The Netherlands has a unique social housing system with a long history. I will shortly introduce the role of Dutch housing associations in the Netherlands and describe their operational environment until the introduction of the temporary regulations in 2011. Then I will briefly discuss these temporary regulations and their consequences for social housing in the Netherlands. Special attention will be paid to the consequences for financing, which will be the topic of this thesis.

1.1 Housing associations

The history of Dutch housing associations goes back to the end of the 19th century. Housing associations were private initiatives to provide better housing to workers. Since the housing act was set in the Netherlands in 1902, the cooperation between associations and government has increased during the 20th century, but decreased since the last two decades (Aedes, 2007b). Also the domain of associations has changed. The primary goal is still to provide housing, mainly to disadvantaged people (e.g. low income) on the housing market, but housing services and the living environment are nowadays included to the working domain (Aedes, 2007a; Ministerie van VROM, 2000; Van der Laan, 2009). In 2009 a total of 418 housing associations in the Netherlands possessed over 2.4 million houses (Centraal Fonds Volkshuisvesting, 2010).

1.2 Old situation

Housing associations are not-for-profit organizations. They are private enterprises that receive State aid to perform their tasks of building and renting out houses to disadvantaged people and other related activities. These include building, letting out and selling houses, construction and let out of public purpose buildings and projects to increase the living climate of people. According to the European Commission (EC)(2009), state aid is received in three different ways.

1. State guarantees on loans. Loans to housing associations in the Netherlands can be guaranteed by the Waarborgfonds Sociale Woningbouw (WSW). WSW is a fund that provides guarantees to financial institutions on loans the latter provide to housing associations. The guarantees allow housing associations to borrow money at low interest rates. They are only given to loans on housing, a broad range of public purpose buildings and other kinds of investments that improve the living environment. No guarantees are given on property which is exploited with commercial objectives, like shops. When a building contains both housing and commercial activities, the loan can be guaranteed completely when the cost of the commercial part is maximum 33% of total costs (Van Middelkoop, 2010). The fund is supported by all housing associations and ultimately guaranteed by the State and municipalities. In 2009, the WSW guaranteed a total of over EUR 74 billion of loans (Waarborgfonds Sociale Woningbouw, 2009). Annual benefits for housing associations in the form of lower financing costs are estimated EUR 300 million (European Commission, 2009).

2. Support from the Centraal Fonds Volkshuisvesting (CFV). This fund is responsible for monitoring housing associations and can also offer financial support. This aid is financed by housing associations through a general levy. There are three kinds of aid:

- Rationalisation aid; CFV can give a direct grant or a soft loan to associations experiencing financial difficulties.
- Regular project aid; CFV can offer a grant to a housing association for a specific project. This grant is at most the uneconomical part of a project. It is only granted if there are no other options for that association to perform the project. Since 2002, only two associations used this aid (Centraal Fonds Volkshuisvesting, 2011a).
- Special project aid; This is a grant to housing associations for projects in 40 districts that are marked by the government as districts that need improvement. The total aid is maximised at EUR 75 million a year (Centraal Fonds Volkshuisvesting, 2011a). Due to a recent court

ruling and the coalition agreement of the new government, special project aid will be abolished in 2012 (Centraal Fonds Volkshuisvesting, 2011b).

3. Sale of public land by municipalities to housing associations at prices below market value. This way, municipalities support associations to perform projects that are beneficial to the local area.

The EC also qualified the right for housing associations to borrow money at the Bank Nederlandse Gemeenten (BNG) as State aid. The BNG is owned by Dutch central government, provinces and municipalities and has the highest credit rating. Therefore housing associations can borrow money at very low interest rates. However, after a complaint by BNG, the EC revoked this statement, because BNG does not enjoy any advantage or privilege offered by the State that differentiate it from commercial banks (European Commission, 2010).

1.3 Complaints

Private property investors have complained for many years about the way State aid is given to housing associations. Represented by the Vereniging van Institutionele Beleggers in Vastgoed (IVBN) joined later by private housing investor Vesteda, they submitted a complaint to the ECin 2007. Among some specific complaints, the investors were complaining about the following (European Commission, 2009, p. 6):

- Housing associations are "*increasingly active in the market of expensive dwellings*". Due to State aid that associations receive, private competitors are suffering from unfair competition. Therefore, State aid should be restricted to the provision of social housing.
- Target population of housing associations should be defined strictly to people that can be considered as disadvantaged people.
- Associations "*artificially classify dwellings as social housing*" by offering rents just below the maximum rent for social housing.
- All operators should be allowed to receive State aid to provide social housing.

After some years of discussion between the EC and the Dutch government, the EC came up with a decision. The Dutch government translated this decision into temporary regulations which are effectual since 1 January 2011.

1.4 New situation

The EC (2009) agrees with the Dutch government that housing associations fulfil a public economic function by providing affordable housing to disadvantaged people on the housing market. Other people should be able to find a house on the free market. Therefore State aid should only be available to housing, including relative infrastructure, for a target group of disadvantaged people. To make sure that State aid is used for this target group, the new regulation comes up with two criteria (Donner, 2010b):

1. The maximum rent for social housing is € 652.52 a month (1 January 2011, indexed every year)
2. The target group for social housing are people with a maximum household income of € 33,614 a year (1 January 2011, indexed every year)

Of all social housing, an association should allocate at least 90% to people from the target group. When as association allocates in one year less than 90% of its social housing to the target group, the minister may decide that the association will not receive State aid for specific projects in the next year.

After announcement of the regulations, discussions came up among housing associations, municipalities, politicians and housing experts about the target group and allocation criteria. Many of them expect that these criteria will cause problems on the housing markets for household

incomes just above € 33,000. The allocation criteria are not the focus of this study. More about this topic is discussed by Priemus & Gruis (2011) and Kromhout, Smeulders & Scheele-Goedhart (2010).

For houses with rents that exceed € 652.52, no State aid is allowed. Furthermore, for buildings that contain both social housing and a part that is not qualified for State aid, only the social housing part can be financed with a loan that is guaranteed by the WSW (Van Middelkoop, 2010).

The EC agrees that the construction of Public Purpose Buildings (PPBs) is of public interest (European Commission, 2009). However, like social housing, also PPBs should be defined. In the new regulations, a list is added with all buildings that are labelled as PPBs (Donner, 2010b). Compared to the old situation, the list means a more narrow range of PPBs that can be financed with guaranteed loans. The building should contribute to the liveability of the local neighbourhood and let out to non-governmental organisations or a public body. The advantage of State aid must be passed to the tenants by offering a rent that is lower than market rent. Also, the construction must be tendered out. When construction costs exceed EUR 4,845 million, a tender should meet the tendering rules of the EC.

To make clear which assets are social, which assets are commercial and how they are financed, associations have to make an administrative division between social and commercial assets. The regulations do not require the creation of a separate entity for commercial real estate.

Table 1.1 Old and new situation of social housing in the Netherlands

Old situation	New situation
State aid for all housing related activities and broad range of PPBs - WSW guarantees loans for all housing related activities broad range of PPBs - Regular and Specific project aid for all housing related activities and broad range of PPBs - Sale of land by municipalities at a price lower than market value	State aid for social housing and narrow range of public purpose buildings (PPBs) - WSW only guarantees loans for social housing and narrow range of PPBs - Regular and Special project aid only for social housing and narrow range of PPBs - Discount by sale of land only for social housing and narrow range of PPBs
Housing corporations can borrow money at BNG	Housing corporations can *still* borrow money at BNG for both social and commercial property
Allocation of social housing based on local agreements between corporations and municipalities	90% of social housing must be allocated to target group (income < EUR 33,614)
Corporations are free to choose a contractor for building PPBs	PPB projects exceeding EUR 4,8 million should be given to a contractor via European public tender
One administration for all activities	Administrative division of social property and commercial activities

1.5 Consequences of the regulations for financing

In 1.4, I discussed the new regulations and the main changes they bring to housing associations. In this section, I will focus on the consequences of the new regulations for the financing of property. Because nothing will change for social property, focus will be on financing commercial property.

1.5.1 Consequences for financing current commercial property

In the old situation, there were other criteria for property of housing associations to be classified as social or commercial. Commercial houses and PPBs that are not on the list of the new regulations

were then financed like social property. Since 1 January 2011 these commercial properties cannot be financed with the guarantees from WSW and CFV. However, many existing properties are already financed with those guarantees and housing associations still benefit from the advantages of low interest rates. In the regulations is mentioned that loans and guarantees arranged before 1 January 2011 will be valid until maturity of the loan (Donner, 2010b). Also re-pricing and specific refinancing agreements that were mentioned in the original loan contracts can be accomplished with guarantee by the WSW (Donner, 2010b). However, after maturity of the loan, the property will have to be financed according to the new rules (Donner, 2010b).

For housing associations, including Mitros, it is not always clear which loans belong to which property. In the old situation, it was not necessary to make an explicit link between financing and property. An association could just attract financing whenever it needed liquid resources. However, in the new situation it is necessary to make an (explicit) link between loans and properties. A housing association will have to make clear that commercial property will not be financed with WSW guarantees again when loans come to maturity.

1.5.2 Consequences for financing new commercial property

New commercial property projects cannot be financed with guarantees by the WSW. Also, there will be no regular or special project aid available to these projects and for this part of their activities, housing associations cannot request rationalisation aid. The exact working of this last change is not clear yet. Theoretically, an association would not get this aid for its commercial part when it has financial problems, but the practical consequence of that is not clear. This will probably be worked out in new legislations.

It is clear that a financial institution cannot rely on WSW and CFV guarantees for the financing of commercial projects. These guarantees are valuable securities for banks. When these guarantees are not available, a bank will probably demand a higher interest rate and other securities. The underlying property of the project may be one of them. This way, there will be a clear relationship between loan and underlying property (mortgage). It will change the way liquid resources of housing associations are being managed. Not the need for liquid resources at a certain moment will define when an association attracts debt, but debt will have to be attracted for each specific project.

Banks will also require an association to invest equity in the project. There are no rules about financing or investing equity in commercial projects (Van Middelkoop, 2010). Former minister Van der Laan (2009) wrote in one of his letters to the parliament that he wanted to require associations to put all (new) commercial projects in a subsidiary which is financed with a maximum of 33% equity. In the temporary regulations, only an administrative division between social and commercial projects is required and not a separate entity. Also, there is no maximum amount of equity an association may invest in commercial projects.

1.6 Housing associations and commercial financing: Is it possible?

Housing associations responded very negatively on the announcement of the regulations, including the consequences for financing. Some associations claim that many PPBs and combined social-commercial projects cannot be financed anymore. They are afraid that banks will not give loans for these projects or that borrowing costs will be too high.

In this thesis, I will analyse the financing opportunities for new commercial properties for one specific housing association, Mitros in Utrecht. I will discuss the available financing sources and analyse and calculate the costs of capital. Based on the outcomes, I will recommend an optimal financing strategy for Mitros commercial projects.

As mentioned, I will research the financing of new commercial properties. In this thesis, commercial property is all property that is not defined as social property in the temporal regulations. This commercial property consists of three categories:

- Rental housing, with rents above the maximum social rent (€ 652.52 in 2011)
- Owner-occupied housing
- Public purpose buildings, which cannot be categorised as social according to the list in the temporal regulations.

1.7 Dutch case in European context

Social housing is offered in many European countries. Compared to other European countries, Dutch social housing is unique in at least two ways. In the Netherlands, social rental housing amounts 35% of total housing stock; no other European country has such a high percentage of social housing (Czischke & Pittini, 2007). Second, The Netherlands is the only European country where social housing is only offered by private organisations (Czischke & Pittini, 2007). In many other countries, social housing is offered by both private organisations and/or local governments.

The Dutch social housing system is unique and there are large differences in social housing systems in Europe. However, some lessons for the Dutch commercial case can be learned from developments in the UK during the 90s. During this period, there was a shift of social housing provision from local governments to housing associations and grants on housing projects were reduced from 75% in 1988/1989 to 47% in 1996/1997 (Whitehead, 1999). Consequently, housing associations relied increasingly on commercial loans. These developments have been discussed, among others, by Saw & Whitehead (1997), Whitehead (1999) and Oxley (1999).

Although the Dutch social housing system is very different from the UK system in the 90s, today's developments on Dutch commercial real estate have in common with the UK developments in the 90s that in both cases, there is a shift from public financing to commercial financing. Therefore, it is interesting to see how UK housing associations responded on the developments. By doing a number of case studies, Pryke and Whitehead (1994) researched how housing associations changed their financing process. They found the following:

- Before accrediting a project, borrowing needs have to be identified. These concern the size of financing needed, as well as the time when it is needed.
- Before accrediting a project, it has to be judged whether the project is fundable or not
- Interest rates are high. Therefore associations tend to use internal resources and short-term loans instead of long-term borrowing, hoping that rates would decline (which actually happened (Saw & Whitehead, 1997).

One of the associations that were studied answered that they finance the development period of a project with cash reserves. On completion of the project, it starts to look for long-term private finance. "*By utilizing internal funds before going to a lender, the association believes that it can be more precise about its funding needs over the longer term* (Pryke & Whitehead, 1994, p. 364)." It hopes that this will lead to better financing conditions and ultimately lower financing costs.

Although most of these findings are pretty obvious and not surprising, these findings may be lessons for Dutch housing associations for the financing of their commercial projects.

1.8 Mitros

Mitros is a housing association, operating in Utrecht, Nieuwegein and surrounding areas. In this area, demand for affordable housing is much higher than supply, leading to long waiting lists for social housing as a result. Mitros assets include over 30,000 rental houses and 85,000 m^2 public real estate at the end of 2010 (Mitros, 2011). Total assets are valued EUR 2,8 billion (Mitros, 2011).

2 Research plan

In Chapter 1, I discussed the Dutch social housing environment and the introduction of the temporary regulations. The introduction of these regulations and their consequences for housing associations are the motive for this thesis. In this chapter, I will first address my research objectives. Then I will discuss my research questions, research method and data collection.

2.1 Objectives

After the introduction of the temporary regulations in January 2011, most attention in media was paid to the new allocation rules for social housing. My research is on another part of the regulations: the reform of State aid. The regulations make a clear distinction between social and commercial property and all State aid on commercial property is abolished. These reforms, especially about the WSW guarantees on loans, make the financing of commercial property a very relevant research topic. Therefore, two objectives for this research have been determined:

1. To find out how housing association Mitros can optimally finance its new commercial property
2. To find out how optimal financing theory is applicable in the case of Mitros commercial property

The first objective is a practical one and is relevant for the financing practise of Mitros. The second objective is about the relation between optimal financing theory and the case of Dutch housing associations. I will analyse how financing theories work in the Mitros case and which case-specific determinants influence Mitros optimal financial structure.

To find out optimal financing, several aspects need to be considered. One of these aspects is whether it is beneficial to finance Mitros commercial projects in one or more project companies. This project financing is a broad and complex topic that brings considerations on, among others, legal and liability issues. I will exclude this topic from my research for two reasons.

First, I don't expect the advantages of project financing mentioned in literature to be of high value in the Mitros case. Main advantages mentioned are *risk sharing*, *reducing underinvestment problems* and *high leverage* (Esty, 2003; Srivastava & Kumar, 2010). For Mitros, all three motives seems to be relatively unimportant, due to the small project size of commercial projects (see Appendix 1) and a debt-to-total-assets ratio of 26.7% (Mitros, 2011), which is low compared to public real estate companies (see Appendix 2). Small projects create relatively little risk for a company, which reduces need for risk sharing. Because of Mitros low debt ratio, it won't have to reject positive NPV projects because no financing is available; underinvestment problems are therefore irrelevant for Mitros. Mitros is already using high leverage (about 60% debt) for financing new projects (see Appendix 5); it doesn't need a project company for that. Motivations for project financing seem to be very low in the Mitros case.

The second motive is a practical one. When different forms of project financing are considered, the research domain becomes too big to make a good assessment within the (time) constraints of a graduation research. Combined with presumed low motivation for project financing, I will exclude this topic from my research.

2.2 Research questions

The objectives determined in 2.1 can be translated into the following main question:

How can Mitros optimally finance new commercial property by using a corporate financing strategy?

To answer the main question, I will first answer four sub questions.

The main question is about optimal financing for Mitros commercial property. I first need to know what optimal financing is, which aspects are relevant for optimal financing and consequently, what actually determines optimal financing. The first sub question will focus on these characteristics of optimal financing:

1. *What is optimally financing for commercial property carried out by Mitros?*

With the first question, I discuss what *characterises* optimal financing. In the second question, I will look to potential financing sources and to their fit with the optimal financing subjects of capital structure, debt maturity, variability of interest rates and timing of contracting. These financing sources will be discussed to get a general idea on the *opportunities* to finance Mitros commercial projects. The second question becomes:

2. *Which financing instruments will fit to finance commercial property for Mitros?*

With sub question 2, I discussed the financing opportunities for Mitros commercial projects. With question 3, I will focus on the debt source which, according to sub question 2, will best fit real estate financing. From the general discussion in sub question 2 I will go to a detailed discussion of this source in sub question 3 and discuss how the terms and conditions offered by lenders relate to optimal financing for Mitros commercial projects, as found with sub question 1:

3. *How do terms and conditions demanded by lenders constrain optimal financing?*

With sub question 1 I identified the costs and benefits that determine optimal financing and I discussed capital structure, debt maturity, variability of interest rate and timing of contracting. In the elaboration of sub question 2, I identified the availability of equity. With sub question 3, I identified the costs and availability of debt. The challenge is now to quantify all these outcomes and calculate the costs of financing. Through this calculation, the optimal capital structure can be determined. So, the fourth sub question becomes:

4. *What will be the costs of financing?*

2.3 Research method

My research to the optimal financial structure of Mitros commercial property is a case study. I will look how theoretical concepts work out in the Mitros case and what their practical implications will be. But at the same time, I will look to the applicability of these existing theories in this special case.

Doing a case study has the advantage that the many theoretical concepts and determinants from literature can be discussed in detail. The alternative approach to find the consequences of the temporary regulations on housing associations is to analyse more than one association and look for differences and similarities. The advantage of analysing more associations is that outcomes can be better generalised to all housing associations. The advantage of a case study however, is that a more detailed analysis can be done, given the limited time available for my master thesis. Taking into account the many theories and determinants of optimal financing, such a detailed analysis is necessary to find reliable outcomes.

For the answering of sub questions 1-3 I will use a qualitative approach. A quantitative approach will be necessary and used to answer sub question 4. Below, I describe how I want to answer each of the four sub questions.

Sub question 1
To answer the main question, first optimally financing should be defined for the specific case of commercial property projects carried out by housing associations. Information will be collected from relevant research about financing in general and financing of UK housing associations. Also semi-structured interviews with the Treasury manager and financial director of Mitros will be conducted. Based on these sources, I will discuss how the determinant, which are important for optimal financing, work out in the Mitros case.

Sub question 2
Financing instruments will be identified from interview with Mitros Treasury manager, Financial director and bank representatives.The financing instruments will be discussed and compared to the optimal financing conditions and criteria found with sub question 1.

Sub question 3
Expectations and demands from banks will be identified from interviews with bank representatives. They will be compared with, and eventually added by expectations and demands from banks in the UK, found in existing literature.

Sub question 4
Costs of debt and equity for commercial projects found in sub question 1 will be quantified. Interest costs for commercial projects will be identified from the interviews with the banks. Cost of equity will be calculated by using the Capital Asset Pricing Model (CAPM). The beta for this model will be calculated by taking a Dutch real estate industry average.

2.4 Data collection
Data will be collected from:

- Literature about general corporate financing theories and concepts (WACC, CAPM).
- Semi-structured interviews with the treasury manager and financial director of Mitros
- Interviews with account managers, housing association specialists and financing specialists of five banks. These will be mainly semi-structured, but there will also be a structured part to find characteristics that can be compared between banks.
- Documents of Mitros, including annual reports
- Betas from Thomson Reuters

2.5 Report structure
The structure of this report is as follows. First I will discuss existing literature related to optimal financing in Chapter 3. In Chapter 4, I will make a connection between corporate financing literature and the Mitros case. I will analyse optimal financing by discussing optimal financing determinants, found in the literature review, for the Mitros case. In chapter 5 and 6 I will look to the financing opportunities in the Mitros case by discussing financing instruments (Chapter 5) and more specific the loan opportunities offered by banks (Chapter 6). While chapter 4, 5 and 6 are mainly a qualitative analysis of optimal financing for Mitros, I will use a quantitative approach in Chapter 7. By calculating the cost of capital, I will determine the optimal capital structure for Mitros commercial projects. A conclusion of my research is in Chapter 8, followed by recommendations to practice and further research in Chapter 9.

3 Literature review

3.1 Introduction

There is extensive academic literature about how a company should be financed. In this literature review, an overview of corporate financing will be given and available theories will be discussed. To find out optimal financing for Mitros, we first need to know what optimal financing actually is. Optimal financing will be defined in the first section of this review. After a definition is given, literature on optimal financing will be discussed on three main financing topics: capital structure, debt maturity and variability of interest rates. These topics are chosen because they are relevant for Mitros' financing choice. For every topic, literature and theoretical frameworks will be discussed and costs of capital, financial risks and profitability of capital will be identified. Ultimately these determinants of optimal financing will have to be studied for the Mitros case to find out an optimal financial structure for its commercial activities.

3.2 Definition

When speaking about an optimal financial structure, we first need to define what it actually is. Although much literature has been written on this topic, explicit definitions are scarce. When it is defined, optimal financing is related to value. The optimal financial structure of a firm is one that optimises (Etro, 2010) or maximises (Blank, 2000; Lintner, 1963) the market value of a firm. To reach this objective, the optimal financial structure optimises three criteria (Saksonova, 2006):

- Minimising the cost of capital
- Minimising the level of financial risks
- Maximising the profitability of capital

These criteria, especially the minimisation of the cost of capital, are the centre of theories on optimal financing. Combining the objective of optimal financing and the way to get there, optimal financial structure will be defined as:

The optimal financial structure of a firm maximises its market value by minimising the cost of capital and financial risks and maximising the profitability of capital.

3.3 Literature on optimal financing

During the past decades, extensive literature has been build up on the topic of optimal financing. Most literature builds on the basic principles of a few important theories. In this review, three subjects on optimal financing literature will be discussed. These are Capital structure, Debt maturity and Variability of interest rates. These subjects are chosen because of their relevance for the financing of Mitros commercial projects and because most literature on optimal financing is focused on these subjects. For every subject, relevant theories will be discussed and costs of capital, financial risks and profitability of capital will be identified.

The outcomes of this review will be used to identify costs, financial risks and profitability of capital for Mitros.

3.3.1 Capital structure

By far the most discussed financing topic in academic literature is the capital structure of a company. The capital structure is simply the allocation between debt and equity at a given moment in time (Jeanneret, 2003). Non-financial liabilities like supplier credit and deferred and payable taxes are excluded from this definition (Jeanneret, 2003). At the side of debt, some authors researching for capital structure only look for long term debt and not include short term debt. However, ignoring short term debt gives a limited view on financial structure and it's better to include it when researching financing decisions (Bevan & Danbolt, 2002).

Capital-structure irrelevance, trade-off theory, pecking order theory, market timing theory and transaction cost economics all try to explain capital structure decisions. These theories will be discussed below and related to our optimal financing definition by identifying costs of capital, financial risks and profitability of capital.

3.3.1.1 Capital-structure irrelevance

Modern literature on capital structure starts with Modigliani and Miller (1958). For their theory, they assume perfect capital markets without taxes. For this hypothetical situation, Modigliani & Miller (1958) came up with three propositions:

Proposition I: "the market value of any firm is independent of its capital structure (p. 268)"
Proposition II: "the expected yield of a share of stock is equal to the appropriate capitalization rate for a pure equity stream in the class, plus a premium related to financial risk (p. 271)"
Proposition III: "the marginal cost of capital to a firm is equal to the average cost of capital, which is in turn equal to the capitalization rate for an unlevered stream in the class to which the firm belongs (p. 288)"

Proposition I is about the market value of a firm. The rationale behind this Capital-Structure Irrelevance idea is that value is determined by the assets and growth opportunities, not by the way it is financed. (Myers, 2003).
Proposition II is a practical explanation of Proposition I. When a firm issues debt, financial risk will increase and the expected yield of a share of stock will rise too. In the end, the cost of capital of this levered firm will be equal to the cost of capital of the unlevered firm (Modigliani & Miller, 1958).
In Proposition III Modigliani and Miller (1958) build upon the first propositions and explain that when a company issues new debt or equity, the marginal cost of capital will be the same as the average cost of capital.

Costs of capital: Return on equity; Return on debt (interest)
Relevant variables: Business risk; financial risk

In practice there is no perfect market. Market imperfections and company-specific costs may ensure that capital structure does have importance to value. Modigliani & Miller (1958) also show that when corporate taxes are used in their model, debt does add value to the firm because interest payments are tax deductible. However, in the end the effects of capital structure to value will be small compared to operating and investment decisions (Myers, 2003).

3.3.1.2 Trade-off theory

One of the most popular theories for explaining capital structure is the Trade-off theory, first noted by Kraus and Litzenberger (1973). The trade-off theory builds on Modigliani & Miller (1958), who showed that debt provides a tax shield (Frank & Goyal, 2008). This is caused by the fact that interest payments are deductible from corporate taxes, since taxes are calculated on the expected returns after interest payments. However, if a tax shield would be the only determinant for capital structure choice, companies would strive to very high debt levels, which in practice is not the case. There must be other determinants for a company's financing choice that counterbalances the tax shield. The first cost according to trade-off theory is costs of financial distress. The second type of costs is agency costs. Together, the benefit of the tax shield and the financial distress costs and agency costs determine the trade-off that a company should optimise. This implicates an optimal debt ratio in which marginal cost of debt and equity are equal.

In a dynamic approach of trade-off theory, the capital structure of a company is changing regularly due to change in the value of assets. It may adjust its capital structure over time to reach the optimal debt ratio (Frank & Goyal, 2008). This approach assumes there is an optimal debt ratio range in

which a company moves. This range follows from the trade-off between the transaction costs for issuing or retiring/repurchasing debt/equity and the benefits of doing so (Frank & Goyal, 2008).

Below, the costs identified by trade-off theory will be discussed in more detail.

Benefits: Tax shield
Costs: Costs of financial distress; agency costs; transaction costs
Variables: Tax rate

3.3.1.3 Costs of financial distress

In the first version of the Trade-off theory mentioned by Kraus & Litzenberger (1973), direct financial distress costs are the only costs involved with adding debt to capital structure. Financial distress can be defined as "*a situation where cash flow is insufficient to cover current obligations* (Wruck, 1990, p. 421)." The threat or occurrence of financial distress or even bankruptcy entails costs that may reduce the market value of a firm. Direct costs of financial distress include legal and administrative costs, reorganization, selling assets at depressed prices and also continued operating losses during the finishing of a bankruptcy process (Myers, 2003). Research to the size of bankruptcy costs indicates that they are small. Warner (1977) measured the bankruptcy costs for a small sample of 11 American railroad companies. The direct costs were only 5.3% of the market value at the moment the company filed the petition and only 2.5% of the market value 3 years before petition was filed. These results are both real costs. Expected estimated costs of financial distress should be even smaller. If we compare this with an estimated maximum tax shield of 50 cents for each dollar of debt (for US firms)(Miller, 1977), we should conclude that the direct costs of financial distress are relatively small.

Besides direct costs of financial distress, there are also indirect costs of financial distress. Wruck (1990) defines indirect costs as "*opportunity costs imposed on the firm because financial distress affects its ability to conduct business as usual* (Wruck, 1990, p. 437)." Wruck (1990) identifies three types of indirect financial distress costs. First, for example in case of bankruptcy procedures, it may lose the power to make certain decisions without legal approval. Second, customers may not buy products of a company in financial distress when they are dependent on that company for future products or services. Also production costs may rise, because suppliers don't want to risk that they won't be paid. They may ask a risk premium through increased prices or shorter credit terms. The third indirect financial distress cost considers the time that management has to spend to solve the problems of financial distress. This doesn't have to be just a cost, because productive restructuring or implementation of strategic change may also have a structural positive influence on the company.

The most cited estimation of total financial distress costs is 10% to 23% of firm value before distress (Andrade & Kaplan, 1998). However, these are the ex-post costs in the real case of financial distress. Andrade & Kaplan (1998) measured costs of financial distress on 31 highly leveraged firms involved in highly leveraged transactions. The first method was to look at differences in operating performance before the transaction and just after a resolution for financial distress was found. The second way was to look at the magnitude of the change in value before the transaction and just after resolution. Although Andrade & Kaplan (1998) themselves are very cautious about their estimation of financial distress costs, these outcomes are still used in academic literature on this topic.

