

LAPPEENRANTA UNIVERSITY OF TECHNOLOGY  
SCHOOL OF ENGINEERING SCIENCE  
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## **JOINT VENTURES IN REAL ESTATE DEVELOPMENT**

Master's thesis

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## ABSTRACT

|  |                           |
|--|---------------------------|
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| <b>Subject:</b> Joint Ventures in Real Estate Development  |                           |
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| Master's Thesis.<br>Lappeenranta University of Technology<br>Industrial Engineering and Management<br><br>73+10 pages, 25 figures, 8 tables, 2 appendices<br><br>Examiners: Professor Timo Kärri & Post-doctoral researcher Antti Ylä-Kujala<br>Instructor: M.Sc. (Econ.) & M.Sc. (Tech.) Antti Seppälä  |                           |
| <b>Keywords:</b> real estate development, joint ventures, project finance  |                           |
| <p>The goal of this master's thesis was to seek out the benefits of real estate development joint ventures from the perspective of a company that acts as both the developer and contractor. To achieve the objectives, three researches were conducted. In the first research, prior literature and research were reviewed to create a theoretical background for the thesis. In the second research viewpoints and thoughts of Finnish real estate and investment professionals on real estate development joint ventures were gathered with interviews. Additionally, the economic benefits of joint venture execution model over the own development model were researched in a quantitative simulation study with a realistic example project.</p> <p>The key results of the interview study showed that the stakeholders had similar perceptions on the most remarkable factors of real estate development joint venturing, participants being the key factor behind success of joint ventures. Results of the simulation study showed that gaining access to project financing in real estate development joint ventures increases returns and reduces risk significantly over the option of developing the project on the company's own balance sheet.</p> <p>As the conclusion, the real estate development in joint ventures are interesting and sound investment opportunities in the Finnish markets and highly recommendable for the developer-contractor, unless the amount of alternative investments is low.</p> |                           |

## TIIVISTELMÄ

|   |                         |
|---|-------------------------|
| <b>Tekijä:</b> Topias Suortti   |                         |
| <b>Aihe:</b> Joint Ventures in Real Estate Development  |                         |
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| <b>Hakusanat:</b> kiinteistökehitys, yhteisyritykset, projektirahoitus  |                         |
| <p>Tämä diplomityön tavoite on selvittää kiinteistökehitysyhteisyritysten hyödyt yrityksen, joka toimii sekä kehittäjänä sekä urakoitsijana, näkökulmasta. Työn tavoitteisiin pääsemiseksi suoritettiin kolmiosainen tutkimus. Ensiksi aiempaa kirjallisuutta ja tutkimusta tutkittiin teoreettisen viitekehyksen luomiseksi. Toisessa tutkimuksessa suomalaisten kiinteistö- ja sijoitusalan ammattilaisia haastateltiin heidän näkemyksistään kiinteistökehitysyhteisyrityksistä. Haastattelujen ja kirjallisuuskatsauksen lisäksi yhteisyritysmallin tuomia etuja verrattuna vaihtoehtoon kehittää hanketta yrityksen omassa taseessa vertailtiin kvantitatiivisessa simulaatiotutkimuksessa realistisella esimerkkihankkeella.</p> <p>Haastattelujen tuloksista selviää, että sidosryhmillä oli hyvin samankaltaisia näkemyksiä kriittisimmistä tekijöistä kiinteistökehityksestä yhteisyrityksessä, kumppanien ollessa tärkein menestystekijä. Simulaatiotutkimuksen tuloksena on, että yhteisyrityksessä projektirahoituksen avulla saavutetaan merkittävästi korkeampia tuottoja ja matalammalla riskillä kehittäjäurakoitsijan näkökulmasta kuin niin, että hanke kehitettäisiin kehittäjäurakoitsijan omassa taseessa.</p> <p>Tutkimuksen johtopäätöksenä todetaan, että kiinteistökehitys yhteisyrityksessä ovat hyviä ja kiinnostavia sijoituskohteita Suomen markkinoilla, ja se on erittäin suositeltavaa kehittäjäurakoitsijalle, jos vaihtoehtoisia sijoituksia on saatavilla merkittävästi.</p> |                         |