The outcomes are also used to calculate the ex-ante net present costs of financial distress of firms. Therefore, it is necessary to know the risk of financial distress. Literature provides two ways to calculate these risks. One way is a historical approach, which uses the historical probabilities of default for companies with the same credit rating (Graham, 2000; Molina, 2005). Almeida & Philippon (2007) criticise this approach for not allowing for discounting and capitalisation and come

up with an alternative approach. They estimate probability of financial distress by using credit spreads between corporate and government bonds. When these are corrected for tax and liquidity effects, a default risk component remains (Almeida & Philippon, 2007).

Combined with the actual costs of financial distress found by Andrade & Kaplan (1998), the Net Present Value of a company's total cost of financial distress is calculated. The outcomes of both approaches can be found in Table 3.1.

Table 3.1 Cost of financial distress

	$\phi = 0{,}165$	
Credit rating	Historical	Risk-Adjusted
AAA	0,25%	0,32%
AA	0,29%	1,84%
A	0,51%	3,83%
BBB	1,40%	4,53%
BB	4,21%	6,81%
B	7,25%	9,54%

NPV of the ex ante costs of financial distress expressed as a percentage of predistress firm value, categorized by credit rating. Ex post costs of financial distress (ϕ) are 16.5%, based on Andrade & Kaplan (1998). The historical approach takes risk of default from historical probability. Risk-adjusted approach calculates default risk from credit spreads between corporate and government bonds. From: Almeida & Philippon, 2007, p. 2571.

As we see, the risk-adjusted approach gives a much higher estimation than using historical numbers. Lally (2010) comments on Almeida & Philippon (2007) that the NPV of risk-adjusted costs should be even higher when allowed for higher firm value and consequently higher financial distress costs in the future.

Costs: Costs of financial distress
Risks: Risk of financial distress
Variables: Solvency/Credit rating; leverage

3.3.1.4 Agency costs

The agency problem can be described as "*cooperating parties having different goals and division of labor* (Eisenhardt, 1989, p. 58)." Agency theory is a broad organisational theory, which is first used by Jensen & Meckling (1976) to explain financial structure. The three cooperating parties relevant for agency theory on financial structure are shareholders, debt holders and management. Agency cost theory is an independent theory from the traditional trade-off theory with tax shield and costs of financial distress as determinants of financial structure. However, because agency theory suggests a trade-off between agency costs of debt and agency costs of equity, it is often described as part of the trade-off theory.

The first relevant cost identified by agency theory originates from a separation of ownership (shareholders) and control (management) (Berger & Bonaccorsi di Patti, 2006). Agency theory predicts that management will act in their own interest, which may lead to insufficient work effort, empire building or investing in luxurious offices and other activities that will not lead to a maximisation of firm value (Berger & Bonaccorsi di Patti, 2006). This is called the agency cost of outside equity. Reducing the free cash flows available for management to waste will motivate them to work hard and make decisions that increase firm value (Rasiah & Kim, 2011). They don't want the

company to go bankrupt, because then they will suffer personal losses like losing their jobs, salaries and reputation (Berger & Bonaccorsi di Patti, 2006). Reducing free cash flows can be done by adding more debt to its capital structure. This will reduce free cash flows, because the firm will have to pay interest and principal (Rasiah & Kim, 2011).

The second relevant cost relates to a natural conflict between shareholders and debt holders and is called the asset-substitution effect. When a certain minimum amount of debt has been issued, shareholders may want the company to over-invest existing debt funds in risky projects (Rasiah & Kim, 2011). "*The reasons for those shareholders of doing so are due to the fact that they have limited liability, that gives them greater value by investing in high risky projects and the large potential of gaining profits from these projects at the expense of larger potential losses that will be absorbed by bond holders* (Rasiah & Kim, 2011, p. 155)." Consequently, debt holders will demand higher interest rates (Rasiah & Kim, 2011). This cost is called the agency cost of outside debt (Berger & Bonaccorsi di Patti, 2006).

Summarising, agency theory suggests adding debt to a firm's capital structure to reduce agency costs of outside equity. However, too much debt will create an asset-substitution effect, which will increase agency costs of debt. A trade-off between these costs should be found.

Costs: Agency cost of outside equity; Agency cost of outside debt
Benefit: Debt reducing Agency cost of outside equity
Risk: asset-substitution effect

3.3.1.5 Tax shield

As mentioned in 3.3.1.2, debt provides profitability through a tax shield because interest costs can be deducted from taxable profits. When a company is loss-making, it cannot immediately benefit from this tax shield. However, losses today can be carried back to reduce past profits or carried forward to reduce future profits and consequently reduce future tax payments. For example, when a company makes a loss of EUR 10 in 2011 and a profit of EUR 30 in 2012, it can carry forward the loss of 2011 to 2012 and pays taxes only over the remaining EUR 20.

When a tax shield is carried forward, its benefits will be paid out in the future and therefore should be discounted. Literature provides mainly two approaches for discounting a tax shield to calculate its present value. The first approach origins from Modigliani & Miller (1963). It argues that a tax shield is a risk-free asset and therefore the risk-free rate (e.g. the rate of return of the investment in a riskless asset) is the appropriate discount rate. The second approach origins from Miles & Ezzell (1980) and suggests the return on assets (i.e. the return on unlevered equity) being the appropriate discount rate. This approach assumes that a company pursues a constant debt to total value ratio and adjusts debt level in response to fluctuations in operational returns. The tax shield should therefore be regarded as an equity financed asset and be discounted with the unlevered equity discount rate.

In general, literature (Myers, 1974; Schauten, 2010) supports the latter approach when a company pursues a target debt to total value ratio, because in that case debt level directly depends on the operating returns. In case of a constant debt level, literature argues that the risk-free rate is the appropriate discount rate (Myers, 1974; Schauten, 2010).

3.3.1.6 Pecking order theory

The pecking order theory states that there is a financial hierarchy in the financing sources to be used by a company and that this pecking order is based on information asymmetries (Myers, 1984; Myers & Majluf, 1984). Pecking order theory assumes that management has the best information about the company and its risks. Therefore, it will issue equity securities when these are, according to

management's opinion, overpriced. At the other hand, equity holders know that management has more information than they have and understand this way of reasoning from management (Myers, 1984). When a new issue is announced, they will discount both existing and new equity securities (Fama & French, 2002). This discount is caused by the information asymmetry between management and financiers. Pecking order theory therefore states that a company should choose the financing option with the lowest information asymmetry (Fama & French, 2002). First choice therefore should be retained earnings, because there is no information asymmetry involved here. Debt should be preferred over equity, because debt has a prior claim on a company's assets in case of default which reduces information asymmetry. The risk premium for debt is lower than for equity (Frank & Goyal, 2003). Only when debt becomes too costly, equity should be issued. Research to the relationship between information asymmetries and financing costs leads to evidence for both interest rates on debt (Wittenberg-Moerman, 2008) and demanded returns on equity (Easley & O'hara, 2004).

Main criticism on the pecking order theory is that it does not show why management should care about over- or undervalue of the shares and why a discount of share prices after an equity issue announcement is bad for the company (Myers, 2003).

Costs: Information asymmetry costs

3.3.1.7 Company characteristics and capital structure

When looking for evidence whether companies are using trade-off theory or pecking order theory, literature looks for variables that should predict a company's capital structure according to these theories. These determinants are expected to influence the costs, risks and benefits of debt and equity and so help to understand a company's capital structure. Much research has been done and many characteristics have been researched. From this literature, Frank & Goyal (2008) identify characteristics that have a reliable and significant relationship with capital structure. These characteristics and their relationship with capital structure will be discussed briefly below and may be helpful in determining the optimal capital structure for Mitros' commercial projects.

Frank & Goyal (2008) identify and explain the following determinants of capital structure:

Growth: Companies with high growth opportunities need more investments and have a higher risk on financial distress than companies with low growth opportunities. Higher risk of financial distress implies higher cost of debt, so trade-off theory predicts a negative relationship between growth opportunities and debt. A company with high growth opportunities needs more external financing and this makes the pecking order theory predict a positive relationship between growth opportunities and debt. Research to actual capital structure determinants generally finds evidence for a negative relationship between growth options and capital structure (Frank & Goyal, 2008).

Firm size: Larger companies are usually more diversified than smaller ones and also may have better access to debt markets. Therefore, Trade-off theory predicts a positive relationship between size and leverage. From the information asymmetry perspective, investors have better access to information of large companies than small companies. Less information asymmetry implicates lower cost of equity, so Pecking order theory predicts a negative relationship between size and leverage.

Tangibility of assets: A company with a high proportion of tangible assets is less risky for lenders, because in case of financial distress, these assets can be sold to pay them back. Trade-off theory thus implies a positive relationship between tangibility of assets and leverage. At the other hand, according to Harris & Raviv (1991) a high proportion of tangible assets reduce information asymmetry and accordingly the cost of equity. This makes equity a better source of financing.

Pecking order therefore predicts a negative relationship with leverage. Evidence on tangibility of assets finds a positive relationship with leverage, which is supporting trade-off theory (Frank & Goyal, 2008).

Profitability: Profitable companies have more income to protect with a tax shield and also a higher debt capacity. Trade-off theory predicts a positive relation between profitability and leverage. In reverse, pecking order predicts a negative relationship, because profitable companies will first use retained earnings to finance their investments and activities before external financing. Empirical research finds a negative relationship between profitability and leverage (Frank & Goyal, 2008).

Industry median debt ratio: Literature finds a strong relationship between industry median debt ratio and actual company's debt ratio. Hovakimian et al. (2001) find evidence that companies adjust their own debt ratio in the direction of this industry median. The relationship between industry mean and company's debt ratio lacks a clear explanation. It may be explained by product-market interactions, or the mean industry debt ratio may reflect a number of other variables that have not yet been identified (Frank & Goyal, 2008). The industry median debt ratio, although related to a company's debt ratio, does not indicate costs or benefits itself.

3.3.1.8 Market timing theory

Trade-off and pecking order are the two theories which are traditionally used to explain capital structure decisions. More recently, Baker & Wurgler (2002) came up with a new theory: market timing. According to this theory, the current capital structure of a firm is dependent on market timing decisions taken in the past. When financing is needed, management looks whether the equity or debt market is more favourable at the moment (Frank & Goyal, 2003). Baker & Wurgler (2002) find support for their theory by comparing market value of companies at moments that capital is raised to book values and past market values. A high market value indicates relatively cheap equity. High leverage companies raised capital when book-to-market value was high (and cost of equity high) and low leverage companies raised capital on moments that book-to-market value was low. De Bie & De Haan (2007) find evidence for market timing in financing decisions of Dutch listed firms, but no evidence for persistent effects of market timing on capital structure.

Variable: book-to-market value

3.3.1.9 Transaction cost economics

In Williamson's (1988) approach of transaction cost economics, a key element is asset specificity. Unique or even inimitable assets or other characteristics of a company are seen by many authors as a competitive advantage to the company (Močnik, 2001). However, this asset specificity will also affect the financing choice (Balakrishnan & Fox, 1993; Williamson, 1988). This is caused by the different control mechanisms of debt and equity. In case of bankruptcy, debt holders have a senior claim on the assets. Equity holders can control management and intervene in strategic corporate decisions. Debt holders receive regular interest payments but have no control over decisions made by management unless the company defaults.

Debt holders have no control over the company, but in case of bankruptcy, they have a senior claim on the assets. However, very unique assets may not be useful for other firms or people and will become worthless. Low specific assets can easily be used by others for their activities and will still represent some worth after bankruptcy of the firm. Therefore low specific assets give more certainty to debt holders and lenders are more willing to lend to these firms than to firms with high specific assets, meaning more uncertainty (Močnik, 2001). This also means that high specific assets are usually not accepted by lenders as collateral (Močnik, 2001). In case lenders do finance high specific firms, the financing costs will be higher.

At the other hand, transaction cost economics states that firms with high specific assets should choose equity as their primary financing source (Močnik, 2001). Equity holders can control management and their investment decisions. Also, transaction cost economics states that high specific assets add competitive advantage to a firm. This also implies a higher level of profitability and this will make the company attractive for investors, despite the loss of worthless assets in case of liquidation (Močnik, 2001).

Summarising, from a transaction cost perspective, a company's financing choice will depend on the specificity of its assets.

Variables: Asset specificity

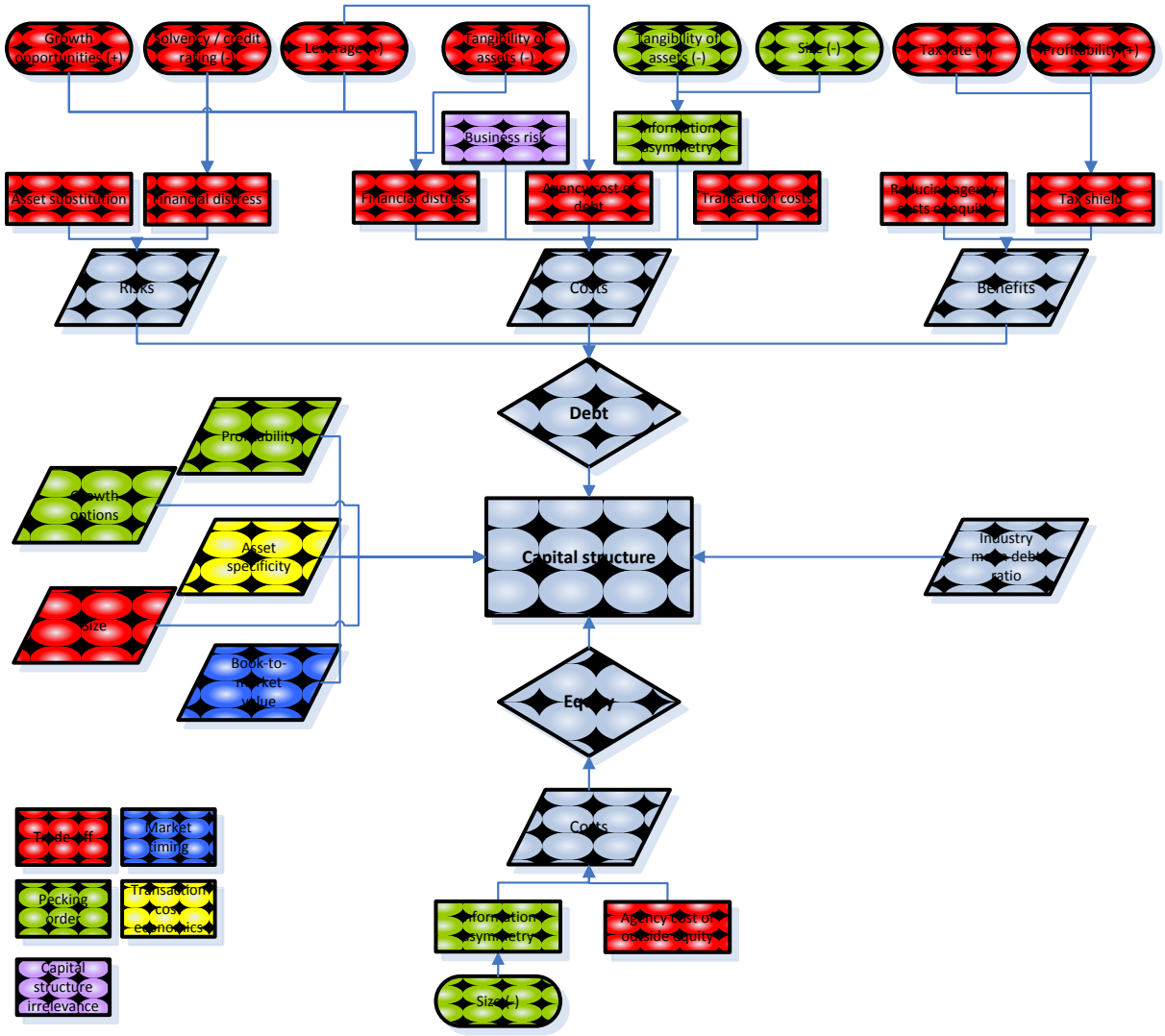
3.3.1.10 Theories: mutual exclusive?

Above, trade-off theory, pecking order theory, market timing theory and transaction cost economics have been discussed. Literature does not give a single strategy which leads a company to its optimal capital structure. From their perspectives, each theory finds different costs, risks and benefits that should be considered when a company is making its capital structure decisions. In explaining the actual capital structure of companies, some authors have researched recently whether the most popular theories, trade-off and pecking order, are mutually exclusive. They all come to the conclusion they are not (Cotei & Farhat, 2009; Serrasqueiro & Nunes, 2010; Yue, 2011). Cotei & Farhat (2009, p. 14) explain how these theories can be combined: "*Firms may strive for a target debt ratio range and within this range, the pecking order behavior may describe incremental decisions or, over time, firms may switch between target adjustment and pecking order behavior*." In the same way also market timing can be included in a company's financing strategy. It can strive for a target debt ratio (trade-off), but temporary deviate from this in case of perceived overvalue or undervalue by management.

3.3.1.11 Conclusion

In this paragraph, the main theories on capital structure were discussed and relevant costs, risks and profitability of capital were identified. Although these theories are not mutually exclusive, it is also not possible for a company to use the implied strategies in their pure form at the same time. Figure 3.1 gives a summary of the costs, risks and profitability of capital identified by the theories to be relevant for capital structure, including relevant variables and the nature of their relationships (positive/negative). Identifying these costs, risks, benefits and their determinants for Mitros will give a better understanding of the financing choice for Mitros' commercial projects.

Figure 3.1 Capital structure model with determinants, costs, risks and benefits of capital structure



In this model (+) means a positive relationship between determinant and connection and (-) means a negative relationship.

3.3.2 Debt maturity

A second group of literature has focused on debt maturity. Some of the costs, risks and benefits identified to be relevant for capital structure also have to be considered when choosing debt maturity. Others are specific for debt maturity. Below, literature on debt maturity is briefly discussed and costs, risks and benefits are identified. According to literature, several factors may influence debt maturity decisions. Stohs & Mauer (1996) identify the following theories of debt maturity.

3.3.2.1 Trade-off

In their summary of debt maturity theory, the first theory mentioned by Stohs & Mauer (1996) is based on Agency costs. Agency costs were already discussed in the capital structure paragraph. Myers (1977) argues that the asset-substitution effect, the conflict between debt and equity holders, is also relevant for debt maturity. Long term debt gives management the opportunity to invest in risky projects without having to refinance the debt in short term. Since this kind of debt is more risky for lenders than short term debt, interest rates will be higher. This will especially be the case for companies with many growth opportunities. Long term debt will be very expensive for these companies and they will prefer short term debt. However, a company relying on short term debt will

have to negotiate about refinancing more often, which is also costly. High transaction costs may imply a longer debt maturity (Ju & Ou-Yang, 2006). A trade-off between the agency costs and refinancing costs should be made.

Costs: Agency costs; refinancing costs

3.3.2.2 Pecking order theory

Asymmetric information between management and lenders and investors may be relevant for a company's debt maturity choice. In the pecking order theory, already mentioned in the capital structure paragraph, Myers (1984) makes a distinction between short term debt and long term debt. When a company chooses to attract debt, it should prefer short term debt above long term debt. Lenders bear less risk in case of short term debt (Fama & French, 2002) and as a result this will be cheaper.

Costs: information asymmetry costs

3.3.2.3 Signalling (Asymmetric information) and liquidity risk

Stohs & Mauer (1996) mention another theory which is based on information asymmetries between management and lenders and which works quite similar as market timing theory. When management believes that, according to their information, the company is undervalued by lenders, it will prefer short term debt over long term debt. An overvalued company will choose long term debt, so it can benefit from this overvalue through relatively low interest rates. According to Flannery (1986), this fact can be used for signalling purposes. By debt maturity choices, management can signal investors about the value of the company.

Short term debt brings a liquidity risk when it has to be refinanced. There is a risk that the company will not be able to close a new debt contract or only against unfavourable terms, because of a deteriorated situation of the company. To avoid this liquidity risk, a company may decide to prefer long term debt contracts (Guedes & Opler, 1996).

Consequently, Guedes & Opler (1996) find evidence that companies with high credit ratings have more long and short term debt, while companies with a low credit rating have more middle term debt. The companies with a low credit rating try to close debt contracts with a long debt maturity to avoid liquidity risk, but this is being constrained by the possibilities offered by lenders. They don't offer long term debt contracts because of the risk of those companies. At the other hand, investment grade companies do have the opportunity to have longer debt maturity opportunities and use these opportunities. They also have a lower liquidity risk in case of refinancing and therefore more often choose for short term debt than companies with a low credit rating.

Costs: Asymmetric information costs (undervalue)
Risks: Liquidity risk
Benefits: Asymmetric information costs (overvalue); signalling
Variables: Solvency/Credit rating

3.3.2.4 Maturity matching

A very common theory, also mentioned by Stohs & Mauer (1996), is the matching principle. A company should match the maturity of its assets and liabilities. When debt matures before the company's assets, there may not be enough cash to repay the principal. At the other hand, when assets have matured, cash flows cease and it may become difficult to make debt payments. This is called debt overhang. Therefore, it is best to match the maturity of debt and assets. This also means that the repayment schedule of debt should match with the depreciation on the value of assets (Myers, 1977).

Risks: Liquidity risk; debt overhang
Variables: Asset maturity

3.3.2.5 Taxation

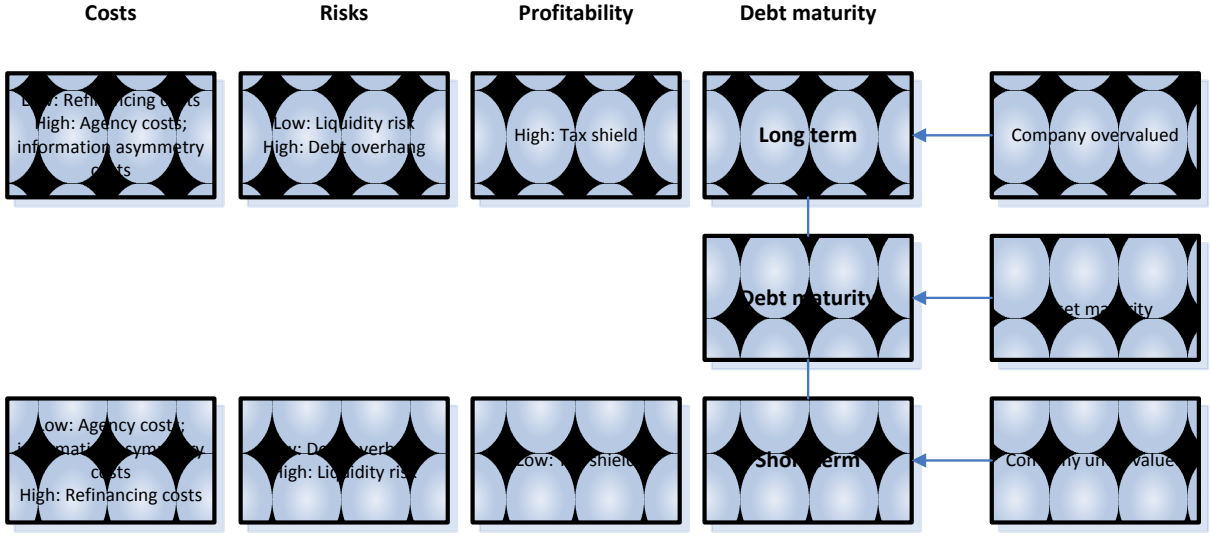
In the capital structure paragraph, the tax shield was discussed. This tax shield is also relevant to debt maturity. When the interest rate has a positive relation to the term of debt, long term debt creates a larger tax shield than short term debt and should be preferred.

Benefits: Tax shield

3.3.2.6 Conclusion

Debt maturity literature identifies several costs, risks and benefits of financing that should be taken into account when choosing debt maturity structure. Four strategies are mentioned. The first one is to make a trade-off between agency costs and refinancing costs. The second one is just to prefer short term debt over long term debt because of its lower costs. The third one is to make decisions based on perceived undervalue and overvalue. The fourth one is to match debt maturity with the maturity of a firm's assets. A combination of the identified costs, risks, benefits and determinants is given in figure 3.2. It is not possible for a firm to use all these strategies in their pure forms at the same time. But, like for capital structure, it should consider the implications of all these strategies and find a balance between the identified costs, risks and benefits.

Figure 3.2 Determinants, costs, risks and profitability of debt maturity



3.3.3 Variability of interest rate

In case of debt, a company can choose between a floating interest rate and a fixed interest rate. In academic literature, hedging theory and market timing theory try to explain the choice for fixed or floating interest rate.

3.3.3.1 Hedging theory

A fixed interest rate is a way to reduce cash flow volatility, because interest payments will be the same for a specified period. The main reason for (this kind of) hedging is to reduce the risk of financial distress (Smith & Stulz, 1985), but may also be motivated by a risk averse attitude of managers (Stulz, 1984). However, not all companies should choose fixed interest rates. When a company has a positive correlation between its operating cash flows (before interest) and interest rates, it should instead choose floating interest rates (Chava & Purnanandam, 2007). In this case, interest payments cause a "natural hedge". Interest payments are high when operation cash flows

are high and vice versa. This natural hedge is estimated to be true for less than 10% of a sample of American companies (Chava & Purnanandam, 2007).

Risks: Financial distress
Costs: Financial distress
Benefit: reducing cash flow volatility (by fixing interest rate)
Variables: Risk attitude of management; correlation between cash flows and interest rates

3.3.3.2 Market timing

While hedging theory has its focus on reducing risk on financial distress (and its costs), market timing theory looks to the price of debt. When the perceived costs of borrowing floating rate debt are lower than the costs of a fixed interest rate, it will choose to borrow floating rate debt and vice versa. To judge which one is most attractive, a company can look to the difference between the floating and fixed interest rates, the yield spread (Chava & Purnanandam, 2007). In case of a high yield spread, a floating interest rate is more attractive, while a company may choose a fixed interest rate in case of a low yield spread.

Costs: cost of debt
Variables: yield spread

3.3.3.3 Conclusion

Hedging theory and market timing theory both look at the variability of interest rate from a different perspective (Reducing risk versus reducing costs). Hedging theory gives a more general argument to a company to reduce its risk through hedging, which means fixed interest rates for most companies. Market timing suggests looking to the perceived costs of debt when a decision has to be made. This may imply a choice for floating interest rate when the costs for a fixed interest rate are (much) higher.

3.4 Conclusion

In this chapter, optimal financing has been defined as the *financial structure of a firm that maximises its market value by minimising the cost of capital and financial risks and maximising the profitability of capital.* Following this definition, the financing subjects of capital structure, debt maturity and variability of interest rate were reviewed. Main theories on these topics were explored and costs, risks, profitability of capital and determinants were identified. Similar on all these topics is that there are multiple theories giving determinants of optimal financing but no clear answers on how a company should design its capital, maturity and interest structure. To find an optimal financial structure for Mitros' commercial projects, these determinants should be analysed for this specific organisation and situation.

4 Optimal financing commercial projects: conditions and criteria

4.1 Introduction

In the literature review about optimal financing, I concluded that the optimal financing structure is case-specific; the optimal financing structure for company A may be totally different from the optimal financing structure of company B. From the optimal financing definition, three criteria have been identified. The optimal financial structure of a company:

- Minimises the cost of capital
- Minimises financial risks
- Maximises the profitability of capital

From existing academic theories on optimal financing, I identified a number of costs, risks, benefits and other determinants that somehow influence the optimal capital structure, debt maturity and interest variability. In the UK case, briefly discussed in the introduction, timing of contracting was mentioned as subject that should be considered. In this chapter, I will identify these subjects for the case of Mitros' commercial activities, to find out in which way they determine Mitros' optimal financing structure. For all these determinants found in the literature review, I will look how they will work out in the Mitros case. This will be done in order to answer sub question 1:

What is optimally financing for commercial property carried out by Mitros?

4.2 Capital structure

Many determinants for optimal capital structure have been identified in the literature review. In this section these determinants will be applied to Mitros. Besides these determinants from literature, other determinants that have come up during interviews with Mitros Financial director and Treasury manager will be discussed.

The structure of this analysis will be as follows. First, I will discuss all determinants identified in the literature review and from the interview. I will grade the value of these determinants as being low, medium or high. For example, if Mitros would have much growth opportunities, this determinant would be graded high, but if Mitros would have no growth opportunities, this determinant would be graded low. When all determinants have been discussed and graded, the outcomes can be filled into the model presented in the literature review (Figure 3.1) and their influence on the costs, benefits and risks of debt and equity can be discussed.

4.2.1 Determinants of capital structure

Here I will discuss the determinants of capital structure for Mitros commercial projects.

4.2.1.1 Growth opportunities

Growth or investment opportunities for Mitros can be divided in two groups. The first group is the development of new public and residential real estate. The second group of investments are the renovations on existing property. Mitros is planning to do renovations of 20,000 houses, to build 13,000 new houses and to develop 120,000 m^2 public real estate until 2030 (Mitros, 2010). At the end of 2010, Mitros owned 30,000 houses and 85,000m^2 real estate (Mitros, 2011). These numbers show that Mitros definitely has growth ambitions and is planning a substantial amount of investments, although it should be taken into account that these investments are spread over a 20 years period. Therefore, growth opportunities will be graded medium.

4.2.1.2 Solvency / credit rating

Mitros does not have a credit rating, but does have the highest possible rating from the CFV, which is A1. According to the risk-adjusting approach of Almeida & Philippon (2007), the costs of financial

distress are 0.32% of pre-distress firm value for AAA-rated firms and 1.84% for AA-rated firms. Because the CFV only has few rating levels, it is hard to say whether Mitros would have an AA or AAA status. Solvency will be graded high.

4.2.1.3 Leverage

At the end of 2010, Mitros had a debt-to-total assets ratio of 26.7% (Mitros, 2011). This is a low leverage ratio compared to public real estate companies (see Appendix 2). It should be noticed however that Mitros changed the valuation method of its assets in 2010. In the past, assets were valued as the NPV of future cash flows from these assets. Today, assets are valued at market value in rented state based on a real estate index (Aidex) from an independent provider (IPD) (see Appendix 5). This resulted in an increase of equity value from less than 200 million to almost 2 billion (Mitros, 2011). Leverage will be graded low.

4.2.1.4 Tangibility of assets

Assets of Mitros consist mainly of residential real estate and some public and commercial real estate. These are tangible assets which also maintain their value for a long time (see Appendix 5). In contrast to many companies, Mitros' products are also its most valuable assets on the balance sheet. Bad market conditions will have an increasing effect on the risk and cost of financial distress and decrease the value of Mitros real estate assets. This will reduce the asset tangibility effect on financial distress. However, tangibility of assets is high and will be graded high.

4.2.1.5 Size

According to Mitros annual report of 2010, it had revenues of EUR 204 million and at the end of the year total assets worth EUR 2.8 billion. Main revenues are rental income (EUR 147 million) and sale of real estate (including housing) (EUR 39 million). Main assets of Mitros are social real estate (EUR 2.5 billion) and commercial real estate (EUR 164 million). Mitros owns over 30,000 rental units and 85,000 m^2 public real estate. Summarising, we can say that Mitros is a large organisation. Size will be graded high.

4.2.1.6 Supervision

Supervision is not a determinant that I found in corporate financing literature, but it is an important determinant in the Mitros case. Mitros is supervised by the governmental supervisor CFV, which annually assesses Mitros, and also by the WSW. They have requirements for housing associations regarding financial stability and continuity (see Appendix 5). This reduces risk and costs of financial distress for housing associations.

The information from the assessment by the CFV is publicly available on their website. Although external supervision is not mentioned in optimal financing literature, the CFV's supervision and assessment reduces the information asymmetry to lenders and investors for two reasons. First, because of the assessment, lenders are aware whether Mitros is operating within the conditions imposed by the CFV. Second, the assessment and data used by the CFV and provided by Mitros is publicly available, so can be analysed by lenders and investors. Supervision will be graded high.

4.2.1.7 Tax rate

Corporate tax rate in the Netherlands is 25% in 2011. There are differences between corporate tax rates in Europe, but 25% is quite a common percentage. Therefore, tax rate will be graded medium.

4.2.1.8 Profitability

Mitros is a non-profit-making organisation with a social purpose instead of an objective of profit maximisation. However, it does want to make (small) profits on commercial housing and real estate see Appendix 6). Mitros was making losses during 2009 and 2010 (Mitros, 2011). It is also expected to do so in the next few years (see Appendix 5 and 6). Profitability will be graded low.

4.2.1.9 Tax shield

Mitros is loss-making. Through carry forward of losses, Mitros can benefit from a tax shield. The maximum time to carry forward losses is limited in the Netherlands to 9 years (Belastingdienst, 2011). Assuming that Mitros will be profit-making within 9 years, it can still benefit from the tax shield. When interest payments today will give benefits in the future, which is the case with carry forward, they should be treated as future benefits and being discounted. This will reduce the value of the tax shield. In the future, when Mitros will be profit-making again, the tax shield may become even more important for capital structure choice. For now however, given the low profitability, tax shield will be graded medium.

4.2.1.10 Asset specificity

Asset specificity is about the usability of the assets for other purposes or by other users (Kochhar, 1996). Transaction cost economics suggest that equity fits better to highly specific assets, while debt fits better to low specific assets. The focus in this research is on the commercial housing and real estate of Mitros. About housing we can say that it is a primary necessity of life (see Appendix 5). Houses are not very specific assets and could easily be used by other owners than Mitros. Asset specificity of housing is very low. Real estate has a low specificity also. Generally, it can be used by different kind of organisations for activities like office or service provision, although vacancy of offices is a severe problem in the Netherlands at the moment. Asset specificity will be graded low.

4.2.1.11 Book-to-market value

Book-to-market value can be an indicator whether equity is cheap or not and whether debt or equity should be issued. However, Mitros does not have outside equity, nor public debt, which makes it very difficult to estimate Mitros' market value. Besides, Mitros cannot issue equity. Only in case of project financing (which is no part of this research), book-to-market value of the specific project may indicate whether equity is cheap for that specific project. No grade is given to this determinant.

4.2.1.12 Business risk

A main part of the interest rate is a risk premium part, which is dependent on the business risk of the borrower. A good indicator for business risk is a credit rating by an independent credit agency. Mitros does not have such a credit rating. However, the supervisor of housing associations, the CFV, gives an annual assessment of an association's continuity and solvency. In the most recent assessment in 2010, the CFV states that Mitros' "*proposed activities for the period 2010-2014 fits the financial possibilities* (Donner, 2010a, p. 1)." This implies the highest possible rating of the CFV, A1. Also, the solvency of Mitros is assessed as being sufficient (Donner, 2010a). Furthermore, there are long waiting lists for social housing in the Utrecht area, which is the most important source of income for Mitros. This implies high demand and low supply of a product which cannot easily be increased. Business risk is graded low.

4.2.1.13 Agency cost of debt

The agency costs of debt normally depend on the debt ratio of the company. This is somewhat different in the Mitros case and will be discussed here.

The agency cost of debt originates from a natural conflict between shareholders and debt holders. Shareholders can demand the company to invest in risky projects for which they will receive the potential high benefits, while debt holders bear the risk of potential losses. This may be somewhat different for the Mitros case because. Mitros has the legal form of a foundation. Equity in the organisation comes from grants and subsidies given by the national government in the past. Mitros does not have any shareholders which demand a return for their investment. This implies that there cannot be an asset-substitution effect in which value is transferred from debt holders to shareholders.

Mitros however does have other stakeholders that may influence its policy. These include national government, local government and tenants. For example, tenants or local government may enforce Mitros to invest in renovation projects or projects that increase the desirability of a neighbourhood which create insufficient value to be beneficial for Mitros. Also, management may want to invest in risky projects which increase the visibility of the association. A number of such cases happened in the Netherlands in the past, from which the investment of Rotterdam housing association Woonbron in a ship is the most notorious. Woonbron wanted to cultivate the ship into a conference resort, hotel and educational facilities. However, costs increased from expected 6 million to 200 million euro, bringing the association into financial trouble (Klis, 2011). There are no such risky projects known from the history of Mitros, but the case of Woonbron shows that, besides shareholders in corporations, also management of housing associations may be seduced to invest in risky projects.

Although Mitros has no shareholders, the influence of other stakeholders or management ambitions may lead Mitros into costly expenses and risky investments. Lenders may account for this which will increase the cost of debt. Occasion of these expenses and investments is, in contrast to the asset-substitution effect, independent from the amount of debt in Mitros capital structure. Although there is no asset-substitution effect, agency costs of debt will be grade medium.

4.2.1.14 Transaction costs

Issuing debt involves transaction costs. For social real estate, the transaction costs for Mitros are very low. There are relationships with a few banks that are familiar with Mitros, and since all loans of Mitros are backed by the WSW, not too much negotiation is needed to convince the bank nor the WSW. For commercial housing and real estate, there is no back up from the WSW. This means that banks will be much more critical when judging a loan request. More information about the project and about Mitros will be requested by lenders compared to borrowing for social purposes. In the case of bank loans, banks will request Mitros to come up with a bidbook which includes information about the organisation and the project. Mitros Treasury manager estimates the transaction costs for commercial projects to be about € 5,400 and annual maintenance costs of € 900. These costs are high compared to transaction costs for social property, but still low compared to average commercial project size (> EUR 9 million)(see Appendix 1). Therefore, transaction costs will be graded medium.

4.2.1.15 Agency costs of outside equity

The agency costs of outside equity are about the conflict between shareholders and management, where management may use free cash flows for investments or activities that not lead to the maximisation of firm value. Mitros has no outside investors, so there will not be a conflict between Mitros management and its shareholders. However, like in a corporation, there are free cash flows that can be wasted by management. Indeed, in a corporation, equity holders will have an eye on management behaviour and this is not the case for Mitros. Mitros does have a supervisory board which controls Mitros and its management. Furthermore, since Mitros is a semi-social organisation, it receives relatively much local media attention. Investments in luxurious offices or high bonuses for management will be critically reviewed by these media. This may somewhat reduce the agency cost of equity. However, as shown by the example of the investment of Woonbron in a ship, these things are happening. Also, since Mitros has easy access to debt, there seems to be unlimited access to free cash to be wasted without bringing Mitros in immediate trouble. Free cash availability is high but in the case of Mitros, this is independent from the amount of equity/retained earnings invested in commercial projects. Therefore, I will grade the agency costs of equity low. Consequently, the debt benefit of reducing agency costs of outside equity is also low.

4.2.1.16 Keeping profits

The less debt a company uses to finance its operation, the less interest will have to be paid. From this reasoning, more profit from the company remains for the equity holders. Is it therefore attractive for Mitros to finance its operations with as much equity as possible? It should be noted again that all available equity is provided by Mitros itself and not by shareholders. This could make it even more interesting to use as much equity as possible for the financing of operations, because all profit stays within Mitros. However, it should not be forgotten that profits are tax liable. Furthermore, equity for Mitros is scarce, since no new equity can be issued.

Although Mitros projects need to have a positive NPV to be accepted, profit margins and profits are very low (see Appendix 5). This is especially the case for social housing. On commercial housing, profit margins are higher, especially for the most expensive rental housing (see Appendix 5 and 6). The social motive for low rents is lower for these houses. This may suggest that Mitros should use relatively more equity for a commercial project than for a social project. Considering the tax liability, the scarcity of equity and the higher profit margins for commercial projects, I will grade the "keeping profits motive" medium.

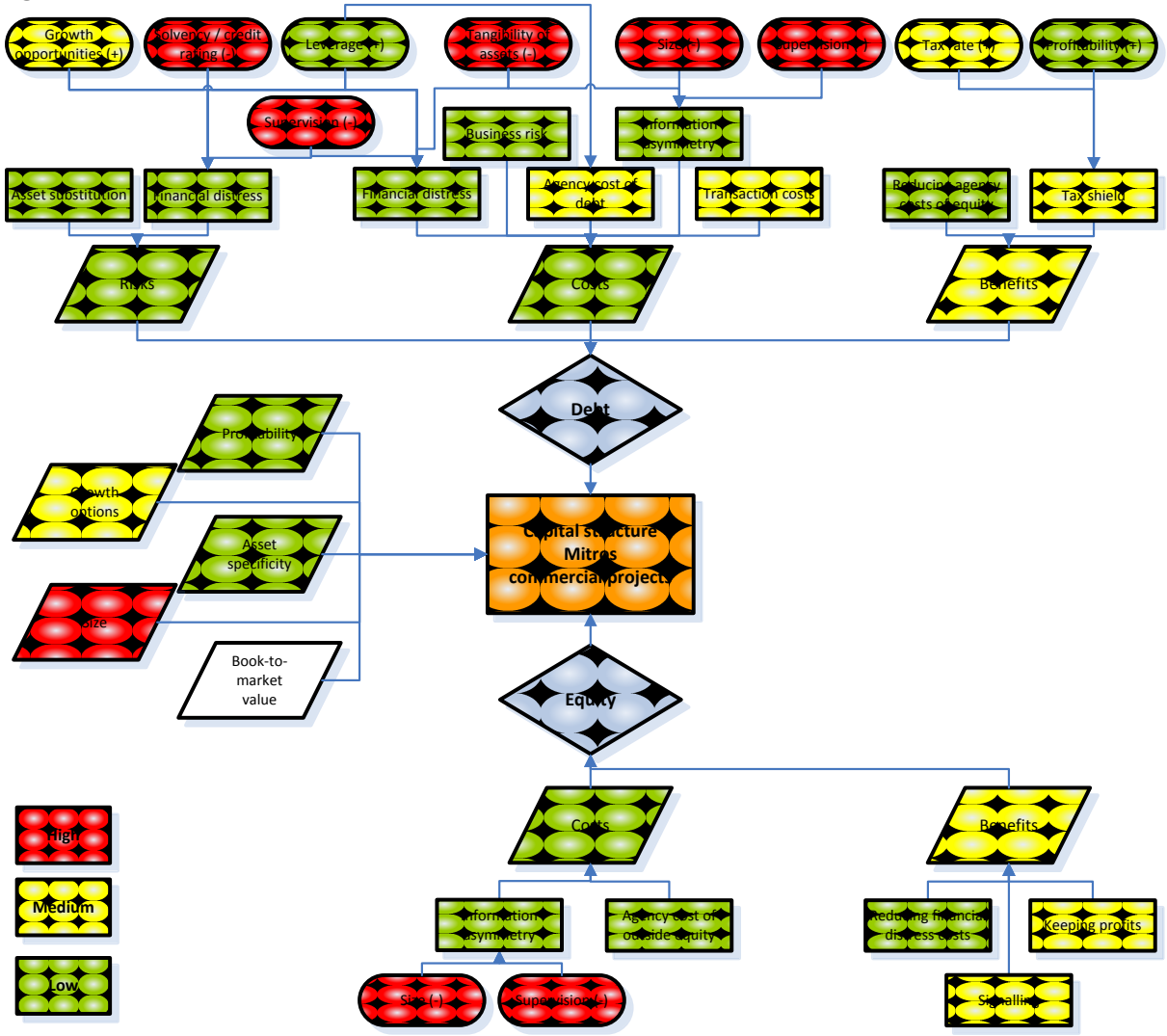
4.2.1.17 Signalling of strong cash flows

It was already that mentioned that the only equity in Mitros comes from its own operations. These retained earnings can be used for the financing of new projects. Richard Blokland, Treasury Manager of Mitros: "*Maintaining a certain percentage of equity shows that you can produce enough cash flows which is more inviting to lenders* (Appendix 5)". Since all equity used for financing new projects is coming from Mitros own cash flows, it gives a signal to lenders about the strength of its cash flows. This motive is not stronger for commercial projects compared to social projects and will be graded medium.

4.2.3 Costs, benefits and risks of debt and equity

Mitros has roughly two sources of corporate financing: debt and equity/retained earnings. In the previous paragraphs, I discussed the determinants of the costs, benefits and risks of debt and equity and graded them low, medium or high. These outcomes can be translated into the capital structure model, which is done in Figure 4.1. In Figure 4.1, every colour represents a grade (low, medium, high) and all determinants are coloured according to the discussion in the previous paragraphs. Based on the outcomes of the determinants, also costs, benefits and risks boxes have been coloured.

Figure 4.1 Capital structure model for Mitros commercial property



In this model (+) means a positive relationship between determinant and connection and (-) means a negative relationship. This explains for example that determinants Size and Supervision are high (red) and information asymmetry costs (both at debt and equity side) are low (green).

Based on the determinants of optimal capital structure, I can conclude that costs of debt and equity are low, benefits of debt and equity are medium and risks of debt are low. Low costs of capital for Mitros commercial activities are not surprising, since Mitros is already experiencing low costs for its social activities. The analysis above shows *why* the costs of debt and equity are low for Mitros commercial activities.

An interesting determinant here is supervision. The fact that Mitros is being supervised by the CFV and WSW reduces financial distress risks and costs and information asymmetry costs. Because the CFV is commissioned by the Dutch national government to supervise housing associations, it can be argued that Mitros still benefits from State support.

The determinants at the left side of the model are in favour of debt financing. Transaction cost economics suggests debt financing for low specific assets and pecking order theory argues that unprofitable companies have scarce retained earnings and therefore need to rely on debt financing. Large size implies good access to debt markets.

The analysis above cannot be translated into an optimal debt ratio for Mitros. Therefore, we need to know more about the exact costs of both equity and debt, which will be quantified in Chapter 7. However, the following conclusions can be made:

- *For the financing of commercial activities, Mitros benefits from its status as a housing association;* although commercial activities don't receive any State support, Mitros has an advantage compared to other real estate companies. Supervision from CFV reduces both risk and costs of financial distress and information asymmetry to lenders and investors.
- *Mitros assets are very suitable for debt financing;* housing and real estate are very tangible assets which are a primary necessity of life and have low asset specificity. These facts reduce risks for lenders and are very suitable for debt financing.
- *Mitros equity is cheap compared to corporations;* because Mitros is a non-profit-making organisation, its costs of equity are low. This is higher for commercial activities, as Mitros wants to make some profits here.
- *Retained earnings are scarce;* Mitros is ambitious about future projects and is planning many investments. However, it does not have the opportunity to issue equity. Scarce retained earnings should be used careful for the financing of different projects, including commercial projects.
- *Profit margins are higher for commercial housing than social housing;* this suggests that it is beneficial for Mitros to distribute relatively more equity for the financing of commercial activities.

4.3 Debt maturity

In this section, the costs, risks and benefits associated with short and long term debt will be discussed. Identifying these determinants for the Mitros case will help to find optimal debt maturity for Mitros' commercial activities.

4.3.1 Agency costs

Agency costs have been discussed in the capital structure paragraph and are also relevant for debt maturity. Agency cost theory suggests that long term debt gives more freedom for the so-called asset substitution effect, where shareholders demand management to invest in risky projects. Although Mitros has no shareholders, other stakeholders or ambitions from management can lead to investments in unprofitable and risky projects (see also 4.2.1.13 and 4.2.1.15). This risk is, at least for the lender, reduced because the underlying real estate serves as mortgage security to the lender, and by the fact that real estate and especially housing has a long lifetime. At the time of debt maturity, the lender can still claim a valuable security in case Mitros would not pay back. Therefore, I expect the influence of agency costs on debt maturity to be low.

4.3.2 Refinancing costs

When debt has matured, it should be repaid or the assets should be refinanced. When assets have to be refinanced, there will be transaction costs involved, for example negotiation and contracting. Short term debt has to be refinanced more often than long term debt, and consequently the refinancing costs over a long period are higher for short term debt than for long term debt. This is the case for Mitros. Every time debt has to be refinanced, it has to be renegotiated and banks will demand detailed and actual information about the project. Consequently, refinancing costs for short term debt are higher for Mitros.

4.3.3 Information asymmetry costs

As discussed in the capital structure paragraph, information asymmetry costs exist because management knows more about the company and the project and their risk than lenders. According to pecking order theory, a company should prefer short term debt above long term debt, because of lower information asymmetry. In the capital structure paragraph, it was already discussed that

information asymmetry for Mitros is low. These costs will be lower for short term debt than for long term debt, because of the length of time that lenders bear the risks.

4.3.4 Liquidity risk and debt overhang

The matching principle theory states that a company should match the maturity of its debt and assets. When debt matures before assets, there is a liquidity risk. There may be no lender that want to refinance the debt or only against unfavourable terms. When assets mature before debt, the company still has to do debt payments (interest and principal), but it has no asset to produce cash flows. This is called debt overhang. The problems over liquidity risk and debt overhang are solved by matching the maturities of debt and assets.

In the Mitros case, the assets are residential and commercial real estate. Liquidity risk may be low because of Mitros' healthy financial situation. However, in case of commercial projects, the liquidity risk may be much higher because debt here is connected to the project, its cash flows and its value. It may experience liquidity problems when a building is not producing cash flows in a certain moment of time due to vacancy.

Mitros' assets have a long life time. For housing, the standard life time is 50 years. During this period, maintenance and renovation will be necessary. Owner-occupied housing is owned by Mitros only during the construction period and eventually during a sales period after construction has finished. To reduce liquidity risk and debt overhang, Mitros should match debt with the maturity of the real estate. For rental housing, this is 50 years. In case of commercial real estate, it may depend on the actual project.

4.3.5 Tax shield

Interest rates are usually higher for long term debt than for short term debt. In the capital structure paragraph, it was mentioned that higher interest payments means a larger tax shield effect. This somewhat compensates for the higher interest payments of long term debt. At the moment, Mitros is loss-making and expected to do so in the coming years (see Appendix 5), but through the carry forward of losses the tax shield is still valuable.

4.3.6 Market timing

A company can also base its debt maturity choice on perceived overvalue or undervalue by lenders. When management believes that banks undervalue the company and demand too high interest rates, it may choose short term debt and hope that banks will give a more positive review at the moment of refinancing. When management believes that interest margins are low because of overvaluation by banks, it may choose long term debt to benefit from this perceived overvalue. This may be different for every case and there is no general outcome for Mitros here.

4.3.7 Flexibility

A determinant for debt maturity which is not discussed in general debt maturity theories but mentioned by Mitros is flexibility (see Appendix 5). Mitros wants to have flexibility to sell houses or change lenders. This is easier for short term debt than for long term debt.

4.3.8 Conclusion

The outcomes of most determinants suggest long debt maturity for Mitros. The assets have a long maturity and it reduces refinancing costs. Agency costs and information asymmetry costs are low, which implies that the costs of a long debt maturity are only marginal. However, to reduce these information asymmetry costs and increase flexibility, it may choose a debt maturity which is shorter than the maturity of its assets. A balance between these two should be found. The optimal debt maturity in years is hard is hard to define and is, besides these arguments, a policy choice. Mitros maintains an internal debt maturity standard of 10 years (see Appendix 5), which is close to the maximum maturity offered by banks (see Appendix 5).

4.4 Variability of interest rate

The choice for fixed or floating interest on debt is can be explained by hedging theory and market timing theory. Hedging theory is more risk oriented and argues that a company should choose fixed debt when there is *not* a positive correlation between cash flows and interest rate. The cash flows for Mitros are coming from rents (rental housing and real estate) and sale (selling houses). Rents are very stable cash flows over a long period; they are not very dependent on economic situation and no positive correlation with (fluctuating) interest rates is expected. Correlation is less sure for selling houses. When economy is flourishing and demand to buy houses is rising, both increasing prices for houses and higher interest rates can be expected. However, high interest rates can also have a downward effect on housing prices, since buyers usually need a mortgage to buy a house.

Mitros also uses additional arguments when reviewing the risk of the variability of interest rates. Mitros identifies, as discussed above, a primary interest rate risk of rising interest rates in case of floating debt. But besides, it identifies a secondary interest rate risk of declining interest rates in case of fixed debt (see Appendix 5). This should be taken into account when judging the risks of floating and fixed debt.

Market timing theory is more price oriented and argues that a company chooses fixed or floating debt according to the perceived costs associated with both. In case of a high yield spread a company may choose floating debt, while in case of a low yield spread, a company may choose fixed debt. The choice for one thus depends on the perceived costs which may be different in different situations on different moments.

Mitros is a risk-averse organisation which operates for social purposes. It has internal rules that limits floating debt to maximum 10% of its total debt (see Appendix 5). This suggests little space for market timing and more emphasis on hedging theory. Mitros therefore should prefer to finance its commercial activities with fixed interest rates, and only choose (temporarily) floating debt in case of very high yield spreads.

4.5 Timing of debt contracting

From the case of UK housing associations, discussed in the introduction, it was suggested that an association might wait to attract debt until the construction of the project real estate has been completed. During the development period, the costs could be paid from internal funds. This method has the advantage that an association has more information about its funding needs and it may also lead to better financing conditions and lower financing costs. This can be explained with financial distress, agency and information asymmetry arguments. Risk and costs for the lender are lower after the development period.

Waiting for attracting debt until completion of the project may also be beneficial for Mitros if it leads to lower financing costs. However, two disadvantages can be identified:

- Scarce internal funds will have to be used during the development period
- Risk that banks reject the financing request for the building or only against unattractive financing conditions

The scarcity of internal funds is reduced by the large credit facility that Mitros can use. The scarcity of internal funds is more a problem for large-scale projects than for small projects, because less cash is needed for small projects. Also, the development period of a small project is normally shorter than the development period of a large-scale project, therefore using internal funds for a shorter period. So, when making this choice, both project size and the availability of internal funds should be considered. The risk that banks may not be interested in financing the projects can be reduced by

discussing the project with banks before the start of the construction process, in order to find out whether it can be financed.

Summarising; waiting to attract debt until completion of the project may be attractive for Mitros to reduce financing costs. However, before start of the building process, Mitros should make sure that the project can be financed at the end of the development period.

4.6 Conclusion

In this chapter, relevant determinants for the optimal capital structure, debt maturity, variability of interest rate and timing of debt contracting for Mitros commercial activities have been discussed. This analysis leads to the following conclusions:

- Both costs of debt and equity are low, due to low costs of financial distress, low information asymmetry, high asset tangibility and low asset specificity.
- Equity is scarce, because of Mitros large investment portfolio and no possibility to issue new equity.
- Long asset maturity suggests that for Mitros it is optimal to choose long term debt. Eventually medium term debt can be chosen to increase flexibility, but this will increase liquidity risk. A balance should be found.
- Mitros is a risk-averse organisation, which will best fit with fixed interest rates. Exceptions can be made in case of very high yield spreads.
- Mitros should wait to attract debt for the financing of its project until construction has completed, under the condition that it has a significant degree of certainty that financing will be available.

5 Financing sources

5.1 Introduction

In Chapter 4, the determinants for the optimal financing of Mitros' commercial projects have been discussed. In this chapter, I will discuss the financing sources that Mitros can use. Mitros has the opportunity to choose several kinds of debt and equity to finance its commercial projects. Some of these sources may well fit to commercial projects, while others may not. Usually, real estate is financed with a mix of both debt and equity. In this chapter, different kinds of debt and equity will be discussed to find out which should be included in the financing mix of Mitros' commercial real estate. For all these sources, costs, risks and benefits of capital will be discussed.

5.2 Equity

Equity is about the funds that are provided by the owners of the company. In general, a company can attract equity in two ways: from investors and from retained earnings. These two will be discussed below. Furthermore, Mitros is building owner-occupied dwellings, which are regarded by the new rules as commercial real estate. A relevant source of financing for this group is the payments by buyers of these houses.

5.2.1 Retained earnings

There are two main types of income for Mitros. First, there is rental income. These are the rents paid by the tenants of Mitros' rental houses and public real estate, which amount for EUR 147 million in 2010 (Mitros, 2011). The second type of income comes from the sale of assets. These are both newly built owner-occupied houses and houses that have been let before and now being sold. Together, a total of EUR 39 million was earned by sales in 2010 (Mitros, 2011).

As discussed in Chapter 4, the costs of these retained earnings are quite low. This is mainly because no dividends have to be paid to investors and there are no information-asymmetry costs. Also, since Mitros is loss-making, no taxed have to be paid for these earnings, although this may change in the future.

Availability: From past experiences, Mitros knows that retained earnings are enough to finance 40-50% of its projects (see Appendix 6).

5.2.2 Payments by buyers

In case of owner-occupied dwellings, financing is only relevant for the development period. Mitros is only developing these houses to sell them so it doesn't need to finance them after completion. Mitros only starts the production of a project with owner-occupied dwellings when at least 70% of these houses have already been sold (see Appendix 5 and 6). During the production period, the buyers of the houses have to pay in terms. These payments come to Mitros before Mitros has to pay its terms to the contractor (see Appendix 6). Therefore, Mitros needs no financing (debt nor equity) for the production of owner-occupied dwellings which have already been sold. It only needs financing for the maximum 30% which has not been sold yet.

Availability: Minimum 70% for owner-occupied dwellings.

5.2.3 Investors

Investors can invest money in a company or project. In return, they own (part of) the company and expect that (part of) the profit will be paid to them. Equity can be attracted from private investors or on capital markets.

Since Mitros is not a corporation but a foundation, it cannot attract shareholders to invest in the organisation. Involvement of other investors is possible in the case of a special project company, in

which Mitros and other investors participate. Mitros has experience with developing projects in which several parties participate (see Appendix 5). In these projects, besides Mitros, also other housing associations may invest. In practice, this means that a separate entity will have to be set up for that project, which is financed by the participating investors and Mitros.