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19.6.2019, Helsinki

Topias Suortti

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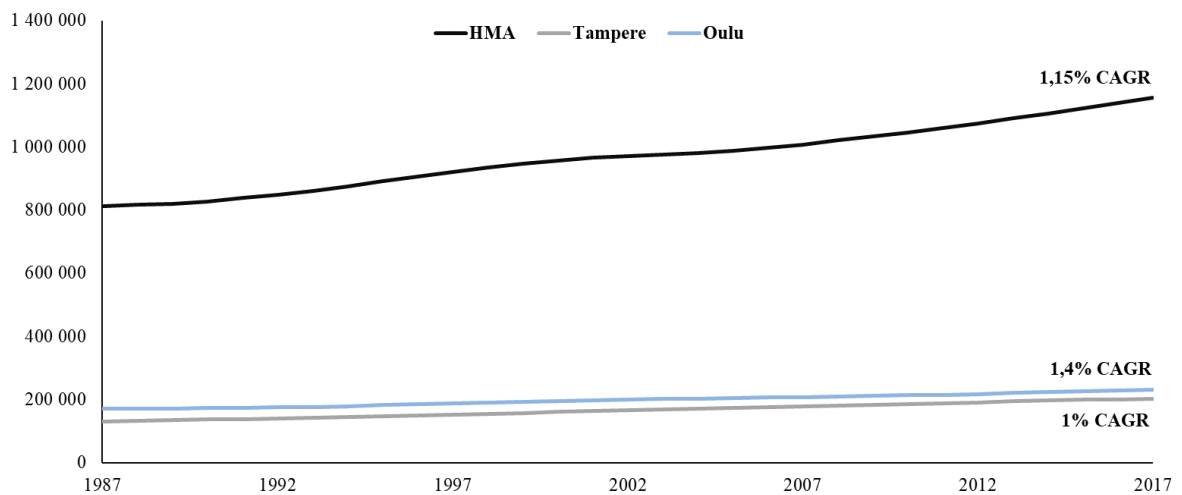
## **LIST OF ABBREVIATIONS**

|       |                                |
|-------|--------------------------------|
| CAGR  | Compound Annual Growth Rate    |
| CAPEX | Capital Expenditure            |
| CAPM  | Capital Asset Pricing Model    |
| DCF   | Discounted Cash Flow valuation |
| DSCR  | Debt Service Coverage Ratio    |
| HMA   | Helsinki Metropolitan Area     |
| ICR   | Interest Cover Ratio           |
| IRR   | Internal Rate of Return        |
| JV    | Joint Venture                  |
| LLC   | Limited Liability Company      |
| LLCR  | Loan life Cover Ratio          |
| LTC   | Loan-to-Cost                   |
| LTV   | Loan-to-Value                  |
| NOI   | Net Operating Income           |
| OPEX  | Operating Expenditure          |
| RED   | Real Estate Development        |
| SPV   | Special Purpose Vehicle        |

# 1 INTRODUCTION

## 1.1 Background

Megatrend driving the development of cities globally is urbanization. People are moving into cities at a vast pace: in the year 1900, only 15 percent of the population lived in cities and circa 2010, half of the world's population dwelled in urban areas. (Lall et al. 2009, p. 7; Annez et al., p. 1). This megatrend is also observable in Finland over the years 1987-2017. Five of the largest cities in Finland: Helsinki, Espoo, Tampere, Vantaa and Oulu gained over 473 000 inhabitants while the total population growth has been 706 000 persons. Helsinki, Espoo, Kaunianen and Vantaa form the area of Helsinki metropolitan area (HMA), and as seen from Figure 1, its compound annual growth rate (CAGR) has been 1,15%. Tampere has had the CAGR of 1,4% and Oulu 1%. Notable is, that compound annual growth rate of Finland in total was only 0,34% during the period as pictured in Figure 1. These statistics imply that urbanization is in full effect in Finland as well. (Official Statistics of Finland: Population structure)



**Figure 1:** Population growth in largest cities of Finland (Created by author, from Official Statistics of Finland (OSF): Population structure)

One of the main reasons behind this phenomenon is the labor market: the fastest growing economic sectors, industrial and service, are concentrated to cities (Annez et al. 2009, p. 13). The finite technical age of buildings, growing number of inhabitants and jobs in cities create the demand for more and better built environment: infrastructure, housing, schools, hospitals

and offices. This opens a market for construction companies and real estate developers to acquire, design, develop, build and sell real estate. Real estate development has an important role in functioning societies: through development the future of urban environment is shaped as well (Geltner et. al, 2007, p. 757).