In my main research question, I chose to research the financing of commercial projects only through a corporate financing strategy. The involvement of other investors in Mitros commercial projects is only possible through the set-up a project company. This project financing strategy is beyond my research domain and will not be discussed here any further.

5.3 Debt

After equity, debt is the second kind of financial resources provided to an organisation. Debt consists of loans provided by lenders against agreed terms. These terms usually include interest rates, repayments, debt maturity and eventual collateral. Debt can be attracted from banks or other lenders or from capital markets.

5.3.1 Bank loans

The debt on Mitros' balance sheet consists mainly of bank loans. This is normal for Dutch housing associations and also British housing associations use loans from banks and other financial institutions as the usual source of financing (Saw & Whitehead, 1997). This is also the case for the real estate sector as a whole. According to Zhu in the Quarterly Review of the Bureau for International Settlements (2002, p. 65), "*bank lending still represents the single largest source of funding in commercial property markets*."

Availability: Mitros has relationships with a number of Dutch banks. In interviews held for this research (see Appendix 7), they declared that they will provide financing to housing associations for commercial real estate projects. Maximum loan-to-value ranges from 60-90%, but for most banks it is about 60-70%. For comparison, in the UK maximum loan-to-value was about 70-75% (Whitehead, 1999). Mitros is using an intern standard of 60% debt (see Appendix 5).

In the UK, the involvement of foreign banks in lending to housing associations increased during the 90s when housing associations had to look for private finance (Whitehead, 1999). Besides the Dutch banks with which Mitros already has a relationship, also foreign banks may be found willing to lend to Mitros. This is not very common for Mitros, because loan constructions with guarantees by the WSW are quite unknown for foreign banks. However, for loans regarding Mitros' commercial real estate, no guarantee constructions will be available and WSW will not be involved. Standard mortgage loans for this commercial real estate are no different than other real estate loans and will be familiar to foreign banks. Therefore, these foreign banks may be found interested to finance these projects (see Appendix 6).

New regulations about the minimum amount of reserves for banks (Basel III) may influence the availability of financing from banks. Availability may decline and interest costs of loans may rise (see Appendix 6).

5.3.2 Capital markets

Debt can also be attracted directly from capital markets. This can be done through issuing bonds, an EMTN programme or private placements.

5.3.2.1 Bonds

A public debt issue through bonds gives different lenders the opportunity to lend to Mitros. A big advantage of bonds is that they are relatively liquid and can easily be traded among lenders. This reduces risk for lenders, because they can sell the bonds when they don't like them anymore. There

will probably be enough investors that will find housing association bonds attractive. Liquidity of bonds is high and credit rating will probably be high too ,which may attract banks and pension funds. However, there are some disadvantages. Process costs, including a credit rating, will probably be high. Minimum size of a bond issue is expected to be EUR 250 million, although EUR 1 billion is a more common size (see Appendix 5). Above that, a frequent new issue of bonds is necessary to keep them known and liquid (see Appendix 5 and 6). This size and frequency is far too much for Mitros commercial projects.

5.3.2.2 Euro Medium-Term Notes

Medium Term Notes (MTNs) are, like bonds, a way for companies to issue debt on capital markets. A company can set up an MTN program to issue debt on different moments and in different sizes with different maturities and coupon rates. Through reverse inquiry, investors can even demand for specific characteristics, like debt maturities. This makes them highly flexible debt instruments (Crabbe & Turner, 1995). An MTN program is usually accompanied by an agent like an investment bank. MTNs issued in Europe are called Euro Medium-Term Notes (EMTNs).

An EMTN program has some advantages for Mitros compared to bank loans and bonds:

- The flexibility of an MTN-program fits to the development of a real estate project. During the building period, there are a few moments that costs are being charged. With an MTN program, debt can be issued when bills have to be paid.
- MTN programs are usually smaller than bond programs. WSW estimates a minimum size of EUR 20 million, up to a maximum size of EUR 5 billion (Rink, 2011). In an interview with one of the banks, a minimum size of EUR 30-40 million was mentioned (see Appendix 7). This is more than most of Mitros commercial projects (see Appendix 1). MTN programs will therefore only be attractive for the larger commercial projects of Mitros.
- On capital markets, enough capital should be available to issue EMTNs. The advantage of EMTNs is that, unlike bonds, note characteristics can be adapted to investor preferences. Potential lenders include pension funds (see Appendix 5).
- Although the name of MTNs suggests medium-term debt, in fact MTNs can have maturities ranging from 1(2)-50 years (Mullineaux & Roten, 2002; Rink, 2011). It allows Mitros to take into account maturity matching and flexibility. The flexibility of an MTN program allows Mitros to create a repayment schedule that fits the characteristics of a project. Using different maturities for different notes can help to find a balance between maturity matching and flexibility.
- An advantage of an EMTN program and bonds compared to bank loans is their liquidity (Rink, 2011). This feature makes them more attractive to potential lenders, because they can sell their notes when they want to. This has a reducing effect on the price of notes.

The main disadvantage of an EMTN program is the high initial costs (Rink, 2011). These include:

- Request for a credit rating
- Legal costs (Appendix 5)
- High administration costs (Rink, 2011)(Appendix 5)

When looking to the risk premium in the interest rate demanded in an EMTN program, Rink (2011) argues that there is a difference with bank loans. For banks, this risk premium is dependent on both the risk of the issuing entity as well as the risk position of the bank. In an EMTN program, the risk premium is only dependent on the risk of the issuing entity.

5.3.2.3 Private placements

"*A private placement bond is a nonunderwritten, unregistered corporate bond sold directly to a single investor or a small group of investors* (Kwan & Carleton, 2010)." Because a private placement is

unregistered, the issuing process is easier and less costly than public offerings. Also, because one or a small number of lenders are involved, specific arrangements can be made that fit both borrower and lender. Two kinds of private placements can be distinguished. The first group are traditional private placement securities that cannot be traded. The second group consists of private placement securities that can be traded between institutional investors.

Investors in the private placement markets are mostly pension funds and insurance companies (Kwan & Carleton, 2010), but any kind of financial institution can participate.

Private placements are typically smaller than public bond issues, but samples used in academic literature give very different mean/median issue sizes. Median issue size for different samples amounts for USD 32 million (Carey, Prowse, Rea, & Udell, 1993), USD 70 million (Denis & Mihov, 2003) and USD 40 million (Kwan & Carleton, 2010). According to Carey, et al. (1993) most private placements have an issue size between USD 10 million and USD 100 million, although it should be noted that their data is about 20 years old now. Furthermore, all outcomes mentioned here come from American samples and issue sizes may be different in Europe. Nowadays, minimum issue size is expected to be EUR 25 million (see Appendix 5). So, for the Mitros case, private placements may be attractive for larger commercial projects.

Private placements have usually an intermediate or long debt maturity. Carey, et al. (1993) finds in his sample a mean (median) maturity of 9 (9) years. More recently Denis & Mihov, (2003) found a median maturity of 8,2 years and Kwan & Carleton (2010) found a mean (median) maturity of 11 (10) years. Furthermore, in the sample of Kwan & Carleton (2010), 90% of the private placements were callable, which means that it is possible for the issuer to pay back before maturity. Prepayment penalties however may be part of the contract (Carey, et al., 1993). It should be noted that these results come from American samples and may be different for European companies. In the Mitros case, private placement maturity is much shorter than Mitros assets maturity, but may fit the flexibility criterion.

Although borrower and lender can agree about a floating or fixed interest rate, fixed rates are most common for private placements (Carey, et al., 1993).

5.4 Derivatives

In Chapter 4, I concluded that Mitros prefers fixed interest rates. Fixed interest rate can be achieved through fixed debt or a combination of floating debt with an interest derivative. Interest derivatives are instruments to reduce interest rate risk. At the moment, Mitros is using both Interest Swaps and Caps (Mitros, 2011). With a fixed interest swap, a company and a bank agree about an interest swap rate. This is usually linked to an index, for example EURIBOR. When actual interest rate is below this swap rate, the company pays the difference to the bank. When actual interest rate is above the swap rate, the bank pays the difference to the company. Combined with floating debt, the company is practically paying a fixed price. With an interest Cap, company and bank agree about a cap rate. The bank pays the difference between actual rate and cap rate when actual rate is higher. But when actual rate is lower, the company does not have to pay the difference to the bank. This way, the company can benefit from low interest rates while the risk of high interest rates is secured. However, this is not for free. The Cap contract involves a (high) initial payment by the company to the bank.

The fact that Mitros already has experience in using derivatives is an advantage, because the start-up costs for an organisation are typically high (Carter & Sinkey, 1998). It is actually Mitros' policy for social real estate to combine floating debt with derivatives. For the same reasons, derivatives can be used as a helpful financing instrument for commercial real estate.

At the beginning of 2012, Dutch largest housing association Vestia became in trouble because of derivatives. It closed swap contracts for future loans. It expected that interest rates would rise and by closing these swaps it tried to benefit from the actual low interest rates of that moment. However, interest rates stayed low and declined even further, which increased the amount of money that Vestia had to pay to the banks and decreased the value of the swaps. In the swap contracts, it was agreed that Vestia would have to deposit cash securities on a special account in case of interest and swap value decreases. This way, a bank secures itself against bankruptcy of the other party, Vestia in this case. Vestia had closed many of these swaps, and at the moment banks demanded cash securities, it brought them in heavy liquidity problems. Other associations and the WSW had to help Vestia to avert bankruptcy. Mitros does not have derivative contracts which claim cash deposits in case of low interest rates (Mitros, 2012).

5.5 Conclusion

In this chapter several equity and debt financing instruments, that can be used by Mitros to finance its commercial real estate projects, have been discussed. The outcomes are summarised in Table 5.1. Owner-occupied projects can be mainly financed by buyers. This will be enough for at least 70%. The other part can be financed until the houses are sold with retained earnings or short term debt. For rental residential and public real estate, several financing sources are available. Retained earnings are available to finance 40%-50% of total project costs. For the debt part, bank loans are the most attractive financing source, because of its flexibility and the possibility to borrow relatively small amounts. EMTN programs or private placements are only available for bigger projects. Compared to private placements, EMTN has high transaction costs but also higher liquidity and is expected to have a lower price. Private placements have a low liquidity, but also lower transaction costs. However, these two will only be an alternative for bank loans for large projects with a need of debt over EUR 25-30 million. For any debt choice, derivatives can be a good way to reduce interest rate risk.

Table 5.1 Financing sources and their characteristics

	Provider	Minimum amount	Maximum amount	Advantages	Disadvantages
Retained earnings	Mitros	EUR 1	40-50%	- Already available in Mitros - No information asymmetry and transaction costs	- Scarce
Payments by buyers	House buyers	70%	100%	- Cheap	- Low liquidity
Bank loans	Bank	EUR 1	60-90%	- Easy access - Flexible to fit Mitros projects - No/low minimum amount	- Prices may be higher than from direct capital market access
Bonds	Pension funds Insurers	EUR 250 million	N/A	- High liquidity	- High minimum amount - High transaction costs
EMTN	Pension funds Insurers	EUR 30-40 million	N/A	- High liquidity - Potential lower prices - Less dependent from banks	- High transaction costs - Quite high minimum amount
Private placements	Pension funds Insurers (Foreign) banks	EUR 25 million	N/A	- Less dependent from banks - Medium liquidity	- Medium transaction costs

6 Banks: opportunities, expectations and demands

6.1 Introduction

In Chapter 5 a number of debt sources have been discussed. I concluded that bank loans are the most important external financing source for Mitros' commercial projects. However, little attention was paid to the specific opportunities, terms and conditions of bank loans in this specific case. These may constrain Mitros' optimal financing as discussed in Chapter 4.

In this chapter I will discuss bank loans and answer the fourth sub question: *How do terms and conditions demanded by banks constrain optimal financing?* I will do this in three parts by answering three smaller sub questions:

- What do banks offer?
- Against which terms and conditions do they offer this?
- How do these offerings constrain Mitros' optimal financial structure?

To answer these questions, semi-structured interviews were done with account managers, housing associations specialists and financing specialists of four Dutch banks and one foreign bank which is active in the Netherlands (see Appendix 7).These banks are familiar with Mitros and are lenders to Dutch housing associations. Secondary sources come from academic literature about British housing associations in the 90s. In this country, there was also a change then to private financing for social housing. Although there are differences with the Dutch situation (see introduction), experiences there may give additional information and understanding on commercial financing for Dutch housing associations.

6.2 What banks provide

Here I will discuss how much a housing association can borrow, the price of these loans and the maximum debt maturity.

6.2.1 Borrowing limit

Loan-to-value is the ratio of the loan and the value of the assets. Value is defined by the banks as the market or investors value in rented condition. This is similar to the value definition that Mitros is maintaining since 2010 for the estimation of its real estate assets value (see Appendix 5). Four of the five banks interviewed indicate a maximum loan-to-value ratio between 60-80%. One bank offers a maximum loan-to-value ratio of 85-90%. Every bank demands that Mitros uses equity for the financing of the project. All banks argue that the maximum loan-to-value depends on the project characteristics.

In the UK situation, maximum loan-to-value is 70-75% (Saw & Whitehead, 1997).

6.2.2 Interest rates

There is much difference in the minimum price of debt that Dutch banks offer, ranging from 75 to 220 basis points above EURIBOR. These differences may be caused by the fact that commercial financing for housing associations is a new phenomenon for these banks and so come to different calculations of premiums. In the UK situation, banks declined the interest rate premium when they get more familiar to commercial financing of housing associations (Saw & Whitehead, 1997). Another explanation may be the financial situation of the banks. The banks offering the lowest interest rates were having a AAA-rating at the moment of the interview. Lower credit rating of a bank seems to imply higher borrowing cost for the bank and may in this case explain different interest rate premium offered to Mitros.

In the UK situation, typical interest rate premiums varied between 70-75 to 100 basis points above LIBOR (Saw & Whitehead, 1997). Some larger housing associations could borrow for 50 basis points above LIBOR (Saw & Whitehead, 1997).

6.2.3 Debt maturity

For the development phase of a real estate project, banks offer flexible credit to housing associations. For the exploitation period, banks offer loans with maximum maturities ranging from 7-15 years. One of the banks demands the borrower to pay principal every month. Other banks have no compulsory monthly payments of principals but make a connection with maximum loan-to-value. When Mitros does not want to pay monthly repayments of the loan, the maximum loan-to-value will consequently be lower. One of the banks mentioned a minimum repayment of 1%-1,5% of the whole loan every year. Another bank argues that repayments only consider to the part of the loan that is related to the building. For land value there are no compulsory monthly repayments.

In the UK situation, debt maturities are much longer. They usually are 25-35 years (Saw & Whitehead, 1997).

6.2.4 Variability of interest rate

Most of the banks argue that fixing the interest rate best suits the financing of Mitros commercial activities in the exploitation period. Some of the banks only offer fixed interest loans. A fixed interest rate protects the bank from the possibility that increasing interest rates make debt payments a problem for Mitros. One bank mentions the possibility of combining variable debt with a derivative to increase flexibility.

In the UK situation, banks offer both variable and fixed debt. Remarkable here is that most of the loans (50-80%) have, in contrast to Dutch housing association loans, variable interest rates. No explicit explanation for this choice was found.

6.2.5 Timing of debt contracting

Dutch banks suggested that an association best does its loan request in an early stage of the project, preferably before construction has started. This way, a bank is able to give input about the project which may improve the financing opportunities.

6.3 Terms and conditions

Above I discussed the loan characteristics that banks offer to Mitros for the financing of its commercial activities. Here I will discuss the terms and conditions that have to be met to find a loan request being approved by the bank. This information comes from the interviews with banks (see Appendix 7). Additional information will be given about the experiences in the UK.

6.3.1 Cash flows

Cash flows have to be high enough to pay interest and principal. These cash flows of real estate are typically rents minus exploitation costs. The ratio of cash-flows-to-debt-payments is called the Debt Service Coverage Ratio (DSCR). Minimum DSCR maintained by banks for Mitros is around 1.2. This is somewhat lower than it was in the UK situation, where a minimum Interest Coverage Ratio (ICR) of 1.2-1.5 was being maintained (Saw & Whitehead, 1997).

6.3.2 Presale / Pre-let

In case of owner-occupied houses, banks demand that at least 70% of these houses has been sold before the actual construction starts. This is the same minimum percentage that Mitros internally maintains before starting to build owner-occupied houses. For public purpose buildings, banks demand that this is pre-let before the construction starts. There are no such conditions for rental housing.

6.3.3 Local market

Most banks argue that their assessment of the loan request will also be based on local market conditions. The property should fit the local neighbourhood. A bank will not be charmed when a housing association wants to build expensive rental houses in a poor district. This may increase the diversity and quality of this district, but there is a higher risk that the houses cannot be let for acceptable rents.

Local market and fit with the project is also a point of view in the UK case (Saw & Whitehead, 1997).

6.3.4 Characteristics of the borrower

Besides project characteristics, the characteristics of the borrower are important also. Here it makes a difference whether the borrower is the housing association or a project company. When a project company is borrowing, this will be regarded as much more risky. Variables being looked at by banks are solvability and performance. Furthermore, the fact that housing associations are being supervised by the CFV is being regarded as positive. One of the banks argues that a housing association is regarded as an expert in housing and social property and that performance of the housing association is more important when assessing a loan request than project characteristics.

Also in the UK situation, lenders look to the performances of the housing association. Like the Dutch situation, they do not only look at financial performance and solvability, but also at rental arrears, rent levels and void (Saw & Whitehead, 1997).

6.3.5 Contractor

Two banks mentioned that the contractor of the project is an important characteristic they will look at. In the recent past, some contractors have turned bankrupt. When a contractor goes bankrupt during the construction phase, the project will be delayed. Also a new contractor has to be chosen which in most cases will complete the project at higher costs. Therefore, the contractor will be included in the assessment by the banks.

6.4 Optimal financing constraints

Above I discussed bank loan opportunities, terms and conditions for the Mitros case. In this section, I will relate these to Mitros optimal financing as discussed in chapter 4 and 5.

6.4.1 Capital structure

Mitros optimal capital structure implies relatively much debt and maximum 40-50% equity. Banks offer maximum loan-to-value of 60-90%. So, high debt ratios up to 90% are possible and all banks will provide enough debt to finance a project, combined with the 40% equity.

6.4.2 Debt maturity

Maximum debt maturities are relatively short, ranging from 7-15 years. Maturity matching with assets will not be possible, which will increase liquidity risk.

6.4.3 Variability of interest rates

Mitros optimal financing implies fixed interest rates. All banks offer fixed bank loans or even demand that Mitros fixes the interest rates of its commercial loan. Mitros optimal financing is not constrained on this point.

6.4.4 Timing of debt contracting

From optimal financing perspective, an association might wait for attracting a loan until the construction has been completed. By this way, an association will have a better understanding of its financing needs and risk for the bank is limited to the exploitation period. Banks however suggested Mitros to come up with its project in an early stage of development, so banks can give input on the project. This may ultimately improve financing conditions.

Both points in time seem to have their advantages and disadvantages. Advantages can be optimally used by informing for funding opportunities in an early stage of the project, but come up with the loan request at the start of the exploitation period. This way, a bank is able to give input on the project, Mitros has a better idea about the financing opportunities of the project and it also benefits from a request after completion of the construction process.

6.5 Conclusion

In this chapter I discussed bank loan opportunities for Mitros' commercial financing. There are differences between banks in maximum loan-to-value and interest rates. These things may also depend on the actual project characteristics and the bank's assessment of Mitros. On the four subjects of optimal financing, banks conditions only seem to constrain the optimal debt maturity. Mitros assets have a long lifetime, about 50 years, but maximum debt maturity offered by banks varies from 7-15 years. The findings presented in this chapter will be used for answering the final sub question in the next chapter.

7 Cost of financing

7.1 Introduction

In the previous chapters, I analysed characteristics of optimal financing for Mitros commercial activities. Outcomes of this analysis were of qualitative nature, merely giving directions for Mitros optimal financing strategy than hard numbers. In this chapter, I will use a quantitative approach and calculate the costs of capital for Mitros commercial projects. I will calculate both the cost of debt and equity and ultimately calculate the Weighted Average Cost of Capital (WACC).

7.2 Debt

In Chapter 4, the costs of debt for Mitros have been identified. In this chapter, these costs will be quantified. Most of the costs identified in Chapter 4 are determinants for the interest rates that banks demand. Besides the interest rate, there are also transaction costs involved with attracting debt. Below, both the interest rate and transaction costs will be discussed and quantified.

7.2.1 Interest rate

The interest rate is the demanded return from lenders on their loan. It is determined by both the internal costs of capital of the bank and a risk premium which represents the risks that a bank bears for lending to Mitros. Here I will discuss how the costs of debt identified in Chapter 4 relate to the interest rate. Then I will quantify the actual interest rate, based on the bank interviews.

7.2.1.1 Determinants of interest rate

Business risk/project risk; the higher the risk of Mitros operations, the higher the risk for the bank that the loan won't be repaid. Also the project risk is of importance here, because the project's real estate is used as security for the loan. If the assets value decrease, which is not unusual these days, than the security for the bank also decreases. So, business risk and project risk are important determinants.

Financial distress; the higher the risk of financial distress, the higher the risk for the bank that the loan won't be paid back. This is somewhat related to business risk cost. Business risk costs are more related to the kind of operations, while costs of financial distress are typically related to the way the company is financed. A higher debt level increases the risk and accordingly the ex ante costs of financial distress.

Almeida & Philippon (2007) have calculated these ex ante costs of financial distress for companies with different credit ratings, based on ex post costs of financial distress calculated by Andrade & Kaplan (1998). They calculate total direct and indirect costs of financial distress as a percentage of firm value. As discussed in 3.3.1.3, Andrade & Kaplan (1998) use two methods to find these costs: Change in firm value and change in operating performance. When looking to the change in firm value, Andrade & Kaplan (1998) looked both at debt and equity. In my WACC calculation for Mitros commercial property, I will also take both the effects on debt and equity, but without using the calculations of Almeida & Philippon (2007) and Andrade & Kaplan (1998). The financial distress costs of debt will be covered by the interest rate. The financial distress costs of equity will be covered by a levered beta.

Information asymmetry costs; the more information asymmetry between Mitros and banks, the harder it is for the latter to make a good estimation of the business risks and project risks. High information asymmetry will result in higher interest rates.

Agency costs of debt; a higher chance for the asset-substitution effect will be seen as a risk by debt holders. This will be translated into interest rates. It may also lead to other conditions.

Together with the cost of capital of the bank, these costs make the interest rate that banks demand from Mitros. The interest rate I collected from the bank interviews can therefore be used for the WACC calculation. Their interest rates are the sum of an interest standard rate (EURIBOR or Euro IRS) and a risk premium. Euro IRS are Interest Swap Rates which are derived from EURIBOR. Which IRS or EURIBOR will be used depends on the debt maturity and whether the interest rate is fixed or not. The interest rate formula is:

$$I = EURIBOR/IRS_m + P$$

Where $EURIBOR/IRS_m$ is the EURIBOR or IRS rate with the same maturity as the debt attracted and P is the premium charged by the bank above EURIBOR/IRS. P ranges from 0.75% to 2.2% for different banks (see Appendix 7).

7.2.2 Transaction costs

Besides the interest that has to be paid to the bank, Mitros will have to make costs to attract the debt. These transaction costs include mainly staff costs for preparing the loan request and eventually negotiation. From the interviews with the banks, it became clear that banks demand detailed information about both Mitros and the specific project. For this purpose, a bidbook has to be written for each loan request. At the moment of this research, there is only little experience in Mitros with commercial loan requests. Mitros Treasury manager estimates the following transaction costs per project:

Working hours: 108
Costs per hour: € 50
Total transaction costs: € 5,400

Because the WACC is a calculation of the annual costs of capital, the transaction costs per year depend on the maturity of the debt. After maturity of debt is reached, new loan request will have to be done. Also, if we want the WACC to be a percentage, we need to divide these transaction costs by the total value of the project. The transaction costs TC formula becomes:

$$TC = \frac{5{,}400/V}{m}$$

V = Project value, defined as the sum of Debt and Equity
m = Maturity of debt in years

Besides costs for attracting debt, Mitros will also have to make staff costs for maintenance of the contract. For example, a bank may annually demand information about the project. Mitros Treasury Manager estimates these Maintenance Costs MC as follows:

Working hours: 18
Costs per hour: € 50
Total maintenance costs: € 900

In the WACC formula, this becomes:

$$MC = \frac{900}{V}$$

In contrast to the interest rate, transaction and maintenance costs are independent to the amount of debt in the project capital structure, but depend on the size of the project. Consequently the relative transaction and maintenance costs will be lower larger projects than for smaller projects.

7.2.3 Derivatives

It is possible for Mitros to combine variable interest rate debt with a derivative. In this case, extra costs of the derivative have to be added to the cost-of-debt formula.

7.2.4 Tax shield

A firm's costs of debt are reduced by a tax shield caused by the fact that interest payments are tax deductible. Transaction and maintenance costs also reduce profits and should also be included in the tax shield. In the Netherlands, housing associations are corporate tax liable, so a tax shield is relevant for the Mitros case. Corporate tax rate CT in the Netherlands in 2011 is 25%. The tax shield can be formulated as:

$$Tax\ shield = CT * (I, TC, MC)$$

However, Mitros is loss-making and expected to do so during the next years (see Appendix 5). Tax shield benefits will be paid out in the future, while the costs of debt have to be paid every year. This means that the future benefits of the tax shield should be discounted. No literature is known about WACC formulas with discounted tax shields in case of loss carry forwards, but the fact that Mitros benefits from the tax shield in the future make discounting a very logical extra step. In this Mitros case of commercial property, the debt level will be constant and not vary with cash flows or change in property value. As discussed in the literature review (3.3.1.5), literature suggests here to use the risk-free rate as the appropriate discount rate. The tax shield thus becomes:

$$Tax\ shield = \left(\frac{CT}{(1 + R_f)^n}\right) * I, TC, MC$$

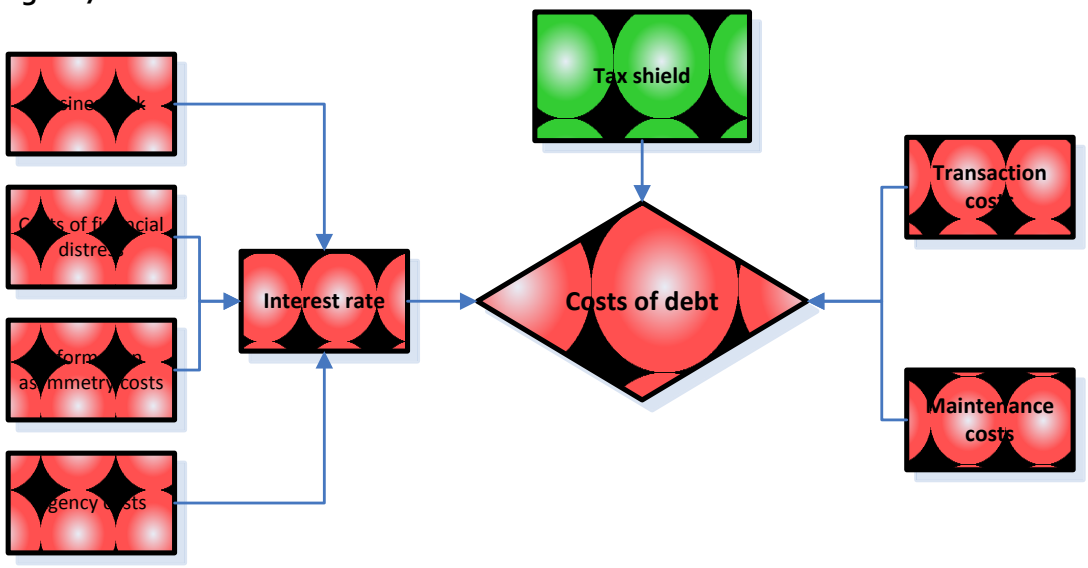
R_f is the risk-free rate and n is the number of years until the tax shield will be paid out

Discounting will decrease the value of the tax shield. In the Mitros case, it is unclear when Mitros will make taxable profits again and the tax shield can be paid out. When calculating the WACC, this should be estimated.

7.2.5 Conclusion

Debt in the capital structure of Mitros commercial projects gives interest rate costs, transaction costs, maintenance cost and the benefit of a tax shield.

Figure 7.1 Costs of debt



Costs of debt C_D can be formulated as follows:

$$C_D = D\left(1 - \frac{CT}{(1 + R_f)^n}\right)I + \left(1 - \frac{CT}{(1 + R_f)^n}\right)TC, MC$$

It should be noted here that the interest costs depend on the amount of debt, while the transaction costs and maintenance costs do not.