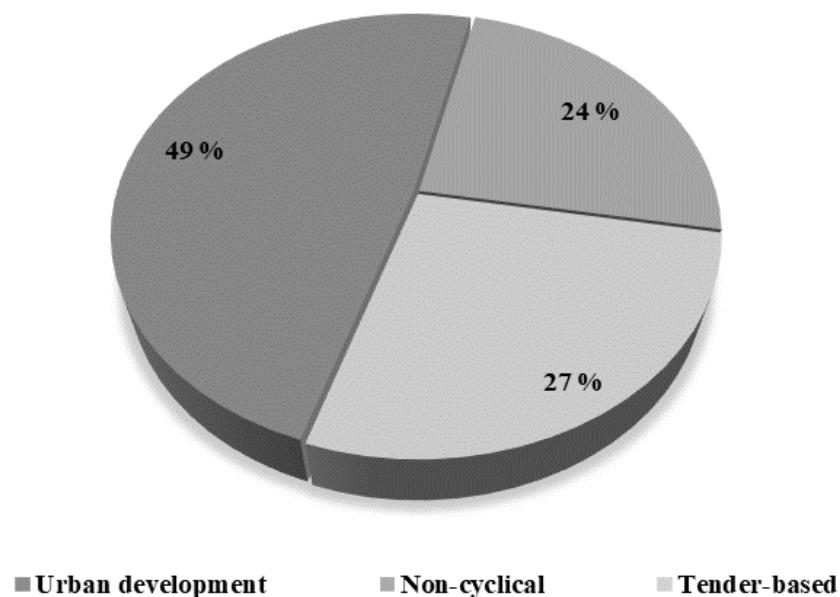
Real estates can be divided into two categories: housing and business premises, or commercial real estate (Kaleva, Oikarinen and Soutamo, 2017, p. 15). This thesis will concentrate on the latter. Real estate is considered as an asset class in investment portfolios (Geltner et al., 2007, p. 135). According to Finnish Pension Alliance TELA Ry, 17,1% of the portfolios of Finnish pension investment companies were invested in real estate in 2015 (Kaleva, Oikarinen and Soutamo, 2017, p. 44). The real estate market was active in 2018: total transaction volume was approximately 9.3 billion euros (KTI, 2019).

The aim of real estate development (RED), or property development, typically is to maximize the value of the land available for development. Commercial real estate is valued through its ability to generate rental cash flows, hence real estate development is a business aiming to maximize and secure future cash flows of an asset. There are several drivers towards valuation, location being a key driver considering the immobile nature of the assets (Olkkonen, Kaleva and Land, 1997, 73; Kaleva, Oikarinen and Soutamo, 2017, p. 158).

Real estate development requires substantial amounts of capital due to its nature: all costs, for example acquisition, planning, construction and financing are generally borne by the developer. The costs may incur years before the project generates any income. With high allocation of capital to individual projects, the risks also grow. This leads development companies to search solutions for capital efficiency and risk mitigation. One approach to limit capital investments, hence risks in real estate development is to create a joint venture with one or more partners. Joint venture schemes provide many benefits, for example bringing up an opportunity to finance the real estate development off corporate's consolidated balance sheet with project financing and the competences possibly provided by the partners.

Case company YIT Oyj (thereinafter YIT) is the largest construction company in Finland and notable North-European builder and urban developer. It employs approximately 10 000

employees which of 5000 in Finland and its' revenues were 3,8 billion euros in 2018. (YIT, 2018a, p. 3) YIT is an active player in the RED market with broad experience from joint ventures. As an example, YIT alongside project-based joint ventures, it has formed a long-term joint venture with HGR Property Partners: Regenero (Regenero, 2019). YIT's business is formed as presented by concept in Figure 2: the urban development, that includes real estate development, being the largest revenue source with 49%, tender-based being the second largest and non-cyclical bringing the smallest portion of 24%. (YIT, 2018a)



**Figure 2:** YIT's revenue generated by business type. (Created by author, YIT 2018a)

## 1.2 Objectives and scope

YIT looked to extend its knowledge of joint ventures and their benefits through this research. The goal of this master's thesis was to seek out the benefits of real estate development in joint ventures to a company that both develops real estate projects and is in the role of a construction contractor.