More explicitly, the formula becomes:

$$C_D = D\left(1 - \frac{0.25}{(1 + R_f)^n}\right)I + \left(1 - \frac{0.25}{(1 + R_f)^n}\right)\left(\frac{5{,}400 \,/\, V}{m} + \frac{900}{V}\right)$$

7.3 Equity

Investors in companies demand a return on their investment. The size of these returns depend on the profitability of the company. In case of bankruptcy, the investors are paid from the remaining after claims of lenders have been paid. Because investors bear more risk, they demand a higher return. This makes the price of equity typically more expensive than debt.

Mitros however does not have any investors and has no shareholder value. It does have internal equity. In this section, I will try to quantify Mitros expected return on equity by using the Capital Asset Pricing Model.

7.3.1 Capital Asset Pricing Model: Theory

The WACC formula is a method to calculate the cost of capital for a proposed project. Most of the variables are easy to identify. A difficult question however may be: how to measure the return on equity that a company or investor should expect on a project? In literature, although controversial, the Capital Asset Pricing Model (CAPM) is often used as a method to calculate a company's cost of equity. The basics of this model were laid by Sharpe (1964) and Lintner (1965). Like the theory behind WACC, a perfect market is supposed.

In this market, for reviewing their portfolio, investors look at two variables: expected return and risk. The latter one is measured by a beta, which is composed of the variances of the securities and the

covariance of securities in the investor's portfolio. When an investor can add one of two projects with the same expected return, but different variances, it will choose the project with the lowest variance. And when it can choose between two projects with the same variance but different expected returns, it will choose the project with the highest expected return (Lintner, 1965). Following this reasoning, for an efficient set of investment opportunities, a linear relationship between risk and expected return can be observed (Sharpe, 1964).

An investor can also choose to invest his money in risk-free assets, for example government bonds. The return he receives on this investment is called the risk-free rate R_f. For other investment opportunities, an investor will receive a risk premium above the risk-free rate. Since expected return is related to risk, we can say: the higher the risk, the higher the expected return/risk premium. The expected return on a specific security $E(R_1)$ is measured in relation to the expected return on the portfolio $E(R_p)$. To add value to a portfolio, the actual expected return of a security should be at least the expected return found in the CAPM. The CAPM formula is:

$$E(R_1) = R_f + \beta_1(E(R_p) - R_f)$$

The beta of a project β_1 can be calculated as follows:

$$\beta_1 = \frac{Cov(R_m, R_1)}{Var(R_{m)}}$$

An alternative way of calculating the CAPM is using an industry beta instead of a specific company beta. The assumption behind this is that companies in the same industry have about the same systematic risks, so also a similar industry beta. An industry beta can be measured as the average beta of companies in the same industry.

7.3.1.1 Levered and unlevered beta

Leverage increases a company's risk on financial distress and consequently a company's beta, so these betas should first be unlevered. The common formula is (Hamada, 1972):

$$\beta_l = \beta_u \left(1 + \frac{D}{E}\right)$$

Here, β_l is the company's levered beta and β_u is the company's unlevered beta. Because tax shield is considered as risk-free income, it should also be taken into account. The formula becomes:

$$\beta_l = \beta_u \left(1 + (1 - CT)\frac{D}{E}\right)$$

Empirical evidence for the tax-adjusted version of (un)levered beta was found among others by Faff, Brooks & Kee (2002). The only disadvantage they and other authors find is that the Hamada formula overpenalises high Debt-Equity ratios, starting from a debt-equity ratio of 1:1.

In 7.2.4, I discussed that the tax shield should be discounted, because Mitros benefits from the tax shield in the future. Therefore, the tax shield should also be discounted here.

$$\beta_l = \beta_u \left(1 + (1 - \frac{CT}{(1 + R_f)^n})\frac{D}{E}\right)$$

Although literature has come up with other formulas for the relation between beta, debt-equity ratio and tax shield (most recently by (Fernández, 2004)), these formulas have often been criticised themselves (see for example (Cooper & Nyborg, 2006)). Hamada's (1972) task-adjusted formula is still most popular in literature and practice and will therefore be used for the Mitros case.

7.3.1.2 Criticism on CAPM

Although the model seems to have become popular in practice because of its easy usability (Merton, 1973), in the academic world the model has been controversial since it has been published. These discussions are about the large number of assumptions needed for this model and the lack of empirical evidence. By doing cross section regression tests and time-series regression tests, several authors found higher than expected outcomes for R_f and lower than expected outcomes for $\beta_1(E(R_p) - R_f)$ (Fama & French, 2004). This suggests a flatter beta market premium than predicted by CAPM. Furthermore, cost of equity is found higher for companies with high Earnings-Price ratios (Basu, 1977) and high debt-equity ratios (Bhandari, 1988). According to Banz (1981), there is also a size effect. Small companies have higher returns than predicted by CAPM. So, although CAPM is still a widely used model, empirical validation is low (Fama & French, 2004). However, this research that provides empirical evidence against CAPM has all been done to stock returns. No empirical evidence has been found against the use of CAPM for project's cost of capital (Da, Guo, & Jagannathan, 2011).

To deal with these outcomes, Merton (1973) came up with an Intertemporal Capital Asset Pricing Model (ICAPM) and Fama & French (1992) came up with a three-factor model. Besides the CAPM variables, this model includes a size beta and a book-market ratio beta.

Despite this criticism on the CAPM, it is still a very popular model in practice. In their survey, Graham and Harvey (2001) find that 73.5% of a sample of 392 companies uses the CAPM and Welch (2008) finds that 75.0% of finance professors recommend using the CAPM for capital budgeting decisions. It is also the most common model to calculate required rate of returns for equity in public capital real estate markets (Breidenbach, Mueller, & Schulte, 2006). Therefore, I will use the CAPM for quantifying Mitros cost of equity.

7.3.2 Capital Asset Pricing Model: Mitros

Here I will apply the CAPM to the Mitros case.

7.3.2.1 Beta

It is not possible to calculate a beta for Mitros projects in a direct way, because no appropriate data is available. Therefore the beta needs to be calculated in an indirect way by taking a real estate industry average. There are big differences in real estate returns and betas among countries (Bond, Karolyi, & Sanders, 2003; Ling & Naranjo, 2002) so the beta should be an average of Dutch real estate industry. Real estate industry however is still a broad sector including housing, hotels, offices and retail. These are different markets with different betas. Breidenbach et al. (2006) find for the American market that housing has a beta of 0.75 in a real estate portfolio. Unfortunately, no such beta is available for Dutch housing market, so a Dutch real estate industry average will be used. Both Bond et al. (2003) and Ling & Naranjo (2002) calculated a Dutch real estate beta in their research to international real estate returns. Both compare data from listed real estate firms with the MSCI World Index. Bond et al. (2003) find from 9 companies an industry beta of 0.261 for the period 1990-2001 and Ling & Naranjo (2002) find from 7 companies a beta of 0.348 for the period 1984-1999.

For this thesis, I will use more recent data from the Thomson Reuters databases. Their betas are calculated from monthly price levels over a 5 years period compared to the S&P 500. Also actual total debt to total equity ratios are provided, so an unlevered beta can be calculated. For the beta values used, see Appendix 2.

Using such an industry beta for the Mitros case has some important disadvantages:

- It is a beta which includes total real estate industry. Housing is not divided from other types of real estate, but the markets are different, including different kinds of customers.
- By calculating the unlevered beta, only actual leverage of the real estate companies is considered, not leverage during the 5 year calculation period. This will decrease the accuracy of the unlevered betas.
- Dutch real estate companies are also involved in real estate projects abroad. This will influence their company betas and decrease accuracy for Dutch real estate.
- Betas are derived from comparison with the American S&P 500 index, which mostly represents the performance of American companies. A Dutch, European or even World index would probably have been more accurate for the Mitros case, because than systematic risk would have been better represented than with a pure American index.

Although the disadvantages of using the industry average are big, it is the best beta estimation available. From 7 Dutch real estate companies, β_l of 0.523 and β_u of 0.310 was found (see Appendix 2). Mean total debt to total equity was 0.97. So, Dutch public real estate companies on average are financed with an equal amount of debt and equity.

7.3.2.2 Risk-free rate

The risk-free rate is the return on an investment that has no market risks. In literature and textbooks, a very short government bond or Treasury bill is proposed as the risk-free alternative. However, in practice most firms use long term investment bonds as the risk-free alternative. From a survey among 27 large corporations and 10 well-known financial advisors, 70% of both groups use Treasury bond maturities of 10 years or longer (Bruner, Eades, Harris, & Higgins, 1998). These long term securities are used because they better reflect the choice between a long term investment and a risk-free alternative. For this reason it would also better fit the Mitros case and a government security of 10 years will be used as risk-free alternative. This is most common; differences between 10 year government bonds or longer bonds are usually small (Bruner, et al., 1998; Mukherji, 2011).

Besides maturity of the risk-free rate alternative, a choice has to be made about which country government bond will be used for the risk-free rate. In (American) literature, America's government bonds are typically used. However, these are not risk-free for Mitros due to currency risks. Therefore it should choose a government bond that is valued in Euros. The bond with the lowest interest rate can be considered as the investment opportunity with the lowest risk available to Mitros and this rate should be used as risk-free rate. This does not necessarily have to be Dutch government bonds.

7.3.2.3 Market premium

The market premium is the difference between the return on a market portfolio and the risk-free rate. Because the beta that I use was calculated with the S&P 500 as a portfolio, I will use the market return from the S&P 500 to calculate the market premium. The industry beta tells something about the relationship between the company returns and market returns of a defined portfolio.

The beta calculation was done for a 5 year period. However, because market returns of a stock index are very volatile, I will take a mean annual return for a longer period. Dichev & Yu (2011) have calculated an annual return (including dividends) of the S&P 500 for the period 1980-2008 of 10.9%.

7.3.3 Conclusion

Cost of equity can be calculated as follows:

$$C_E = R_f + \beta_l (R_m - R_f)$$

Where

$$\beta_l = \beta_u \left(1 + \frac{D}{E}\right)$$

If we fill in the values found in this paragraph, cost of equity becomes:

$$C_E = R_f + \beta_l (10.9 - R_f)$$

Where

$$\beta_l = 0.310 \left(1 + \frac{D}{E}\right)$$

7.4 Weighted Average Cost of Capital

In 7.2 and 7.3 I discussed the costs of debt and equity for Mitros and translated them into formulas. Now it is possible to calculate a Weighted Average Cost of Capital (WACC) for Mitros. The WACC can be formulated as

$$WACC_{Mitros} = D * C_D + E * C_E$$

With D and E being the amounts of Debt and Equity. Including the results of 7.2 and 7.3, the formula becomes:

$$WACC_{Mitros} = D\left(1 - \frac{0.25}{(1 + R_f)^n}\right) I + \left(1 - \frac{0.25}{(1 + R_f)^n}\right)\left(\frac{5{,}400/V}{m} + \frac{900}{V}\right) + E\,(R_f + \beta_l\,(10.9 - R_f))$$

With

$$I = EURIBOR/IRS_m + P$$

And

$$\beta_l = 0.310 \left(1 + \frac{D}{E}\right)$$

As the formula shows, still a number of variables have to be determined to calculate the WACC and determine the optimal WACC. These variables, like project size and risk-free rate will depend on the specific project that has to be financed and the moment of financing. In 7.5, I will show the WACC calculation for a fictional project.

7.5 Application of the WACC: an example

Now the WACC determinants have been identified, it is possible to calculate the WACC and determine the optimal capital structure for Mitros commercial projects. In this paragraph, I will calculate the WACC for a fictional project of EUR 5 million, which is a typical project size for commercial rental housing (see also appendix 1). Because project size is a determinant in the WACC formula, I will also look for the changes in project size. I will also look for the effects on discounting the tax shield.

7.5.1 Variables input

In 7.4, I formulated the WACC for Mitros commercial projects. Some variables, which may be different for every project and moment in time, still have to be filled in. I will use the following variables:

Amount of Debt D and Equity E; WACCs are calculated for all combinations of Debt and Equity. The maximum amount of debt depends on the maximum loan-to-value offered by the bank and varies between 60% and 90%. This is based on the interviews with the banks (see Appendix 7). The maximum amount of equity for the optimal WACC calculation is 40%, based on the interviews with Mitros Treasury manager and Financial director.

Risk-free rate R_f; According to the ECB (2011), the lowest Euro government bond rate at the moment is from Germany (1.87% in November 2011). Therefore this rate can best be used as the risk-free rate for the Mitros case. Instead of investing in a commercial project, Mitros has the opportunity to buy risk-free German government bonds with a 10 year maturity.

Recent economic and financial developments make the use of government bonds as risk-free alternatives questionable. Government bonds of (some) European countries are not always considered as being risk-free anymore and shifts from riskier countries to safer countries may influence these risk-free rates. To decrease for this effect, a 12 months average could be used. The 12 months average for the German 10 year government bonds is 2.69% (ECB, 2011).

Interest rate I; Mitros can choose between several banks which all maintain different internet rates, maximum loan-to-value and maturity limits. Because Mitros does not want to be dependent on just one single best bank, WACCs are calculated for each of the five banks that have been interviewed. For comparison reasons, the 10 years Euro IRS will be used as part of the interest rate for all five banks. This way, a shorter maturity maximum of a bank will not give an advantage in the cost of capital calculation. The risk premium P is different for each bank and is based on information from the interviews with the banks. Summarising, I will assume fixed debt with a yield to maturity of 10 years. For our examples, the 10 years Euro IRS of 4 January 2012 will be used, which is 2.408% (Wallich & Matthes, 2012).

Maturity m; for the interest rate, I assume fixed debt with a 10 years yield to maturity. m will therefore be 10.

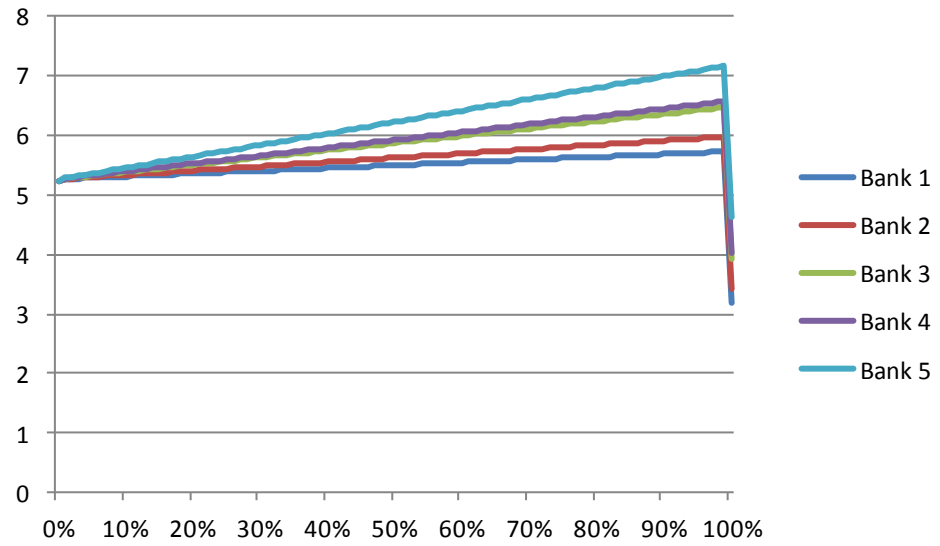
Years to tax shield payout n; The time until the tax shield will be paid out may be different in different years of the debt period. When debt has just been attracted, it may take several years until tax shield is paid out. In a later stage Mitros may be profit-making and tax shield is paid out immediately. Therefore, I propose to use the average time until tax shield is paid over the 10 year period debt contract. Because no information is available from which year Mitros will be making taxable profits, I will assume for this example that the average time until payout of tax shield is 5 years. However, I will also look for the effects when tax shield is paid out immediately or not at all.

Project Value V; I will use a project value of EUR 5 million. Besides, I will also look for the effect of different project values on transaction costs, maintenance costs and WACC as a whole.

7.5.2 Results

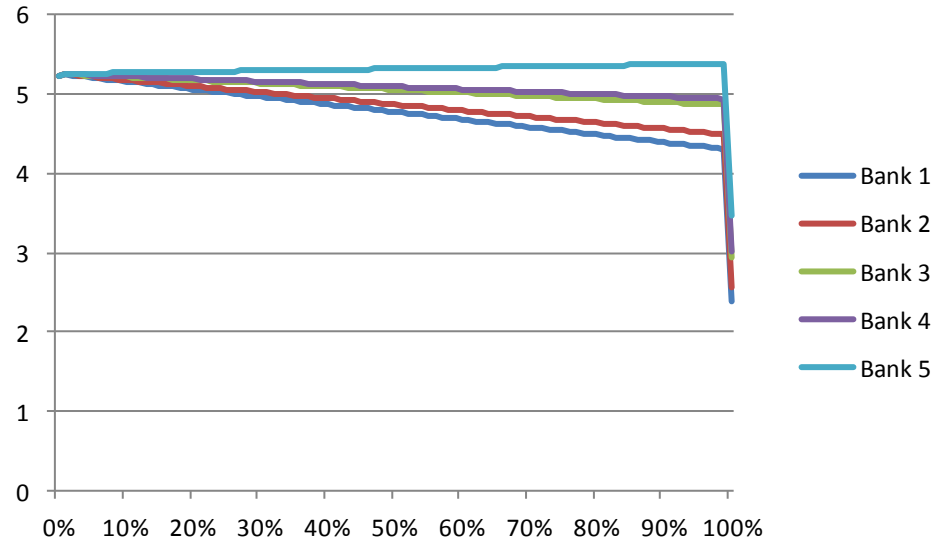
Based on the information in 7.5.1, I calculated the WACC for all combinations of debt and equity, for different project sizes and with tax shield, discounted tax shield and no tax shield at all. The WACC curves for a EUR 5 million project are shown in figures 7.2, 7.3, and 7.4. The calculations of these WACCs can be found in Appendix 3.

Figure 7.2 WACC curve of a EUR 5 million commercial project without tax shield



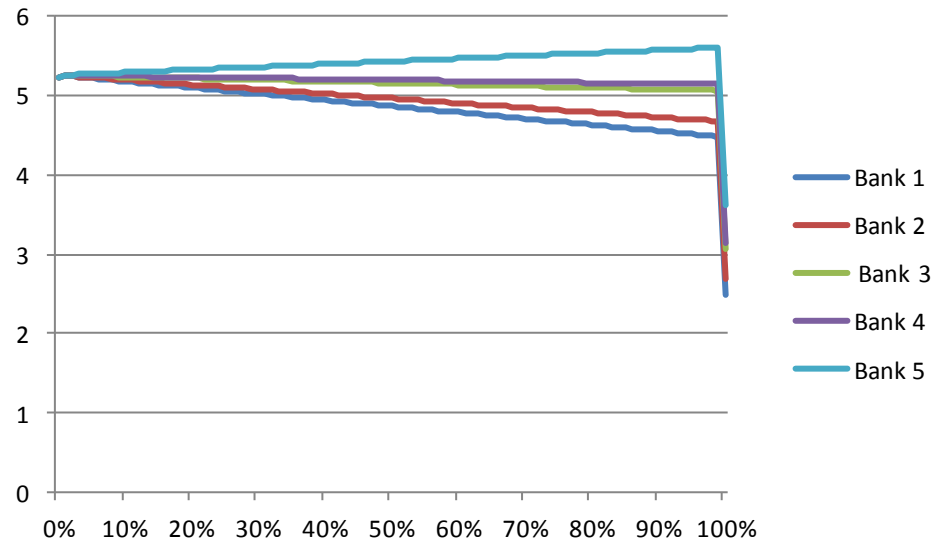
On the horizontal axis, the amount of debt in the capital structure is displayed. On the vertical axis, the cost of capital is displayed.

Figure 7.3 WACC curve of a EUR 5 million commercial project with (non-discounted) tax shield



On the horizontal axis, the amount of debt in the capital structure is displayed. On the vertical axis, the cost of capital is displayed.

Figure 7.4 WACC curve of a EUR 5 million commercial project with discounted tax shield



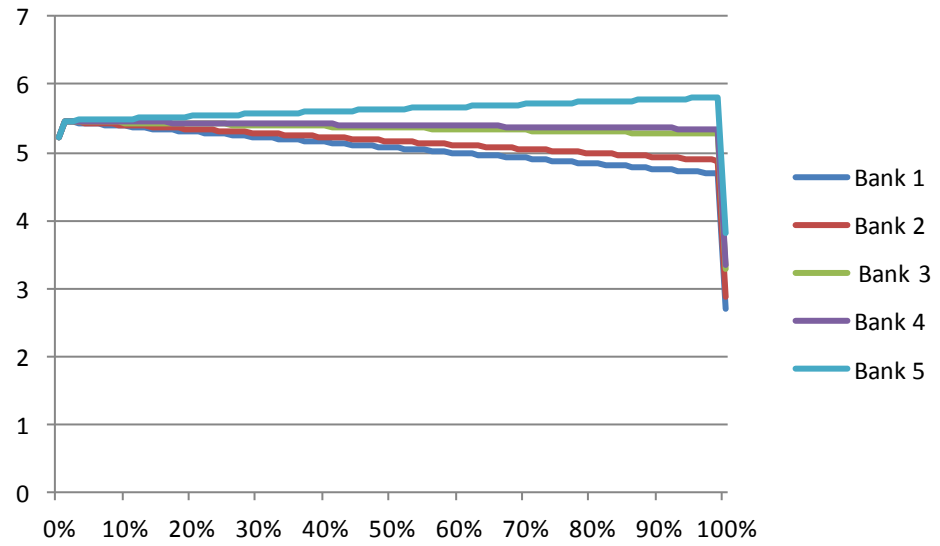
On the horizontal axis, the amount of debt in the capital structure is displayed. On the vertical axis, the cost of capital is displayed.

If we look to these figures, the tax shield effect is very clear and very decisive in this case. Without a tax shield, the cost of capital increases when more debt is added to the capital structure (Figure 7.2). In case of a tax shield, the cost of capital declines when more debt is added to the capital structure with four of the five banks (Figure 7.2 and 7.3). This can be explained by the fact that the tax shield both affects the interest cost of debt and the levered cost of equity through its tax-adjusted beta. In case of no tax shield, the WACC line implies that Mitros should maximise the amount of equity in the project capital structure. In case of a tax shield, Mitros should maximise the amount of debt for four of the five banks, because the cost of capital is lower when more debt is added to the project capital structure. The difference between a discounted tax shield and a non-discounted tax shield appears to be quite small.

The WACC curves are linear, except for a very small jump in the beginning and a sharp decline at the end. The small jump in the beginning is caused by the fact that there are no transaction and maintenance costs in the case of 0% debt, but they are at 1% debt. The sharp decline in the end of the lines relate to the extreme rise of the beta at high levels of equity, which makes the cost of equity very high at high levels of debt. However, at 100% debt level, there are no equity costs. The effect disappears and only the costs of debt remain.

The WACC curves look similar for smaller and larger projects, except for the beginning. The jump in the beginning of the curve is bigger for smaller projects. In figure 7.5, the WACC curve (with discounted Tax shield) of a EUR 500,000 project is presented. The somewhat bigger jump of the WACC in the beginning represents the transaction and maintenance costs. Transaction and maintenance costs are 22.5 basis points for the EUR 500,000 project and a tenth of this (2.25 basis points) for the EUR 5,000,000 project. Appendix 4 shows more closely the relationship between project size and transaction and maintenance costs. Compared to the EUR 5 million project, the movement of the WACC line in the EUR 500,000 project is similar.

Figure 7.5 WACC curve of a EUR 500,000 commercial project with discounted tax shield



On the horizontal axis, the amount of debt in the capital structure is displayed. On the vertical axis, the cost of capital is displayed.

The figures show the WACC for all combinations of debt and equity. The levels of debt and equity however are constrained by the available amount of equity and maximum loan-to-value offered by the banks. In table 7.1, the optimal WACC values are summarised, given these limitations. In the cases of a tax shield (TS), the optimal (lowest) WACC implies a maximisation of debt level, except for bank 5 for which the WACC increases when more debt is added. For the case without tax shield, WACC is optimal when equity is maximised. In this case, the WACC increases for all banks when more debt is added.

Table 7.1 Optimal WACC for Mitros commercial property

	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Average
Risk premium (*P*)	0,75%	1,00%	1,50%	1,60%	2,20%	1,41%
Interest rate (*I*)	3,16%	3,41%	3,91%	4,01%	4,61%	3,82%
Max. loan-to-value	75%	90%	60%	70%	80%	75%
WACC (No TS)	5,54	5,69	5,99	6,05	6,41	5,94
WACC (TS)	4,54	4,56	5,02	5,03	5,33	4,90
WACC (Disc. TS)	4,67	4,73	5,14	5,18	5,54	5,05

The WACCs presented in this table are the lowest WACCs, given the limitation of the maximum loan-to-value and maximum equity level of 40%. WACCs are calculated for a project value of EUR 5 million.

For our case with a discounted tax shield, the lowest cost of capital (with bank 1) is 4.67 by using the maximum debt level offered by that bank, which is 75%. The average optimal discounted TS WACC is 5.05. This is only 15 basis points higher than the average optimal (non-discounted) TS WACC. Table 8.1 shows clearly the large effect of the tax shield. On average, the No TS WACC is more than 100 basis points higher than the non-discounted TS WACC.

This example of a fictional project gives a close view about the WACC for real commercial projects. The real WACC for a project will however always depend on the project size, debt maturity, actual risk-free rate, EURIBOR/IRS and time until tax shield payout.

7.6 Conclusion

In this chapter I discussed the Weighted Cost of Capital for Mitros commercial projects and calculated the cost capital for a fictional project. At the debt costs side, I did not only look at the interest rate but also at transaction and maintenance costs of debt. These transaction and maintenance costs were used in the WACC calculations, but their influence is small; 22.5 basis points for a EUR 500,000 project and 2.25 basis points for a EUR 5 million project. Furthermore, the tax shield was discounted to compensate for the fact that Mitros is loss-making and will only benefit from the tax shield in the future. Costs of equity were calculated using the CAPM using an industry beta. This method has a number of disadvantages but is the best method, given the data available. Ultimately, I calculated the WACC for a fictional EUR 5 million project. Taking the discounted tax shield method, the optimal WACC is 4.67 for the cheapest bank and 5.05 on average. The effect of the tax shield is big and decisive for direction of optimal WACC outcomes. The effect of discounting the tax shield compared to not discounting the tax shield was only small, 15 basis points on average.

8 Conclusion

Recent developments on financing of social housing urge Dutch housing associations to review the financing of their commercial property. In this report, I researched the financing of commercial rental housing, owner-occupied houses and social property for housing associations Mitros in Utrecht. The main question of this research was:

How can Mitros optimally finance new commercial property by using a corporate financing strategy?

First I divided four subjects in financing literature which are relevant for optimal financing: capital structure, debt maturity, variability of interest rate and timing of contracting.

8.1 Capital structure

In Chapter 4, I found that both the costs of debt and equity are low. Compared to corporations, Mitros cannot issue equity. In Chapter 7, I formulated the WACC for Mitros. Besides the interest costs of debt and demanded return on equity, I considered transaction and maintenance costs of debt and discounting effects on tax shield. When tax benefits are considered, the optimal capital structure for Mitros' commercial projects consists of the maximum amount of debt available, which leads to the lowest cost of capital. The maximum loan-to-value is different for every bank, and varies between 60% and 90%. In an example of a EUR 5 million project, I found a minimum WACC (including discounted tax shield) of 4.67 with 75% debt and 25% equity.

In Chapter 5, I analysed several financing sources available to Mitros. Owner-occupied houses are paid in advance for most part by buyers of these houses, which is a minimum of 70%. The remaining part can be financed both with short term debt or equity. Mitros' credit facility may be an easy way to finance unsold houses until they are sold.

Bank loans are the most appropriate type of debt for the financing of Mitros commercial properties. Little attention has been paid to foreign banks, but they may be an alternative for Dutch banks. The financing of Mitros' commercial property involves relatively standard mortgage contracts which foreign banks are familiar with. Most commercial projects are too small to make EMTN programs or private placements a good alternative for bank loans.

8.2 Debt maturity

A long debt maturity fits best to Mitros' commercial properties, which typically have a long life time. This will reduce refinancing costs and liquidity risks. Because of flexibility to sell property or change banks, a shorter debt maturity should be chosen than the maturity of the properties. In Chapter 6, I discussed the maximum maturity offered by banks. Banks offer maximum debt maturities ranging from 7-15 years. These debt maturities are very short compared to property maturities. Choosing maximum debt maturities offered by banks gives the lowest refinancing costs and liquidity risk and fits best with the maturity of the commercial property.

For debt financing of owner-occupied houses, short term debt fits best to the (expected) short holding period of the houses for Mitros.

8.3 Variability of interest rates

Mitros is a risk averse organisation. In its choice for fixed or floating debt, Mitros should prefer risk reduction above market timing and finance its commercial projects with fixed interest rates. This is also recommended by banks. Fixed interest rates can be achieved through fixed debt or the combination of floating debt and derivatives.

8.4 Timing of contracting

It can be attractive to attract debt for a project after construction has been completed. This gives more security to the banks, because it does not take risks for the construction period. This may result in lower prices. Banks however stress the importance of timely involvement of the bank before construction starts, so the housing association knows for sure that the project can be financed. To benefit from both, Mitros can involve the bank in an early stadium before start of the construction period and inform about the eligibility of the project. When construction has completed, it can do an official loan request. This way, it reduces the risk that property is not eligible for borrowing and also benefits from the late moment of contracting.

8.5 Contributions to practice

This research and the outcomes contribute the following to Mitros:

- First of all, the outcomes of this report on capital structure, debt maturity, variability of interest rate and timing of contracting can be used as guidelines by Mitros for the financing of its commercial projects.
- This report provides an in-depth analysis of the composition of the costs, benefits and risks of capital for Mitros' commercial projects. I identified determinants for these costs, benefits and risks both from literature and practice and graded their value for Mitros' commercial projects. This analysis gives a better understanding of Mitros' low costs of capital and may be valuable to understand the influence of policy decisions and changing developments on costs, risks and benefits in the future.
- Borrowing without WSW guarantees for commercial projects is new for Mitros and many other housing associations. This report provides information on the interest rates, maximum loan-to-value and other terms and conditions demanded by banks. This is important information for assessing the eligibility. This relates not only to costs but also to other project characteristics, which were mentioned by the bank representatives as being important for the assessment of loan requests.
- This report provides an extensive WACC formula for Mitros' commercial projects. Transaction costs and maintenance costs have been added to the standard WACC formula and a beta has been calculated, which is necessary for cost of equity calculations. This formula may help Mitros to calculate the cost of capital for real commercial projects and WACC outcomes can be used as discount rate for the assessment of these projects.

The research in my thesis has been done to Mitros, but some parts in this research may also be applied to other housing associations. Every housing association has different characteristics on size, leverage and growth opportunities, but asset tangibility and specificity, supervision and business risk will for many associations be quite similar to Mitros. Interest premiums may be different per association because they partially depend on the association characteristics. However, other terms and conditions demanded by banks for financing commercial projects may be similar to Mitros, because these are, as discussed in Chapter 6, about the project characteristics. Also, the method here to calculate the WACC for Mitros' commercial projects is applicable by other associations. Only some numbers and consequently the outcomes of this WACC calculation will be different from Mitros.

8.6. Contributions to literature

My research provides a number of contributions to existing academic literature.

- One of the objectives of my research was to analyse how existing financing theories work out in the Mitros case. This is interesting because Mitros is a social non-organisation working in a government-controlled environment, which is different from corporations with commercial objectives, working in a commercial environment. Chapter 4 has shown that corporate financing theories provide valuable input for analysing optimal financing in the

Mitros case. It was found that agency costs work different for a housing association compared to commercial corporations, due to the fact that Mitros has no shareholders. Besides the traditional financing theories, an extra determinant was discussed to explain Mitros low costs of capital: the influence of an independent supervisor.These findings probably do not only apply to Mitros but also to other Dutch housing association. The role of an independent supervisor may also a determinant of optimal financing for other (government controlled) industries that are supervised by an independent supervisor. Examples in the Netherlands may be hospitals or the Nederlandse Spoorwegen (Dutch Railroad Company).

- In my research, I have combined the determinants of the most important capital structure theories into one model. The model can be a useful tool in future research to understand differences between the capital structures of companies.
- In this report, additional variables have been added to the standard WACC formula. These are transaction costs of debt contracting, maintenance costs of a debt contract and the influence of loss carry forwards. These variables contribute to more accurate WACC calculations. Transaction costs and maintenance costs will be most relevant for relative small amounts of debt. Discounting the tax shield is relevant for WACC calculations of loss-making companies.

9 Recommendations

In this final part of my thesis, I will give some recommendations for the practice of Mitros commercial financing and for further research.

9.1 Recommendations to Mitros

Based on this research, I will do some recommendations to Mitros for the financing of its commercial projects.

- Commercial rental housing and commercial public property should be financed with the maximum amount of debt available. More debt means a lower cost of capital. Owner-occupied houses should be financed with payments from buyers, which accounts for 70% of the costs. The remaining should be financed with the use of Mitros credit facility or equity until these houses are sold.

- Banks offer maximum debt maturities of 7-15 years. This is much lower than the maturity of Mitros assets. Considering flexibility and liquidity risk, Mitros should choose the maximum debt maturity offered by banks.

- A fixed interest rate fits best with Mitros stable cash flows and its status as a social organisation. Therefore, Mitros should choose debt with fixed interest rates or variable debt combined with derivatives.

- During an early stage of the project, Mitros should discuss with banks whether a project can be financed. The debt contract should be closed after the construction of the property has been completed to get better terms on the debt contract.

9.2 Recommendations for further research

At the end of my research, I would also like to do some suggestions for further research.

- The WACC calculation for Mitros commercial projects shows two topics which need further research. The first one is the cost of equity, including the beta. In this research, I used the industry beta of Dutch public real estate companies, compared to the US S&P 500 index. As has been discussed in Chapter 8, this method has shortcomings. A better, more advanced method would be to calculate different betas for project categories. A distinction could be made between social housing, commercial housing and public purpose buildings. An even more advanced approach would be to calculate betas for different kinds of houses, e.g. apartments, flats and terraced houses. Betas should be calculated based on market value fluctuations of properties, compared to total market value fluctuations. This can be done for one housing association or for a group of associations. This method needs a lot of data, but will provide a better beta and expected return on equity calculation.

- I did not find any literature about the relation between tax shield benefits and loss carry forwards. For my calculations, I used the risk-free rate for discounting tax benefits, which is recommended for present value calculations of tax shields. However, in many cases of loss carry forwards, it may be uncertain if and when a company will be profit-making. This may especially be the case for small growth companies which need large initial investments. Further research on this topic is needed to find a more appropriate method for future tax benefits.

- In Chapter 4, I discussed how the supervision on Mitros by the CFV provides assurance to lenders that Mitros management would pursue a responsible policy. Also, the assessment of

Mitros by the CFV is publicly available. This supervision and public available assessment reduce information asymmetry costs and financial distress costs of Mitros. This influence of an independent supervisor may also be the case for other industries. Further research to supervision and its influence on information asymmetry costs may give a better understanding of this relationship.

- The objective of the temporal regulations was to abolish State aid to housing associations for their commercial projects. In this report, I argue that in the new situation housing associations (will) still benefit from State aid. Supervision and the fact that Mitros loans for most part are guaranteed by the WSW dramatically reduce the risk of bankruptcy and consequently reduce the risk on commercial loans. The easiest way to abolish State aid completely is by forbidding housing associations to perform any commercial projects or only permitting these activities in a separate entity which receives no support from the housing association. However, these solutions would have significant disadvantages to popular combination projects, which are buildings that include both social and commercial property. Further research on this topic may provide solutions that reduce State aid to commercial activities (as desired by the EU), but do not hurt the socially desired combination projects.

References

Aedes. (2007a). Aedescode Retrieved January 18, 2011, from http://www.aedesnet.nl/binaries/webwinkel/2007/2007-01-01-aedescode.pdf

Aedes. (2007b). Wie zijn corporaties? Retrieved January 18, 2011, from http://www.aedesnet.nl/content/artikelen/achtergrond/2007/01/Wie-zijn-woningcorporaties-.xml

Almeida, H., & Philippon, T. (2007). The Risk Adjusted Cost of Financial Distress. *The Journal of Finance, 62*(6), 2557-2586.

Andrade, G., & Kaplan, S. (1998). How Costly is Financial (Not Economic) Distress? Evidence from Highly Leveraged Transactions that Became Distressed. *Journal of Finance, 53*, 1443-1493.

Baker, M., & Wurgler, J. (2002). Market timing and capital structure. *The Journal of Finance, 57*(1), 1-32.

Balakrishnan, S., & Fox, I. (1993). Asset specificity, firm heterogeneity and capital structure. *Strategic Management Journal, 14*(1), 3-16.

Banz, R. W. (1981). The relationship between return and market value of common stocks. *Journal of Financial Economics, 9*(1), 3-18.

Basu, S. (1977). Investment performance of common stocks in relation to their price-earnings ratios: A test of the efficient market hypothesis. *The Journal of Finance, 32*(3), 663-682.

Belastingdienst. (2011). Verrekenen van verliezen Retrieved February 1st, 2012, from http://www.belastingdienst.nl/wps/wcm/connect/bldcontentnl/belastingdienst/zakelijk/winst/vennootschapsbelasting/verrekenen_van_verliezen/

Berger, A. N., & Bonaccorsi di Patti, E. (2006). Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry. *Journal of Banking & Finance, 30*(4), 1065-1102.

Bevan, A. A., & Danbolt, J. (2002). Capital structure and its determinants in the UK-a decompositional analysis. *Applied Financial Economics, 12*(3), 159-170.

Bhandari, L. C. (1988). Debt/equity ratio and expected common stock returns: Empirical evidence. *The Journal of Finance, 43*(2), 507-528.

Blank, I. A. (2000). *Management of Capital Formation*. Kiev: Nika-Tsentr.

Bond, S. A., Karolyi, G. A., & Sanders, A. B. (2003). International real estate returns: a multifactor, multicountry approach. *Real Estate Economics, 31*(3), 481-500.

Breidenbach, M., Mueller, G. R., & Schulte, K. W. (2006). Determining real estate betas for markets and property types to set better investment hurdle rates. *Journal of Real Estate Portfolio Management, 12*(1), 73-80.

Bruner, R. F., Eades, K. M., Harris, R. S., & Higgins, R. C. (1998). Best practices in estimating the cost of capital: survey and synthesis. *Financial Practice and Education, 8*, 13-28.

Carey, M., Prowse, S., Rea, J., & Udell, G. (1993). The economics of the private placement market. *Staff Studies*.

Carter, D. A., & Sinkey, J. F. (1998). The use of interest rate derivatives by end-users: The case of large community banks. *Journal of Financial Services Research, 14*(1), 17-34.

Centraal Fonds Volkshuisvesting. (2010). De corporatiesector in cijfers Retrieved January 27, 2012, from http://www.cfv.nl/taken/informatievoorziening/de_corporatiesector_in_cijfers

Centraal Fonds Volkshuisvesting. (2011a). Jaarverslag 2010. Naarden: Centraal Fonds Volkshuisvesting.

Centraal Fonds Volkshuisvesting. (2011b). Nadere informatie bijzondere projectsteun; brief aan woningcorporaties 14 januari 2011. Naarden: Centraal Fonds Volkshuisvesting.

Chava, S., & Purnanandam, A. (2007). Determinants of the floating-to-fixed rate debt structure of firms. *Journal of Financial Economics, 85*(3), 755-786.

Cooper, I. A., & Nyborg, K. G. (2006). The value of tax shields IS equal to the present value of tax shields. *Journal of Financial Economics, 81*(1), 215-225.

Cotei, C., & Farhat, J. (2009). The Trade-off Theory and the Pecking Order Theory: Are they mutually exclusive? *North American Journal of Finance and Banking Research Vol, 3*(3).

Crabbe, L. E., & Turner, C. M. (1995). Does the liquidity of a debt issue increase with its size? Evidence from the corporate bond and medium-term note markets. *Journal of Finance*, 1719-1734.

Czischke, D., & Pittini, A. (2007). Housing Europe 2007: Review of social, co-operative and public housing in the 27 EU member states. Brussels: CECODHAS European Social Housing Observatory.

Da, Z., Guo, R. J., & Jagannathan, R. (2011). CAPM for estimating the cost of equity capital: Interpreting the empirical evidence. *Journal of Financial Economics*.

De Bie, T., & De Haan, L. (2007). Market timing and capital structure: Evidence for Dutch firms. *De Economist, 155*(2), 183-206.

Denis, D. J., & Mihov, V. T. (2003). The choice among bank debt, non-bank private debt, and public debt: evidence from new corporate borrowings. *Journal of Financial Economics, 70*(1), 3-28.

Dichev, I. D., & Yu, G. (2011). Higher risk, lower returns: What hedge fund investors really earn. *Journal of Financial Economics*.

Donner, J. P. H. (2010a). [Oordeelsbrief 2010].

Donner, J. P. H. (2010b, November 8). Tijdelijke regeling diensten van algemeen economisch belang toegelaten instellingen volkshuisvesting, *Staatscourant*.

Easley, D., & O'hara, M. (2004). Information and the cost of capital. *Journal of Finance*, 1553-1583.

ECB. (2011, 13-12-2011). Long-term interest rate statistics for EU Member States, from http://www.ecb.int/stats/money/long/html/index.en.html

Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of management review*, 57-74.

Esty, B. C. (2003). *The economic motivations for using project finance*. Harvard Business School.

Etro, F. (2010). Endogenous market structures and the optimal financial structure. *Canadian Journal of Economics/Revue canadienne d'économique, 43*(4), 1333-1352.

European Commission. (2009). State aid No E 2/2005 and N642/2009 – The Netherlands; Existing and special project aid to housing corporations. Brussels: European Commission.

European Commission. (2010). State aid E 2/2005 – The Netherlands; Existing aid to housing corporations: Decision amending paragraphs 22-24 of the Commission Decision of 15 December 2009. Brussels: European Commission.

Faff, R. W., Brooks, R. D., & Kee, H. Y. (2002). New evidence on the impact of financial leverage on beta risk: A time-series approach. *The North American Journal of Economics and Finance, 13*(1), 1-20.

Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. *The Journal of Finance, 47*(2), 427-465.

Fama, E. F., & French, K. R. (2002). Testing Trade Off and Pecking Order Predictions About Dividends and Debt. *Review of financial studies, 15*(1), 1.

Fama, E. F., & French, K. R. (2004). The capital asset pricing model: theory and evidence. *The Journal of Economic Perspectives, 18*(3), 25-46.

Fernández, P. (2004). The value of tax shields is NOT equal to the present value of tax shields. *Journal of Financial Economics, 73*(1), 145-165.

Flannery, M. J. (1986). Asymmetric information and risky debt maturity choice. *Journal of Finance*, 19-37.

Frank, M. Z., & Goyal, V. K. (2003). Testing the pecking order theory of capital structure. *Journal of Financial Economics, 67*(2), 217-248.

Frank, M. Z., & Goyal, V. K. (2008). Trade-Off and pecking order theories of debt. In B. E. Eckbo (Ed.), *Handbook of corporate finance: Empirical corporate finance* (Vol. 2): Elsevier/North-Holland, Amsterdam.

Graham, J. R. (2000). How big are the tax benefits of debt? *The Journal of Finance, 55*(5), 1901-1941.

Graham, J. R., & Harvey, C. R. (2001). The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics, 60*(2-3), 187-243.

Guedes, J., & Opler, T. (1996). The determinants of the maturity of corporate debt issues. *Journal of Finance*, 1809-1833.
Hamada, R. S. (1972). The effect of the firm's capital structure on the systematic risk of common stocks. *The Journal of Finance, 27*(2), 435-452.
Harris, M., & Raviv, A. (1991). The theory of capital structure. *Journal of Finance*, 297-355.
Hovakimian, A., Opler, T., & Titman, S. (2001). The debt-equity choice. *Journal of Financial and Quantitative analysis, 36*(01), 1-24.
Jeanneret, P. (2003). *Seasoned Equity Offerings and their Impact on the Firm Value.* Université de Neuchâtel, Neuchâtel.
Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305-360.
Ju, N., & Ou-Yang, H. (2006). Capital Structure, Debt Maturity, and Stochastic Interest Rates. *Journal of Business, 79*(5), 2469-2502.
Klis, H. (2011, 7-6-2011). Woningcorporatie Woonbron wil af van de SS Rotterdam, *NRC Handelsblad*.
Kochhar, R. (1996). Explaining firm capital structure: The role of agency theory vs. transaction cost economics. *Strategic Management Journal, 17*(9), 713-728.
Kraus, A., & Litzenberger, R. H. (1973). A state-preference model of optimal financial leverage. *The Journal of Finance, 28*(4), 911-922.
Kromhout, S., Smeulders, E., & Scheele-Goedhart, J. (2010). Tussen wal en schip; twee deelstudies naar de gevolgen van de 90% norm. Amsterdam: RIGO Research en Advies BV.
Kwan, S. H., & Carleton, W. T. (2010). Financial contracting and the choice between private placement and publicly offered bonds. *Journal of Money, Credit and Banking, 42*(5), 907-929.
Lally, M. (2010). The risk-adjusted costs of financial distress: a comment. *Applied Economics Letters, 17*(16), 1611-1613.
Ling, D. C., & Naranjo, A. (2002). Commercial real estate return performance: a cross-country analysis. *The Journal of Real Estate Finance and Economics, 24*(1), 119-142.
Lintner, J. (1963). The cost of capital and optimal financing of corporate growth. *The Journal of Finance, 18*(2), 292-310.
Lintner, J. (1965). The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets. *The Review of Economics and Statistics, 47*(1), 13-37.
Merton, R. C. (1973). An intertemporal capital asset pricing model. *Econometrica: Journal of the Econometric Society*, 867-887.
Miles, J. A., & Ezzell, J. R. (1980). The weighted average cost of capital, perfect capital markets, and project life: a clarification. *Journal of Financial and Quantitative Analysis, 15*(3), 719-730.
Miller, M. H. (1977). Debt and taxes. *The Journal of Finance, 32*(2), 261-275.
Ministerie van VROM. (2000). Mensen Wensen Wonen; Wonen in de 21e eeuw. Den Haag: Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer.
Mitros. (2010). Portefeuilleplan Mitros 2010 tot 2030; Bouwstenen voor 2030. Utrecht: Stichting Mitros.
Mitros. (2011). Jaarverslag 2010. Utrecht: Stichting Mitros.
Mitros. (2012). Mitros kent geen risicovolle financieringsvormen Retrieved February 9th, 2012, from http://www.mitros.nl/smartsite.shtml?id=58269
Močnik, D. (2001). Asset specificity and a firm's borrowing ability: an empirical analysis of manufacturing firms. *Journal of Economic Behavior & Organization, 45*(1), 69-81.
Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review, 48*(3), 261-297.
Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: a correction. *The American Economic Review, 53*(3), 433-443.
Molina, C. A. (2005). Are firms underleveraged? An examination of the effect of leverage on default probabilities. *The Journal of Finance, 60*(3), 1427-1459.
Mukherji, S. (2011). The Capital Asset Pricing Model's Risk-Free Rate. *The International Journal of Business and Finance Research, Vol. 5, No. 2, pp. 75-83, 2011*.

Mullineaux, D. J., & Roten, I. C. (2002). Liquidity, Labels and Medium Term Notes. *Financial Markets, Institutions & Instruments, 11*(5), 445-467.
Myers, S. C. (1974). Interactions of corporate financing and investment decisions-Implications for capital budgeting. *The Journal of finance, 29*(1), 1-25.
Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics, 5*(2), 147-175.
Myers, S. C. (1984). Capital structure puzzle: National Bureau of Economic Research Cambridge, Mass., USA.
Myers, S. C. (2003). Financing of corporations. *Handbook of the Economics of Finance, 1*, 215-253.
Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics, 13*(2), 187-221.
Oxley, M. (1999). Institutional structure of social housing finance in the UK: recent developments. *Urban studies, 36*(4), 673.
Priemus, H., & Gruis, V. (2011). Social Housing and Illegal State Aid: The Agreement between European Commission and Dutch Government. *European Journal of Housing Policy, 11*(1), 89-104.
Pryke, M., & Whitehead, C. (1994). The influence of private finance on the provision of social housing in England. *Journal of housing and the built environment, 9*(4), 357-379.
Rasiah, D., & Kim, P. K. (2011). A theoretical review on the use of the static trade off theory, the pecking order theory and the agency cost theory of capital structure. *International Research Journal of Finance and Economics, 63*, 150-159.
Rink, M. (Producer). (2011). Financiering met EMTN-papier; Succes verzekerd? [PowerPoint slides] Retrieved from http://www.publictreasury.nl/uploads/2011/Presentaties/Workshop%2016-MartijnRink.pdf
Saksonova, S. (2006). The analysis of company's capital and evaluation of factors, which influence creation of the optimal capital structure. *Journal of Business Economics and Management, 7*(3), 147-153.
Saw, P., & Whitehead, C. M. E. (1997). Financing social housing without guarantee: An English case study. *Journal of housing and the built environment, 12*(4), 423-443.
Schauten, M. (2010). Three Discount Methods for Valuing Projects and the Required Return on Equity. *SSRN eLibrary*. doi: 10.2139/ssrn.1565470
Serrasqueiro, Z., & Nunes, P. M. (2010). Are trade-off and pecking order theories mutually exclusive in explaining capital structure decisions? *African Journal of Business Management, 4*(11), 2216-2230.
Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The Journal of Finance, 19*(3), 425-442.
Smith, C. W., & Stulz, R. M. (1985). The determinants of firms' hedging policies. *Journal of Financial and Quantitative analysis, 20*(4), 391-405.
Srivastava, V., & Kumar, A. (2010). Financing infrastructure projects in India from corporate finance to project finance. *International Research Journal of Finance and Economics, 55*, 7-21.
Stohs, M. H., & Mauer, D. C. (1996). The determinants of corporate debt maturity structure. *Journal of Business*, 279-312.
Stulz, R. M. (1984). Optimal hedging policies. *Journal of Financial and Quantitative analysis, 19*(02), 127-140.
Van der Laan, E. E. (2009). Voorstellen woningcorporatiestelsel. Den Haag: Ministerie van Wonen, Wijken en Integratie.
Van Middelkoop, E. (2010). Staatssteundossier woningcorporaties. Den Haag: Ministerie van Wonen, Wijken en Integratie.
Waarborgfonds Sociale Woningbouw. (2009). Cijfermatig perspectief woningcorporaties 2009. Hilversum: Waarborgfonds Sociale Woningbouw.
Wallich, & Matthes. (2012, 4-1-2012). Infogram, from http://www.wallich.eu/info/infogram.htm
Warner, J. B. (1977). Bankruptcy costs: Some evidence. *The Journal of Finance, 32*(2), 337-347.

Welch, I. (2008). The consensus estimate for the equity premium by academic financial economists in December 2007. *Unpublished manuscript, Brown University*.

Whitehead, C. (1999). The provision of finance for social housing: the UK experience. *Urban studies, 36*(4), 657.

Williamson, O. E. (1988). Corporate finance and corporate governance. *Journal of Finance*, 567-591.

Wittenberg-Moerman, R. (2008). The role of information asymmetry and financial reporting quality in debt trading: Evidence from the secondary loan market. *Journal of Accounting and Economics, 46*(2-3), 240-260.

Wruck, K. H. (1990). Financial distress, reorganization, and organizational efficiency. *Journal of Financial Economics, 27*(2), 419-444.

Yue, H. Y. (2011). Determinants of Corporate Capital Structure Under Different Debt Maturities. *International Research Journal of Finance and Economics*(66).

Zhu, H. (2002). The case of the missing commercial real estate cycle. *BIS Quarterly Review* (pp. 56-66).

Appendix 1 Commercial project size

From internal project documents of Mitros, data has been collected about the size of the commercial parts of projects. The data comes from projects which are currently under construction (April 2011), construction will start later in 2011 or will take place later. I found a total of 42 planned projects (social and commercial) and sufficient information for 24 projects. Of these 24 projects, 15 projects contain a commercial part, as defined by the temporal regulations.

The table below shows information about the project size of Mitros commercial projects and combination projects that include a commercial apart. The total number of projects in this table is 17, which is different from the 15 commercial projects that I mentioned before. This difference is caused by the fact that some projects contain both commercial rental housing and owner-occupied houses. The amounts in this table are the forecasted costs for that category.

	Rental housing	**Owner-occupied housing**	**Real estate (rental)**
Number of projects	6	10	1
Total size	€ 55.623.029	€ 138.562.316	€ 475.643
Mean	€ 9.270.505	€ 13.856.232	€ 475.643
Median	€ 3.837.869	€ 10.901.285	€ 475.643
Standard deviation	€ 10.930.895	€ 11.673.235	€ -
Commercial project size			
0 - € 1,000,000,-	33,3%	10,0%	100,0%
€ 1,000,001 - € 5,000,000	16,7%	0,0%	
€ 5,000,001 - € 10,000,000	16,7%	30,0%	
€ 10,000,001 - € 20,000,000	16,7%	50,0%	
> € 20,000,001	16,7%	10,0%	

Appendix 2 Dutch real estate industry beta

Beta of Dutch public real estate companies

Fonds	β(L)	β(UL)	β(UL) (incl. Tax adjustment)	Total Debt to Equity
Corio	0,68	0,388	0,434	75,45
Eurocommercial Properties	0,55	0,296	0,335	85,56
Groothandelsgebouwen	0,21	0,098	0,113	114,41
Homburg Invest			N/A	
MEI-Real Estate			N/A	
Nieuwe Steen Invest.	0,4	0,166	0,195	140,55
Prologis			N/A	
Unibail-Rodamco	0,67	0,347	0,395	93
Vastned O/I			N/A	
Vastned Retail	0,62	0,320	0,364	93,83
Wereldhave	0,53	0,301	0,337	76,2
Average	**0,523**	**0,274**	**0,310**	**97**

The β(L) *comes from the Thomson Reuters database and is calculated with monthly price levels compared to the S&P 500 over a 5 years period. Total Debt to Equity also comes from the Thomson Reuters database.* β(UL) *and* β(UL) *including tax adjustment are calculated with the Hamada (1972) formulas* $\beta_l = \beta_u \left(1 + \frac{D}{E}\right)$ *and* $\beta_l = \beta_u \left(1 + (1 - CT)\frac{D}{E}\right)$*, assuming a corporate tax rate in the latter one of 25%.*

Appendix 3 WACC

The following three tables are calculations of the WACC without tax shield (3a), with tax shield (3b) and with discounted tax shield (3c) for a project with the characteristics as discussed in paragraph 8.5. These characteristics are summarized in the table below.

Variables for WACC calculation				Risk premium (P)	Max. loan-to-value
Project size (V)	€	5.000.000	Bank 1	0,75%	75%
Corporate tax rate (CT)		25%	Bank 2	1,00%	90%
Time until Tax shield payout (n)		5	Bank 3	1,50%	60%
Debt maturity (m)		10	Bank 4	1,60%	70%
EURIBOR/IRS		2,408	Bank 5	2,20%	80%
Transaction costs (TC)	€	5.400			
Maintenance costs (MC)	€	900			
Risk-free rate (Rf)		2,69			
Market return (Rm)		10,9%			
Unlevered beta β(ul)		0,310	Max. equity		40%

For WACC calculations, I used the following formulas:

3a WACC in case of no tax shield.

$$WACC_{Mitros} = D * I + \left(\frac{TC/V}{m} + \frac{MC}{V}\right) + E\,(R_f + \beta_l\,(R_m - R_f))$$

With

$$I = EURIBOR/IRS_m + P$$

and

$$\beta_l = \beta_u\left(1 + \frac{D}{E}\right)$$

3b WACC in case of tax shield

$$WACC_{Mitros} = D(1 - CT)I + (1 - CT)\left(\frac{TC/V}{m} + \frac{MC}{V}\right) + E\,(R_f + \beta_l\,(R_m - R_f))$$

With

$$I = EURIBOR/IRS_m + P$$

And

$$\beta_l = \beta_u\left(1 + (1 - CT)\frac{D}{E}\right)$$

3c WACC in case of a discounted tax shield, due to carry forward of losses

$$WACC_{Mitros} = D\left(1 - \frac{CT}{(1 + R_f)^n}\right)I + \left(1 - \frac{CT}{(1 + R_f)^n}\right)\left(\frac{TC/V}{m} + \frac{MC}{V}\right) + E\,(R_f + \beta_l\,(R_m - R_f))$$

With

$$I = EURIBOR/IRS_m + P$$

And

$$\beta_l = \beta_u\left(1 + (1 - \frac{CT}{(1 + R_f)^n})\frac{D}{E}\right)$$

Table 3a WACC for a EUR 5 million commercial project without tax shield

Debt	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Debt	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Debt	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5
0%	5,235	5,235	5,235	5,235	5,235	34%	5,423	5,508	5,678	5,712	5,916	68%	5,582	5,752	6,092	6,160	6,568
1%	5,269	5,271	5,276	5,277	5,283	35%	5,428	5,515	5,690	5,725	5,935	69%	5,587	5,759	6,104	6,173	6,587
2%	5,273	5,278	5,288	5,290	5,302	36%	5,432	5,522	5,702	5,738	5,954	70%	5,592	5,767	6,117	6,187	6,607
3%	5,278	5,285	5,300	5,303	5,321	37%	5,437	5,530	5,715	5,752	5,974	71%	5,596	5,774	6,129	6,200	6,626
4%	5,283	5,293	5,313	5,317	5,341	38%	5,442	5,537	5,727	5,765	5,993	72%	5,601	5,781	6,141	6,213	6,645
5%	5,287	5,300	5,325	5,330	5,360	39%	5,446	5,544	5,739	5,778	6,012	73%	5,606	5,788	6,153	6,226	6,664
6%	5,292	5,307	5,337	5,343	5,379	40%	5,451	5,551	5,751	5,791	6,031	74%	5,610	5,795	6,165	6,239	6,683
7%	5,297	5,314	5,349	5,356	5,398	41%	5,456	5,558	5,763	5,804	6,050	75%	5,615	5,802	6,177	6,252	6,702
8%	5,301	5,321	5,361	5,369	5,417	42%	5,460	5,565	5,775	5,817	6,069	76%	5,620	5,810	6,190	6,266	6,722
9%	5,306	5,329	5,374	5,383	5,437	43%	5,465	5,573	5,788	5,831	6,089	77%	5,624	5,817	6,202	6,279	6,741
10%	5,311	5,336	5,386	5,396	5,456	44%	5,470	5,580	5,800	5,844	6,108	78%	5,629	5,824	6,214	6,292	6,760
11%	5,315	5,343	5,398	5,409	5,475	45%	5,475	5,587	5,812	5,857	6,127	79%	5,634	5,831	6,226	6,305	6,779
12%	5,320	5,350	5,410	5,422	5,494	46%	5,479	5,594	5,824	5,870	6,146	80%	5,638	5,838	6,238	6,318	6,798
13%	5,325	5,357	5,422	5,435	5,513	47%	5,484	5,601	5,836	5,883	6,165	81%	5,643	5,845	6,250	6,331	6,817
14%	5,329	5,364	5,434	5,448	5,532	48%	5,489	5,609	5,849	5,897	6,185	82%	5,648	5,853	6,263	6,345	6,837
15%	5,334	5,372	5,447	5,462	5,552	49%	5,493	5,616	5,861	5,910	6,204	83%	5,652	5,860	6,275	6,358	6,856
16%	5,339	5,379	5,459	5,475	5,571	50%	5,498	5,623	5,873	5,923	6,223	84%	5,657	5,867	6,287	6,371	6,875
17%	5,343	5,386	5,471	5,488	5,590	51%	5,503	5,630	5,885	5,936	6,242	85%	5,662	5,874	6,299	6,384	6,894
18%	5,348	5,393	5,483	5,501	5,609	52%	5,507	5,637	5,897	5,949	6,261	86%	5,666	5,881	6,311	6,397	6,913
19%	5,353	5,400	5,495	5,514	5,628	53%	5,512	5,644	5,909	5,962	6,280	87%	5,671	5,889	6,324	6,411	6,933
20%	5,358	5,408	5,508	5,528	5,648	54%	5,517	5,652	5,922	5,976	6,300	88%	5,676	5,896	6,336	6,424	6,952
21%	5,362	5,415	5,520	5,541	5,667	55%	5,521	5,659	5,934	5,989	6,319	89%	5,680	5,903	6,348	6,437	6,971
22%	5,367	5,422	5,532	5,554	5,686	56%	5,526	5,666	5,946	6,002	6,338	90%	5,685	5,910	6,360	6,450	6,990
23%	5,372	5,429	5,544	5,567	5,705	57%	5,531	5,673	5,958	6,015	6,357	91%	5,690	5,917	6,372	6,463	7,009
24%	5,376	5,436	5,556	5,580	5,724	58%	5,535	5,680	5,970	6,028	6,376	92%	5,694	5,924	6,384	6,476	7,028
25%	5,381	5,443	5,568	5,593	5,743	59%	5,540	5,688	5,983	6,042	6,396	93%	5,699	5,932	6,397	6,490	7,048
26%	5,386	5,451	5,581	5,607	5,763	60%	5,545	5,695	5,995	6,055	6,415	94%	5,704	5,939	6,409	6,503	7,067
27%	5,390	5,458	5,593	5,620	5,782	61%	5,549	5,702	6,007	6,068	6,434	95%	5,709	5,946	6,421	6,516	7,086
28%	5,395	5,465	5,605	5,633	5,801	62%	5,554	5,709	6,019	6,081	6,453	96%	5,713	5,953	6,433	6,529	7,105
29%	5,400	5,472	5,617	5,646	5,820	63%	5,559	5,716	6,031	6,094	6,472	97%	5,718	5,960	6,445	6,542	7,124
30%	5,404	5,479	5,629	5,659	5,839	64%	5,563	5,723	6,043	6,107	6,491	98%	5,723	5,968	6,458	6,556	7,144
31%	5,409	5,486	5,641	5,672	5,858	65%	5,568	5,731	6,056	6,121	6,511	99%	5,727	5,975	6,470	6,569	7,163
32%	5,414	5,494	5,654	5,686	5,878	66%	5,573	5,738	6,068	6,134	6,530	100%	3,187	3,437	3,937	4,037	4,637
33%	5,418	5,501	5,666	5,699	5,897	67%	5,577	5,745	6,080	6,147	6,549						

The optimal WACC (lowest WACC within range of maximum amounts of debt and equity) for each bank is marked with bold edges.

Table 3b WACC for a EUR 5 million commercial project with (non-discounted) tax shield

Debt	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Debt	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Debt	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5
0%	5,235	5,235	5,235	5,235	5,235	34%	4,931	4,995	5,122	5,148	5,301	68%	4,605	4,733	4,988	5,039	5,345
1%	5,247	5,249	5,253	5,253	5,258	35%	4,921	4,987	5,118	5,145	5,302	69%	4,596	4,725	4,984	5,036	5,346
2%	5,238	5,241	5,249	5,250	5,259	36%	4,912	4,979	5,114	5,141	5,303	70%	4,586	4,718	4,980	5,033	5,348
3%	5,228	5,234	5,245	5,247	5,261	37%	4,902	4,972	5,110	5,138	5,305	71%	4,577	4,710	4,976	5,029	5,349
4%	5,218	5,226	5,241	5,244	5,262	38%	4,893	4,964	5,106	5,135	5,306	72%	4,567	4,702	4,972	5,026	5,350
5%	5,209	5,218	5,237	5,241	5,263	39%	4,883	4,956	5,103	5,132	5,307	73%	4,558	4,694	4,968	5,023	5,351
6%	5,199	5,210	5,233	5,237	5,264	40%	4,874	4,949	5,099	5,129	5,309	74%	4,548	4,687	4,964	5,020	5,353
7%	5,190	5,203	5,229	5,234	5,266	41%	4,864	4,941	5,095	5,125	5,310	75%	4,538	4,679	4,960	5,016	5,354
8%	5,180	5,195	5,225	5,231	5,267	42%	4,854	4,933	5,091	5,122	5,311	76%	4,529	4,671	4,956	5,013	5,355
9%	5,171	5,187	5,221	5,228	5,268	43%	4,845	4,925	5,087	5,119	5,312	77%	4,519	4,664	4,952	5,010	5,357
10%	5,161	5,180	5,217	5,225	5,270	44%	4,835	4,918	5,083	5,116	5,314	78%	4,510	4,656	4,948	5,007	5,358
11%	5,151	5,172	5,213	5,221	5,271	45%	4,826	4,910	5,079	5,113	5,315	79%	4,500	4,648	4,944	5,004	5,359
12%	5,142	5,164	5,209	5,218	5,272	46%	4,816	4,902	5,075	5,109	5,316	80%	4,490	4,640	4,940	5,000	5,360
13%	5,132	5,157	5,205	5,215	5,274	47%	4,807	4,895	5,071	5,106	5,318	81%	4,481	4,633	4,937	4,997	5,362
14%	5,123	5,149	5,201	5,212	5,275	48%	4,797	4,887	5,067	5,103	5,319	82%	4,471	4,625	4,933	4,994	5,363
15%	5,113	5,141	5,197	5,209	5,276	49%	4,787	4,879	5,063	5,100	5,320	83%	4,462	4,617	4,929	4,991	5,364
16%	5,103	5,133	5,193	5,205	5,277	50%	4,778	4,872	5,059	5,097	5,322	84%	4,452	4,610	4,925	4,988	5,366
17%	5,094	5,126	5,190	5,202	5,279	51%	4,768	4,864	5,055	5,093	5,323	85%	4,443	4,602	4,921	4,984	5,367
18%	5,084	5,118	5,186	5,199	5,280	52%	4,759	4,856	5,051	5,090	5,324	86%	4,433	4,594	4,917	4,981	5,368
19%	5,075	5,110	5,182	5,196	5,281	53%	4,749	4,848	5,047	5,087	5,325	87%	4,423	4,587	4,913	4,978	5,370
20%	5,065	5,103	5,178	5,193	5,283	54%	4,740	4,841	5,043	5,084	5,327	88%	4,414	4,579	4,909	4,975	5,371
21%	5,056	5,095	5,174	5,189	5,284	55%	4,730	4,833	5,039	5,081	5,328	89%	4,404	4,571	4,905	4,972	5,372
22%	5,046	5,087	5,170	5,186	5,285	56%	4,720	4,825	5,035	5,077	5,329	90%	4,395	4,563	4,901	4,968	5,373
23%	5,036	5,080	5,166	5,183	5,287	57%	4,711	4,818	5,031	5,074	5,331	91%	4,385	4,556	4,897	4,965	5,375
24%	5,027	5,072	5,162	5,180	5,288	58%	4,701	4,810	5,027	5,071	5,332	92%	4,376	4,548	4,893	4,962	5,376
25%	5,017	5,064	5,158	5,177	5,289	59%	4,692	4,802	5,023	5,068	5,333	93%	4,366	4,540	4,889	4,959	5,377
26%	5,008	5,056	5,154	5,173	5,290	60%	4,682	4,795	5,020	5,065	5,335	94%	4,356	4,533	4,885	4,956	5,379
27%	4,998	5,049	5,150	5,170	5,292	61%	4,672	4,787	5,016	5,061	5,336	95%	4,347	4,525	4,881	4,952	5,380
28%	4,989	5,041	5,146	5,167	5,293	62%	4,663	4,779	5,012	5,058	5,337	96%	4,337	4,517	4,877	4,949	5,381
29%	4,979	5,033	5,142	5,164	5,294	63%	4,653	4,771	5,008	5,055	5,338	97%	4,328	4,510	4,873	4,946	5,383
30%	4,969	5,026	5,138	5,161	5,296	64%	4,644	4,764	5,004	5,052	5,340	98%	4,318	4,502	4,869	4,943	5,384
31%	4,960	5,018	5,134	5,157	5,297	65%	4,634	4,756	5,000	5,049	5,341	99%	4,309	4,494	4,865	4,940	5,385
32%	4,950	5,010	5,130	5,154	5,298	66%	4,625	4,748	4,996	5,045	5,342	100%	2,390	2,578	2,953	3,028	3,478
33%	4,941	5,003	5,126	5,151	5,300	67%	4,615	4,741	4,992	5,042	5,344						

The optimal WACC (lowest WACC within range of maximum amounts of debt and equity) for each bank is marked with bold edges.

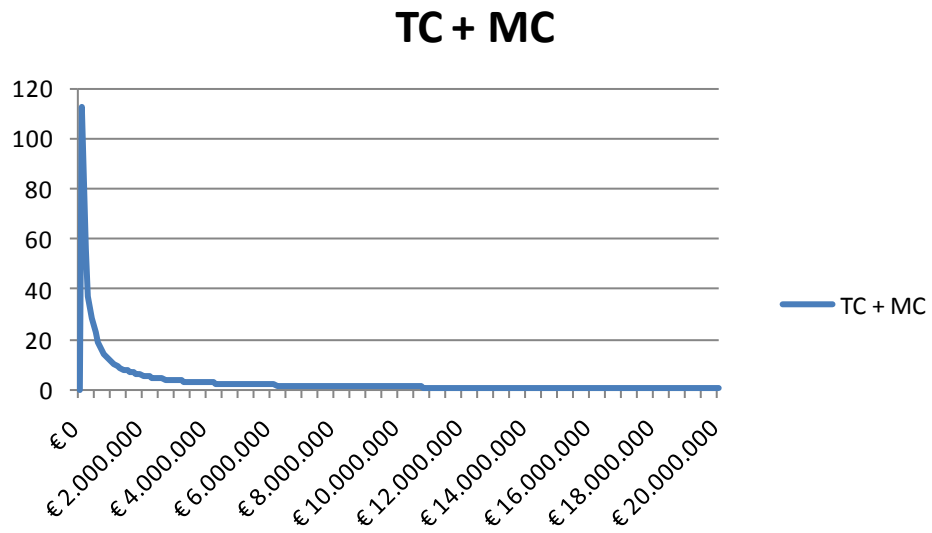
Table 3c WACC for a EUR 5 million commercial project with discounted tax shield

Debt	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Debt	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Debt	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5
0%	5,235	5,235	5,235	5,235	5,235	34%	4,992	5,059	5,191	5,218	5,377	68%	4,727	4,860	5,125	5,178	5,497
1%	5,250	5,252	5,256	5,256	5,261	35%	4,984	5,053	5,189	5,217	5,381	69%	4,719	4,854	5,123	5,177	5,500
2%	5,242	5,246	5,254	5,255	5,265	36%	4,977	5,047	5,187	5,216	5,384	70%	4,711	4,848	5,121	5,176	5,504
3%	5,234	5,240	5,252	5,254	5,268	37%	4,969	5,041	5,186	5,214	5,388	71%	4,703	4,842	5,119	5,175	5,508
4%	5,226	5,234	5,250	5,253	5,272	38%	4,961	5,035	5,184	5,213	5,391	72%	4,696	4,836	5,117	5,174	5,511
5%	5,219	5,228	5,248	5,252	5,275	39%	4,953	5,029	5,182	5,212	5,395	73%	4,688	4,830	5,115	5,172	5,515
6%	5,211	5,222	5,246	5,251	5,279	40%	4,945	5,023	5,180	5,211	5,398	74%	4,680	4,824	5,113	5,171	5,518
7%	5,203	5,217	5,244	5,249	5,282	41%	4,938	5,018	5,178	5,210	5,402	75%	4,672	4,819	5,112	5,170	5,522
8%	5,195	5,211	5,242	5,248	5,286	42%	4,930	5,012	5,176	5,209	5,405	76%	4,664	4,813	5,110	5,169	5,525
9%	5,187	5,205	5,240	5,247	5,289	43%	4,922	5,006	5,174	5,207	5,409	77%	4,657	4,807	5,108	5,168	5,529
10%	5,180	5,199	5,238	5,246	5,293	44%	4,914	5,000	5,172	5,206	5,412	78%	4,649	4,801	5,106	5,167	5,532
11%	5,172	5,193	5,236	5,245	5,296	45%	4,906	4,994	5,170	5,205	5,416	79%	4,641	4,795	5,104	5,165	5,536
12%	5,164	5,187	5,234	5,244	5,300	46%	4,899	4,988	5,168	5,204	5,420	80%	4,633	4,789	5,102	5,164	5,539
13%	5,156	5,182	5,232	5,242	5,303	47%	4,891	4,983	5,166	5,203	5,423	81%	4,625	4,784	5,100	5,163	5,543
14%	5,148	5,176	5,230	5,241	5,307	48%	4,883	4,977	5,164	5,202	5,427	82%	4,618	4,778	5,098	5,162	5,546
15%	5,141	5,170	5,228	5,240	5,310	49%	4,875	4,971	5,162	5,200	5,430	83%	4,610	4,772	5,096	5,161	5,550
16%	5,133	5,164	5,226	5,239	5,314	50%	4,867	4,965	5,160	5,199	5,434	84%	4,602	4,766	5,094	5,160	5,553
17%	5,125	5,158	5,224	5,238	5,317	51%	4,860	4,959	5,158	5,198	5,437	85%	4,594	4,760	5,092	5,158	5,557
18%	5,117	5,152	5,223	5,237	5,321	52%	4,852	4,953	5,156	5,197	5,441	86%	4,586	4,754	5,090	5,157	5,560
19%	5,109	5,146	5,221	5,235	5,324	53%	4,844	4,947	5,154	5,196	5,444	87%	4,579	4,748	5,088	5,156	5,564
20%	5,101	5,141	5,219	5,234	5,328	54%	4,836	4,942	5,152	5,195	5,448	88%	4,571	4,743	5,086	5,155	5,567
21%	5,094	5,135	5,217	5,233	5,332	55%	4,828	4,936	5,150	5,193	5,451	89%	4,563	4,737	5,084	5,154	5,571
22%	5,086	5,129	5,215	5,232	5,335	56%	4,820	4,930	5,149	5,192	5,455	90%	4,555	4,731	5,082	5,153	5,574
23%	5,078	5,123	5,213	5,231	5,339	57%	4,813	4,924	5,147	5,191	5,458	91%	4,547	4,725	5,080	5,151	5,578
24%	5,070	5,117	5,211	5,230	5,342	58%	4,805	4,918	5,145	5,190	5,462	92%	4,539	4,719	5,078	5,150	5,581
25%	5,062	5,111	5,209	5,228	5,346	59%	4,797	4,912	5,143	5,189	5,465	93%	4,532	4,713	5,076	5,149	5,585
26%	5,055	5,105	5,207	5,227	5,349	60%	4,789	4,906	5,141	5,188	5,469	94%	4,524	4,707	5,075	5,148	5,588
27%	5,047	5,100	5,205	5,226	5,353	61%	4,781	4,901	5,139	5,186	5,472	95%	4,516	4,702	5,073	5,147	5,592
28%	5,039	5,094	5,203	5,225	5,356	62%	4,774	4,895	5,137	5,185	5,476	96%	4,508	4,696	5,071	5,146	5,596
29%	5,031	5,088	5,201	5,224	5,360	63%	4,766	4,889	5,135	5,184	5,479	97%	4,500	4,690	5,069	5,144	5,599
30%	5,023	5,082	5,199	5,223	5,363	64%	4,758	4,883	5,133	5,183	5,483	98%	4,493	4,684	5,067	5,143	5,603
31%	5,016	5,076	5,197	5,221	5,367	65%	4,750	4,877	5,131	5,182	5,486	99%	4,485	4,678	5,065	5,142	5,606
32%	5,008	5,070	5,195	5,220	5,370	66%	4,742	4,871	5,129	5,181	5,490	100%	2,489	2,684	3,075	3,153	3,622
33%	5,000	5,064	5,193	5,219	5,374	67%	4,735	4,865	5,127	5,179	5,493						

The optimal WACC (lowest WACC within range of maximum amounts of debt and equity) for each bank is marked with bold edges.

Appendix 4 Transaction and Maintenance costs

The figure below shows the effect of transaction and maintenance costs on the WACC for different project sizes.



The horizontal axis represents project sizes. The vertical axis represents the amount of basis points that transaction and maintenance costs add to the WACC. The blue line is the sum of transaction and maintenance in basis points for different project sizes. These costs are including discounted tax shield with the same characteristics as in Appendix 3 (n=5; CT=25%).

Appendix 5 Interview with Richard Blokland (Treasury manager of Mitros)

Datum van het interview: 30-6-2011

Doel van het interview

- Beeld krijgen van de factoren die een rol spelen bij financiering voor een woningcorporatie
- Beeld krijgen van de verschillende financieringsinstrumenten die kunnen worden gebruikt door een woningcorporatie

Factoren

Hoe is Mitros op dit moment gefinancierd?

Alle financieringen van Mitros zijn geborgd door het WSW. Dit betekent dat er geen commerciële lening tegen marktcondities zijn. Een ander kenmerk is dat Mitros alleen bancaire leningen heeft, onderhands afgesloten bij banken. Het betreft hier alleen bedrijfsfinanciering, wat betekent dat de financiering niet 1 op 1 gerelateerd is aan het vastgoed van Mitros.

De hoogte van het eigen vermogen van Mitros is afhankelijk van de waarde van het vastgoed. Mitros waardeerde dit vastgoed in het verleden altijd tegen bedrijfswaarde, waarbij de waarde wordt berekent volgens een netto contante waarde berekening. Door veel grote investeringen is het eigen vermogen de afgelopen jaren flink afgenomen. Sinds 2010 waardeert Mitros haar vastgoed tegen marktwaarde. Dit is de waarde in verhuurde staat volgens een index, genaamd Aidex. Deze index is opgesteld door het bedrijf IPD. Door deze andere waardering heeft het eigen vermogen van Mitros een enorme sprong gemaakt van ongeveer 200 miljoen euro naar ongeveer 2 miljard euro. Het waarderen tegen marktwaarde betekent ook dat het eigen vermogen ook meer zal meebewegen met marktontwikkelingen.

Wat zijn in het algemeen belangrijke factoren waaraan de financiering van zowel eigen als vreemd vermogen van een onderneming moet voldoen?

1. Relatiemanagement. Goede contacten met banken, want dit is het meest geijkte kanaal voor financiering.
2. Beschikbaarheid. Kanalen hebben om investeringen te kunnen doen. Voor een kleine groep bedrijven zijn dit ook aandelenmarkten en kapitaalmarkten
3. Fit tussen organisatie en financier. Het is belangrijk dat de financier de organisatie en de investering begrijpt.
4. Houdbaar bedrijfsmodel. Waarom moet de financier juist bij jouw bedrijf financieren?
5. Prijs-risicoverhouding. Voor elke verhouding heeft een bepaalde groep beleggers interesse.
6. Zaken zowel intern als extern op orde. Intern is belangrijk: rapportages, verdienmodel, vooruitzichten.

Mitros houdt zich bezig met de ontwikkeling en exploitatie van vastgoed en dan met name woningen en maatschappelijk vastgoed. Wat zijn, gezien dit product, factoren die van belang zijn voor de financiering?

Security, liquidity, yield. Rendement en onderpand zijn belangrijk om te kunnen voldoen aan terugbetalingsverplichting. Liquidity: is het product makkelijk te verhandelen.

Kenmerken vastgoed:

- Grondgebonden
- Productietijd
- Primaire levensbehoefte
- Kapitaalgoed, lange termijn gericht, in ieder geval voor afnemer

Risico's

- Verhuurbaarheid/verkoopbaarheid. Een corporatie moet aansluiten en inspelen op de lokale markt, want vastgoed is niet verplaatsbaar.
- Vastgoed is een product voor de lange termijn. Een goede inschatting van het product en de markt in de toekomst is belangrijk.

Welke rol speelt de maatschappelijke doelstelling van Mitros bij de keuze voor een financieringsvorm?

Er is niet direct een relatie tussen de maatschappelijke doelstelling van Mitros en de financiering. Rentelasten zijn een noodzakelijk kwaad. Onafhankelijk van de doelstelling van de organisatie is het belangrijk deze zo laag mogelijk houden en te zoeken naar de meest optimale verhouding tussen prijs en beschikbaarheid, ofwel economisch meest voordelige. Daarnaast het voorkomen van onnodige rentelasten.

Solvabiliteit is onderdeel van het bedrijfsmodel. Financiering niet anders dan voor andere organisaties.

Hoe gaat Mitros om met renterisico's?

- *Renterisico's vs. Projectrisico's?*

Renterisico is voor Mitros het belangrijkste financiële risico. Mitros is risicomijdend met renterisico's. Het WSW eist dat op balansdatum maximaal 15% van de leningportefeuille een primair renterisico heeft. Mitros hanteert intern nog een strengere norm van 10%. Dit betekent weinig variabele rente en dus risicomijdend. In de praktijk ligt al snel 95-100% van de rente vast. Er bestaat een risico dat op het moment dat de WACC berekend wordt (jaarlijks), de rente anders is dan op moment van investering/financiering. Bij niet-DAEB in investeringsbesluit eventueel meenemen dat rente nog kan stijgen. Dit risico zou kunnen worden afgedekt met derivaat. Bij DAEB speelt dit veel minder.

Financiering met variabele rente heeft een primair renterisico; de rente kan elk moment omhoog gaan.
Financiering met vaste rente heeft een secundair renterisico; niet kunnen profiteren van wanneer de rente lager staat.

De manier waarop je financiert hangt af van de looptijd van de financiering. Het is belangrijk dat er een match is tussen de looptijd van activa looptijd van de leningen. Dan kun je wijzigingen in je actiefzijde opvangen met wijziging aan passiefzijde. Een vaste of variabele rente is een beleidskwestie. Bij een financiering met variabele rente kan ook een derivaat worden afgesloten. Je weet alleen niet zeker wat er in de toekomst gebeurt met waarde-ontwikkeling.

- *Renterisico en maatschappelijke doelstelling*

Er is geen relatie tussen maatschappelijke doelstelling en renterisico. Net als andere organisaties kiest Mitros voor de economisch meest voordelige. Mitros kiest wel, ook mede vanwege het maatschappelijke kapitaal, om niet met geld te speculeren. Dit is een beleidskwestie. Treasury is

ingericht als cost center en acteert ten dienste van de organisatie. Het alternatief is een profit center. In die rol zou Treasury geld moeten maken met geld.

Heeft Mitros een target debt ratio? Zoja, welke? Wat voor factoren spelen hierbij een rol?

Ja, Mitros streeft bij investeringen naar een verhouding van 60% vreemd vermogen, 40% eigen vermogen. Mitros moet er dus voor zorgen dat er voldoende eigen middelen binnen komen om 40% eigen middelen te bij elke investering te kunnen inbrengen. Dit is afhankelijk van hoe huren worden vastgesteld, onderhoudskosten e.d. De invloed van Treasury hierin is beperkt, alleen signaleren en adviseren. Daarnaast ook monitoren en balansbeheer; het beheren van de verhouding leningportefeuille tot balanstotaal ofwel Asset Liability Managment. Hoeveelheid vreemd vermogen kan dus worden beïnvloed met leningen afsluiten en inlossen. Hoeveelheid eigen vermogen kan worden beïnvloed met (huur)inkomsten en uitgaven. Belangrijk hierbij is een houdbaar bedrijfsmodel.

De keuze voor de 60/40 verhouding is een beleidskwestie. De kenmerken van vastgoed, zoals primaire levensbehoefte en waardevastheid, geven meer toegang tot vreemd vermogen. Zelfs een hogere verhouding zou misschien kunnen, maar vreemd vermogensverschaffers willen niet veel verder gaan, behalve bij een bepaald palet aan zekerheden, dan kan er iets meer. Dit gebeurt bijvoorbeeld wel bij sociale, geborgde woningbouw. De vreemd vermogen/eigen vermogensverhouding zegt ook iets over je verdiencapaciteit. 40% eigen vermogen is een signaal. het laat zien dat je kunt verdienen en is daardoor meer uitnodigend voor vreemd vermogensverschaffers. 90/10 is een slecht signaal van je verdiencapaciteit.

Betaalt Mitros vennootschapsbelasting? Zoja, heeft dit invloed op de verhouding vreemd vermogen/eigen vermogen?

Corporaties zijn wel onderhevig aan vennootschapsbelasting, maar daar heeft Mitros weinig mee te maken. Mitros heeft een bepaalde belastingcapaciteit, verliezen uit verleden die winsten in de komende jaren kan compenseren. Normaal speelt belasting wel rol als Tax Shield. Nu echter niet, vanwege die verliezen.

Welke eisen stellen het WSW en het CFV aan de financiering van een woningcorporatie?

WSW: financiële ratio's. Rentedekkingsgraad. Kasstromen: met operationele kasstromen 2% aflossing kunnen indekken. Vreemd vermogen is maximaal 50% van de WOZ-waarde.
CFV: solvabiliteit. Hierbij wordt een bandbreedte aangehouden. Er is een maximum, zodat een corporatie niet te veel geld gaat oppotten, maar gebruikt voor maatschappelijke doelstelling. Er is ook een minimum, nodig voor een houdbaar bedrijfsmodel en om klappen te kunnen opvangen.

Hoe verhouden de 60/40 verhouding van Mitros, de maximaal 50% vreemd vermogen van het WSW en de solvabiliteitseis van het CFV zich tot elkaar?

De 60/40 verhouding van Mitros is gebaseerd op kasstromen. Dit zijn keiharde geldstromen die beschikbaar zijn voor investeringen.
Solvabiliteitseis van CFV en de 50% WOZ eis van het WSW zijn vooral waarderingsvraagstukken, waarbij de uitkomst erg samenhangt met de manier waarop je vastgoed is gewaardeerd (Bedrijfswaarde, marktwaarde, WOZ-waarde). Dit is meer een boekhoudkundige benadering. Wanneer je met je verdiencapaciteit voor je investeringen 40% eigen vermogen kunt halen, dan zit het ook met de solvabiliteit sowieso goed.

Welke rendementsdoelstelling heeft Mitros op eigen vermogen?

Mitros hanteert verschillende doelstellingen, afhankelijk van productcategorie. De rendementseis wordt gebaseerd op risicoprofiel van elke categorie. Hierbij worden twee soort eisen gebruikt.
1.Rendementseis gebaseerd op 50 jaar doorexploiteren. Dit is vanuit de optiek van een sociale belegger. Hiervoor wordt gebruik gemaakt van het WACC model, waarbij wordt uitgegaan van 60% vreemd vermogen en 40% eigen vermogen. Het risicoprofiel voor eigen vermogen wordt uitgerekend met een CAPM model.
2. Marktconformiteitstoets. Deze gaat uit van exploitatie van 15 jaar en daarna uitponden (verkopen). Dit is vanuit de optiek van een commerciële belegger.

Aan de hand van beide toetsen wordt beoordeelt of een investering levensvatbaar is.

Financieringsinstrumenten

In hoeverre zijn de volgende financieringsinstrumenten beschikbaar voor een woningcorporatie? Wat zijn de voor- en nadelen van deze instrumenten

- Bankleningen
    - Vaste rente / variabele rente
    - Looptijd
    - Tussentijds aflossen

Banken zijn market makers, ze zorgen dat vraag en aanbod van kapitaal bij elkaar bij komen. De meeste organisaties zijn niet groot genoeg om zelf geld op de kapitaalmarkt te halen. Gezien de omvang van de geldstromen van Mitros zijn banken het meest geijkte kanaal voor financiering. Direct de kapitaalmarkt opgaan brengt veel meer kosten met zich mee.

Wat bepaalt de keuze voor een vaste of variabele rente?

Dit heeft te maken met je risicohouding. Bij een variabele rente koop je als het ware rente-risico in. Dit betekent ook dat de onzekerheid m.b.t. het terugverdienen van de investering toeneemt. Door te kiezen voor een vaste rente kun je dit risico afkopen. Een alternatief is variabele in combinatie met een derivaat. Dit maakt bijvoorbeeld een maximale rente mogelijk waarbij nog wel kan worden geprofiteerd van tijdelijk lagere rentestanden.

Wat bepaalt de keuze voor de looptijd van een lening?

Over het algemeen geldt dat het goed is om de looptijd van de lening te laten samenhangen met de periode dat inkomsten worden gegenereerd uit de onderliggende activa (inkomsten genererend vermogen), in het geval van Mitros het vastgoed. Het één correspondeert met het ander. Een keuze voor deze zogenaamde *duration matching* geeft de minste onzekerheid bij een investeringsbesluit. Op balansniveau kan dit door te kijken naar de gewogen gemiddelde looptijd van bezit. Meestal ligt dit tussen de 20 en 25 jaar. Daarna volgt vaak sloop-nieuwbouw of verandert de situatie door bijvoorbeeld renovatie. Over het algemeen geldt: Woning langer in bezit → meer inkomsten. Het kan dus interessant zijn om vastgoed langer in bezit te houden. Door ontwikkelingen, bijv. marktomstandigheden, politiek, wetgeving, kan dat veranderen en kunnen er interessante alternatieven komen. Voor financiering de financiering betekent dit dat je wel flexibiliteit moet inbouwen. Er moet dus een balans worden gevonden tussen duration matching en flexibiliteit. Mitros hanteert daarom standaard een looptijd van 10 jaar. Dit komt overeen met het maximum dat banken aanbieden. Hoe langer de looptijd van je financiering (en vaste rente), hoe minder flexibel, zowel qua rente als financier.

Wat is het beste moment van aflossing?

Voor de flexibiliteit is het handig als met banken kan worden afgesproken dat tussentijds kan worden ingelost. Zo kan eventueel worden ingesprongen op veranderende omstandigheden. Maandelijks een klein stukje aflossen op de financiering is voor een corporatie niet interessant, omdat in de eerste jaren er de minste inkomsten zijn. Door inflatie holt schuld uit. Hoe eerder je teruggeeft, hoe ongunstiger dat dus kan zijn. Banken houden hier echter ook rekening mee, waardoor bijvoorbeeld lineaire of annuïtaire leningen goedkoper zijn. Volledige eindaflossing is duurder dan maandelijks aflossen. Wat uiteindelijk het beste is weet je pas op het einde.

Welke factoren spelen een rol voor de financiering van de ontwikkelingsfase?

- Momenten uitgaven en inkomsten
- Financieringspercentage
- Verwachting van de renteontwikkeling. Het kan zijn dat deze erg stijgt tijdens de ontwikkeling, waardoor het project onrendabel wordt.
- Ruimte om voor te financieren
- Beschikbaarheid

Bij de ontwikkeling van koopwoningen is er eigenlijk alleen financiering nodig voor de ontwikkelingsfase. Belangrijk hierbij is een matching tussen inkomsten en uitgaven.

Is het mogelijk om als woningcorporatie rechtstreeks geld op de kapitaalmarkt aan te trekken?

Als corporatie kun je de kapitaalmarkt opgaan, maar daar komt veel bij kijken.

- Profiel beschikbaar stellen
- Onafhankelijk oordeel, rating van kredietwaardigheidsinsteling/rating agency, bijvoorbeeld S&P, Moody's of Fitch.
- Voldoen aan diverse eisen aan corporaties vanuit de overheid. Dit geldt niet voor niet-DAEB.
- Minimaal volume.
    - Voor private placements (1 op 1) is dit minimaal 25 miljoen euro.
    - Inschrijving door investeerders: 250 miljoen euro. Benchmark: 1 miljard. 250 miljoen moet mogelijk zijn. Wel regelmatig, anders zijn ze je snel vergeten. Voor niet-DAEB is dit niet interessant.
- Kosten
    - Juridisch
    - Kosten externe partijen
    - Interne kosten, want business case bouwen, jezelf bekend maken en onderhouden.

Bij private placements is het daarbij belangrijk dat je elkaar kunt vinden in modaliteiten:

- Looptijd
- Referentierente
- Vorm van rente (vast/variabel)
- Nominaal bedrag

Er moet dus een match zijn tussen wat de investeerder wil en wat de corporatie/Mitros wil.

Bij een openbare inschrijving kun je een groter bedrag in de markt zetten.

- Er is meer flexibiliteit voor investeerders
- Je krijgt volgers van je lening
- Meer liquiditeit

Wat zijn de voordelen van rechtstreeks geld uit de markt trekken?

- Prijs (rente)
- Beschikbaarheid (Basel III)
- Minder afhankelijk van banken.

Wat zijn de nadelen van rechtstreeks geld uit de markt trekken?

- Behoorlijke overheadkosten door informatievoorziening
- Mogelijk hogere prijs; Een bank weet wellicht beter hoe een corporatie in elkaar steekt dan een belegger

Welke partijen zijn potentiële investeerders die via de kapitaalmarkt geld willen lenen aan een woningcorporatie?

- Pensioenfondsen
- Banken
- Wellicht private beleggers
- Staatsfondsen, bijvoorbeeld van olieproducerende landen

Is het ook mogelijk om gezamenlijk met andere woningcorporaties een lening af te sluiten via de kapitaalmarkt?

Dit kan als je goed bij elkaar past en elkaar goed weet te vinden. Het kan een langdurig proces zijn om met elkaar tot overeenstemming te komen.

Is het interessant om voor een specifiek project een aparte juridische entiteit te ontwikkelen waarin dit project wordt ondergebracht en waarvoor dan financiers en investeerders worden gezocht?

Dat kan en komt ook voor bij Mitros bij specifiek bezit. Hierbij wordt bijvoorbeeld samengewerkt met andere corporaties. Vanuit financieringsoogpunt kan het aantrekkelijk zijn, omdat dan puur gekeken wordt naar de risico's van het project en niet naar corporatie. Dit kan aantrekkelijk zijn voor beleggers. Er is dan geen of weinig besmetting van de moeder.

Er zijn niet echt nadelen van deze vorm. Wellicht dat de overheid kritisch is als een corporatie er eigen vermogen in stopt. Het voordeel is dat passende financiering voor het specifieke project kan worden gezocht.

Bij een goede balans van de moeder is het echter de vraag of apart van de moeder echt aantrekkelijker is. Hangt af van:

- Risicoprofiel van moeder
- Risicoprofiel van activa

Wellicht dat het voor bepaalde investeerders aantrekkelijk is. Een project met koopwoningen is niet aantrekkelijk voor pensioenfondsen vanwege de korte termijn van het project. Wellicht dat huurwoningen of MV wel aantrekkelijk zijn voor pensioenfondsen, als activa matchen met looptijd van hun verplichtingen.

Is het voor Mitros mogelijk en aantrekkelijk om een NV te worden en aandelen uit te geven?

Dat zou betekenen dat je uit het bestel moet stappen en vervolgens ook niet meer geborgd kan lenen. Daarvoor moet je immers een stichting of vereniging zijn. Een NV worden is daarom niet interessant.

Is het interessant voor Mitros om private equity te laten investeren in haar projecten?

Voor private equity zijn corporaties niet interessant. Ze hebben geen toegang tot corporatiemarkt door wetgeving. Bovendien zijn projecten niet interessant genoeg voor private equity. Vanwege de maatschappelijke doelstelling van corporaties is het rendement laag en dit komt niet overeen met het streven van private equity naar een hoog rendement.

Is het interessant voor Mitros om voor de financiering van niet-DAEB gebruik te maken van derivaten om renterisico's af te dekken?

Ja, Derivaten zijn een goed instrument om variabele rente mee af te dekken.

Is het interessant voor Mitros om een project te ontwikkelen, het complex vervolgens te verkopen en daarna te leasen?

Nee, dit is niet interessant, omdat weinig partijen goedkoper kunnen lenen dan Mitros. Voor pensioenfondsen is deze variant waarschijnlijk niet liquide genoeg, omdat het moeilijk is om van deze constructie weer af te komen.

Appendix 6 Interview with Rob Rötscheid, financial director of Mitros

Datum van het interview: 7-7-2011

Doel van het interview

- Inzicht krijgen in het beleid van Mitros met betrekking tot niet-DAEB
- Inzicht krijgen in het beleid van Mitros rondom financiering
- Inzicht krijgen in de mogelijkheden en beperking van rechtstreeks financieren op de kapitaalmarkt en de ervaringen uit het verleden met Collonade-Duhaf

Niet-DAEB

1. Sinds januari is er voor woningcorporaties geen staatssteun meer toegestaan voor de ontwikkeling van koopwoningen, huurwoningen met huren boven de € 652,52 en bepaalde soorten maatschappelijk vastgoed. Daarmee impliceert de overheid dat ze deze activiteiten geen verantwoordelijkheid vindt van de (semi-)publieke sector. Wat is voor Mitros de reden om toch met deze activiteiten door te gaan?

Er is een verschil tussen staatssteun en werkdomein. De politiek heeft de neiging om deze door elkaar te halen. De nieuwe regeling gaat over staatssteun, maar doet geen expliciete uitspraken over het werkdomein van woningcorporaties. Mitros gaat daarom door met de activiteiten die het voor de nieuwe regeling ook deed: Mensen huisvesten die niet in hun eigen huisvesting kunnen voorzien. Dat is in Utrecht een bredere groep dan in de staatssteundiscussie wordt genoemd. Mitros legt de grens bij een inkomen tot ongeveer 45.000 euro. Dit is afgesproken met de gemeente en kan ook volgens de woningwet.

Koopwoningen zijn niet per se een taak van corporaties, maar Mitros doet veel aan gecombineerde projecten met zowel koopwoningen als huurwoningen. Dit wordt ook door de gemeente verwacht.

2. Vraagt Mitros marktconforme of meer sociale koopprijzen/huurprijzen voor niet-DAEB vastgoed?

Niet-DAEB huurwoningen vallen wel binnen het werkdomein van Mitros, want deze zijn beschikbaar voor inkomens tot 45.000 euro. Bij niet-DAEB huurwoningen horen wel meer marktconforme huurprijzen. Hierbij horen huren tot ongeveer 1000 euro. Er zijn wel eens uitzonderingen, maar in principe zijn duurdere huurwoningen niet de taak van Mitros. Huurwoningen met een huur boven de 652 euro zijn niet interessant voor een vastgoedbelegger. Voor beleggers moeten appartementen een huur van 800 euro om hun minimale rendement te halen. Mitros kan in dat middensegment wel een heel aardig rendement halen, zij het dan zonder staatssteun.

3. Wil Mitros bij niet-DAEB activiteiten een commercieel rendement halen, of is er ook nog sprake van een onrendabele top?

Mitros maakt een gematigd rendement op huurwoningen in middensegment. Dit kan voor Mitros wel uit, want ze heeft geen aandeelhouders. De rendementseis is wel meer dan het sociale rendement op sociale huurwoningen, vanwege een iets hoger risicoprofiel.

Daarnaast maakt Mitros gebruik van leverage, wat beleggers niet kunnen. Een vastgoedbelegger investeert in vastgoed in opdracht van een pensioenfonds. Omdat het pensioenfonds zelf al leveraged wil het niet dat de vastgoedbelegger dat ook nog doet. Dit betekent dat de belegger een rendement moet halen dat gelijk is aan het verwachte rendement op eigen vermogen van 6 à 7%.

Omdat Mitros wel een deel met goedkoper vreemd vermogen financiert kan het lagere rendementseisen stellen. Rendement op eigen vermogen voor dit soort woningen liggen voor Mitros rond de 4 à 5%.

Er wordt niet gerekend met onrendabele toppen. Feitelijk bestaat de onrendabele top bestaat niet. De onrendabele top ontstaat door een erg hoge rendementseis te stellen, hoger nog dan de markt, terwijl men in de praktijk genoegen neemt met een veel gematigder rendement. Het rendement op eigen vermogen voor sociale woningen volgt inflatie. Het eigen vermogen van Mitros hoeft niet te groeien, want ze is een maatschappelijke organisatie en heeft al veel vermogen. Om dezelfde hoeveelheid activiteiten te kunnen blijven ontplooien moet het rendement de inflatie volgen. Er hoeft geen risico-opslag te worden gedaan, want risico's kunnen met het vermogen worden opgevangen. Vermogen wordt ingezet voor sociale taak, voor mensen die niet zelf in hun woning kunnen voorzien.

Financiering

4. Mitros kiest ervoor om investeringen te financieren volgens de verhouding 40% eigen vermogen, 60% vreemd vermogen. Wat zijn vanuit strategisch oogpunt voor Mitros de belangrijkste redenen om deze verhouding aan te houden?

Dit is een schatting. Wanneer gekeken wordt naar kasstromen en ICR, dan komt daar uit dat ongeveer 50 tot 60% met vreemd vermogen kan worden gefinancierd. Dit kan per project verschillen. Uit ervaring blijkt wel dat we ongeveer 40% eigen vermogen kunnen opbrengen voor de financiering van een project. In de praktijk vaak wel 50-50. Bij Mitros is het eigen vermogen goedkoper dan vreemd vermogen. Een aandeel van bijvoorbeeld 80% vreemd vermogen in vastgoed, zoals in het buitenland nog wel eens was te zien, is tegenwoordig niet meer mogelijk. Afhankelijk van de robuustheid van de kasstromen zal soms 70% nog mogelijk zijn, maar meestal zal de grens liggen bij 60%. Zaken als tax shield en Financial distress spelen hierbij geen rol, ook niet voor niet-DAEB

5. Mitros wil de ontwikkeling van koopwoningen voor eigen rekening en risico laten onderbrengen bij Mitros Projectontwikkeling (MPO). Wat is de reden hiervan (te maken met interimregeling)?

Het scherp krijgen van waar de verantwoordelijkheid ligt. Nu is het nog zo van, de moeder heeft toch geld genoeg dus we nemen het risico wel. Er komt dan dus een betere perceptie van het risico. Nu wordt bij MPO nog vooral gekeken naar de algemene kosten van de afdeling, in de nieuwe situatie wordt MPO afgerekend op het resultaat dat ze halen op koopwoningen. Dit betekent een transparantere verantwoordelijkheid voor dit segment; het is duidelijker wie er verantwoordelijk is voor de resultaten op deze woningen.

De interimregeling heeft dit proces versneld, maar ook zonder de regeling zou het waarschijnlijk wel zijn gebeurd.

Deze optie is ook onderzocht voor maatschappelijk vastgoed, maar de kosten om dit af te scheiden blijken erg hoog te zijn.

6. Welke gevolgen heeft dit voor de financiering van koopwoningen (Eigen vermogen)?

Minimum voorverkoop van 70% voor start bouw. De betalingen van de kopers liggen systematisch voor op de uitgaven die Mitros voor de bouw doet. Je hebt je geld vele malen sneller dan dat er kosten zijn. De overige 30% kan worden gefinancierd met een stukje bankfinanciering (RC) en een stukje eigen vermogen.

Kapitaalmarkt

7. Kun je vertellen hoe corporaties via Colonnade-Duhaf rechtstreeks financiering op de kapitaalmarkt aantrokken?

Colonnade was een SPV die gegarandeerde leningen bundelde en uitgaf via een obligatieprogramma op de kapitaalmarkt. Daarmee gaf ze corporaties rechtstreeks toegang tot de kapitaalmarkt. Colonnade gaf een obligatielening uit en leende op haar beurt het geld weer door aan de afzonderlijke corporaties. Op de obligatielening zat een papieren rating, niet een ondernemingsrating. Dit betekent dat elke obligatielening opnieuw gerated moet worden. De kosten hiervan vallen mee, omdat de leningen al snel bekend zijn. Frequentie van de obligatieleningen was 2 à 3 keer per jaar, en op het hoogtepunt 4x per jaar.

8. Wat zijn voor corporaties de voor- en nadelen van het aantrekken van financiering op de kapitaalmarkt ten opzichte van banken?

Het belangrijkste voordeel van Colonnade voor corporaties was een extra financieringskanaal. Hierdoor werden ze minder afhankelijk van BNG en de Waterschapsbank. Corporaties betaalden wel een hogere rente dan bij banken. Dit kwam door marketingbeleid van BNG en Waterschapsbank. Wanneer er een obligatie-uitgifte kwam, welke dan gecoördineerd moest worden, gingen de banken zakken met hun tarieven, waardoor ze net iets goedkoper (2 basispunten) waren dan de obligatielening. Colonnade zorgde dus voor meer concurrentie. Toch wilden corporaties hier uiteindelijk niet meer voor betalen, waardoor Colonnade stopte. Toen Colonnade niet meer bestond gingen de tarieven bij de banken weer omhoog. Ten tijde van de crisis rekende de BNG een spread van ongeveer 160-170 basispunten. Wanneer Colonnade nog had bestaan en een uitgifte had gedaan, dan was dit waarschijnlijk tegen de 90 basispunten geweest.

Rötscheid verwacht niet dat er nu weer een dergelijk initiatief zal komen en corporaties de kapitaalmarkt op zullen gaan, omdat het financieren nu te makkelijk gaat en ze te weinig visie hebben. Basel III is voor de meesten een ver-van-mijn-bed-show.

Ymere wil nu rechtstreeks de kapitaalmarkt op door zelf een obligatielening uit te geven. Dit is de 'hard way' omdat hiervoor toestemming nodig is van het Ministerie van Financiën en daarmee een politiek mijnenveld wordt betreden met allerlei belangen. Bij de SPV-constructie van Colonnade, waarvan de corporaties eigenaar waren, was toestemming van het ministerie niet nodig.

Private placements hebben als belangrijkste nadeel dat ze niet liquide zijn. Rötscheid verwacht dat deze geen belangrijke rol gaan spelen bij de financiering van corporaties.

Voor een corporatie zijn er twee belangrijke voordelen wanneer ze rechtstreeks de kapitaalmarkt opgaat.
1. Permanente toegang tot kapitaal, geen afhankelijkheid.
2. Tarieven op termijn lager door Basel III-eisen aan BNG en Waterschapsbank. Deze kunnen nauwelijks groeien, omdat ze meer vermogen moeten hebben. Voor elke lening die ze uitgeven moeten ze 3% vermogen aantrekken. Ze kunnen echter geen aandelen uitgeven. Bovendien is het niet waarschijnlijk dat overheden (aandeelhouders van BNG) gaan investeren, want die moeten bezuinigen. Waarschijnlijk zullen deze banken dus de tarieven moeten verhogen om extra vermogen te genereren.

De beste optie voor corporaties is daarom een nieuwe Colonnade opbouwen. In je eentje ben je als corporatie te klein. Je kunt niet genoeg en niet vaak genoeg de kapitaalmarkt opgaan.

9. Hoe zie je de mogelijkheden om voor niet-DAEB activiteiten financiering aan te trekken op de kapitaalmarkt?

Niet, want te klein. Bank is voor niet-DAEB de beste optie. Wellicht is niet-DAEB wel interessant voor meer partijen, waaronder ook buitenlandse banken. Leningen voor niet-DAEB zijn een product met hypothecaire zekerheid die ze kennen, in tegenstelling tot WSW-contract.

Voor woningen zal de financiering waarschijnlijk goed lukken, voor niet-DAEB maatschappelijk en bedrijfsmatig vastgoed wordt het ingewikkelder. Deze krijg je alleen gefinancierd als je een huurder hebt. Kasstromen moeten zeker zijn.

Appendix 7 Overview of interviews with five banks

Inleiding

In maart 2011 hebben met vijf banken (ABN AMRO, BNG, Deutsche Bank, ING en Rabobank) interviews plaatsgevonden over de financiering van niet-DAEB activiteiten. De doelen van deze interviews waren als volgt:

- Informatie m.b.t. de mogelijkheid en de voorwaarden om voor niet-DAEB projecten financiering te krijgen
- Informatie m.b.t. zekerheden die nodig zijn voor financiering niet-DAEB
- Informatie m.b.t. inhoud van bidbook

Hieronder volgen de uitkomsten van deze interviews. Deze kunnen worden gebruikt voor de interne beoordeling van de financierbaarheid van projecten en voor het maken van een bidbook.

Mogelijkheden financiering

Alle geïnterviewde banken gaven aan dat het mogelijk is voor een woningcorporatie om ongeborgde financiering te krijgen voor niet-DAEB projecten. In de onderstaande tabel een overzicht van de mogelijkheden en de voorwaarden.

Tabel 1 Overzicht financieringsmogelijkheden banken

	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5
Maximale financiering	75%	85-90%	60%	60-70%	75-80%
Rente-opslag	> 0,75%	1%	>1,5%	1,60%	2,20%
Looptijd financiering cons. fase		5-15 jaar	5-7 jaar		< 10 jaar
Zekerheden					
- Hypotheekrecht	X	X (pos/neg verklaring tijdens bouwfase)	X	X (op executiewaarde)	X
- Verpanding huurpenningen	X	X			X
- Overig	Bij uitzakking naar BV, hoofdelijke aansprakelijkheid TI Maandelijkse aflossing	Moraliteitseis (pari passu, link tussen krediet en doel)		Taxatierapporten door onafhankelijke taxateur	

Wat hierin opvalt zijn de grote verschillen wat betreft de maximale financiering en de verwachte rente-opslag. Bank 2 lijkt op beide punten goed te scoren. Alle banken geven aan dat dit per project erg kan verschillen. Wat betreft zekerheden zijn er weinig verschillen tussen de banken. Ze willen allemaal hypotheekrecht en meestal ook verpanding van huurpenningen.

Over de vorm van financiering wordt aangeraden om tijdens de bouwfase een Rekening Courant (RC) vol te trekken en deze in de consolidatiefase om te zetten in een lening met een langere looptijd. Twee banken benadrukken hierbij het belang dat de financiering mogelijkheden biedt om tussentijds delen in te lossen wanneer huizen in het project tussentijds zouden worden verkocht. Eén van de banken gaat bij de financiering uit van een maandelijkse aflossingsverplichting. Bij andere banken is maandelijkse aflossing niet verplicht, maar wel gekoppeld aan de maximale financiering. Hoe minder er maandelijks wordt afgelost, hoe lager ook de maximale financiering voor een project.

Verschillende banken noemden ook de mogelijkheid voor een EMTN-programma. Dit wordt volgens één van de banken interessant voor financiering vanaf ongeveer 30-40 miljoen euro.

Als alternatief voor een RC tijdens de ontwikkelingsfase biedt één van de banken de mogelijkheid aan van Supply Chain Financing.

Beoordeling Financieringsaanvraag

Aan banken is de vraag voorgelegd wat zij als de belangrijkste risico's van een project beschouwen en welke factoren van belang zijn bij de beoordeling van een financieringsaanvraag. In onderstaande tabel zijn de antwoorden samengevat.

Tabel 2 Beoordeling van financieringen

	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5
Risico-factoren van project	Leegstand	Leegstand Omvallen bouwer Kosten vooraf niet helemaal zeker	Leegstand Huurachterstand Tussentijdse verkoop		Verhuurbaarheid Kwaliteit vastgoed Kwaliteit locatie
Belangrijke voor beoordeling					
- Kasstromen	X	> 1,2 van rente + afl.	> rente + aflossing	X	> rente + aflossing
- Voorverkoop	X	> 70%	> 70%		70-80%
- Markt	X	X	X		X
- Kwaliteit van het vastgoed	X		X		X
- Kenmerken Corporatie	X	X (Verschil tussen TI of BV)	X	X	X
- Verzekering van het object		X	X		
- Overige	Vergunningen, bestemmingsplan Juridische afspraken Gevraagde bedrag	Bouwer (ervaring + risico op omvallen)	EBIT-marge Omvang project	Solvabiliteit van de coporatie > 15%	Bouwer (risico op omvallen) Huurniveaus (reëel) Huurstromen (> 12x gevraagde financiering)

Een belangrijk risico van een project dat tijdens de interviews wordt genoemd is leegstand. Banken stellen daarom bij koopprojecten een voorverkoopeis van vaak 70%. In de praktijk zal dit betekenen dat het voor Mitros erg moeilijk, zo niet onmogelijk, gaat worden om nog financiering te krijgen voor koopprojecten waarbij niet aan deze eis is voldaan. Bij verhuur van woningen is voorverhuur lastig, maar bij maatschappelijk of commercieel vastgoed is het wel sterk wanneer een corporatie dit al (deels) vooraf heeft verhuurd.

Bij de beoordeling kijkt elke bank primair naar de kasstromen die het project gaat opleveren. Inkomsten uit verhuur, met aftrek van onderhoud en andere kosten, moet voldoende zijn om de rente en eventuele aflossing te betalen. Verder wordt bij de beoordeling van het project goed gekeken naar de kwaliteit van het vastgoed en in hoeverre het project aansluit bij de vraag in de lokale markt. Ook vinden de banken het belangrijk wie precies het krediet aanvraagt, waarbij zij een duidelijke voorkeur hebben voor de toegelaten instelling (TI). De kenmerken van de specifieke corporatie worden als een belangrijke factor gezien bij de beoordeling. Eén bank geeft zelfs aan dat hier de nadruk op ligt, waarbij het trackrecord en de strenge controle op corporaties een belangrijke rol spelen. Een corporatie wordt geacht meer verstand te hebben van de lokale markt dan de bank. Tenslotte wordt door twee banken aangegeven dat ook wordt gekeken naar de partijen, en met name de bouwer, met wie de corporatie samenwerkt. Recent zijn er verschillende bouwers failliet gegaan en een bank wil daarom graag weten met wie haar debiteur in zee gaat.

Benodigde informatie voor bank

Aan de banken is gevraagd welke informatie zij noodzakelijk achten om een financieringsaanvraag te beoordelen. Hieronder een overzicht.

Tabel 3 Informatiebehoefte voor beoordeling financieringsaanvraag

Kenmerken project		Financiële informatie	Debiteur
Algemeen	Kwaliteit van het vastgoed	Meerjarenbegroting	TI of BV?
	Analyse van de markt	Liquiditeitsbegroting	Gegevens debiteur
	Huur/koopprijzen	Overzicht cashflows	Gegevens kwaliteit van de corporatie
	Plattegrond	Termijnenschema	Strategie van de corporatie
	Gegevens bouwer	Scenario's	
	KPI's		
Juridisch	Kadastrale informatie		
	Bestemmingsplan		
	Vergunningen		
	Verzekeringen		
	Contracten		
	Juridische afspraken		
Intern	Interne coördinatie		
	Bouwrapportages		
	Beschrijving van de fases		