The research questions are:

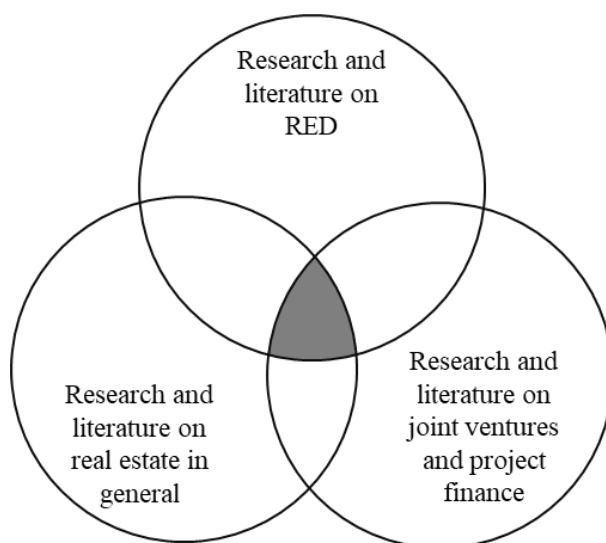
1. How joint venture-execution model effects the returns and capital use of real estate development projects in comparison to own development?
2. What type of real estate development project is suitable to be executed with the joint venture-model?
3. How do the stakeholder groups view real estate development in joint ventures?
4. Is standardization of joint venture investment model feasible business model for a construction company?

The scope of this research was limited to commercial real estate and commercial real estate joint ventures in Finland only, even though the real estate market currently is highly global. The question related to the availability of debt financing with the projects in simulation study and the in-depth real estate valuation is out of scope the study. Forward funding and forward purchase transaction models are out of the scope of this research as well.

### **1.3 Methods and data**

The research questions were approached with a mixed-methods approach due to the depth and breadth of the research problematics. The type of mixed research design used is explanatory sequential, where the results of qualitative study are used to help explaining the results of quantitative study (Shorten & Smith, 2017). Additionally, recent literature and research was reviewed to increase the validity, reliability and generalizability of the results. The answer for research question 1 was provided with quantitative research. The answers for research question 2 and 4 were provided with combination of quantitative and qualitative research. Question 3 was answered with qualitative research.

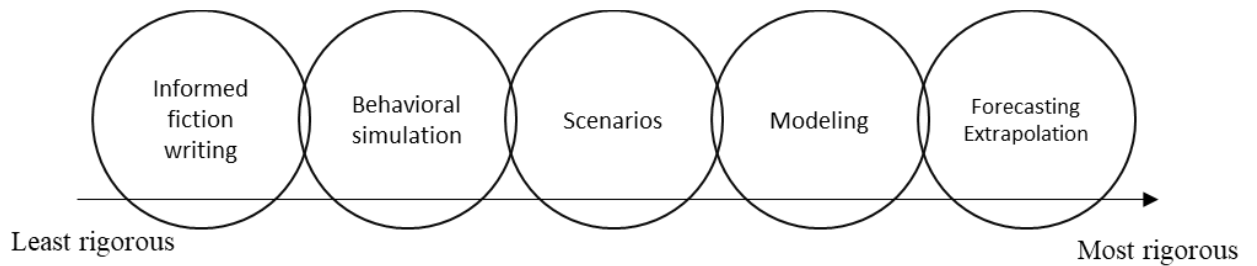
The theoretical framework of the study was created through a literature review, and its' purpose is to create ground for the actual research. A wide literature and scientific publication research on real estate development and project finance was conducted to gain understanding on the current trends and practices on the subject, as described in Figure 3.



**Figure 3:** The types of literature and research reviewed.

The qualitative research was conducted with an interview study. The interviewees are general participants in joint venture schemes: equity investor, developers, debt financier and an advisor. Their positions of range from director to high executive-level and they represent the spearhead of the real estate development in Finland. The interviews were conducted as semi-structured face-to-face interviews with slight variation in questions within the interviewees.

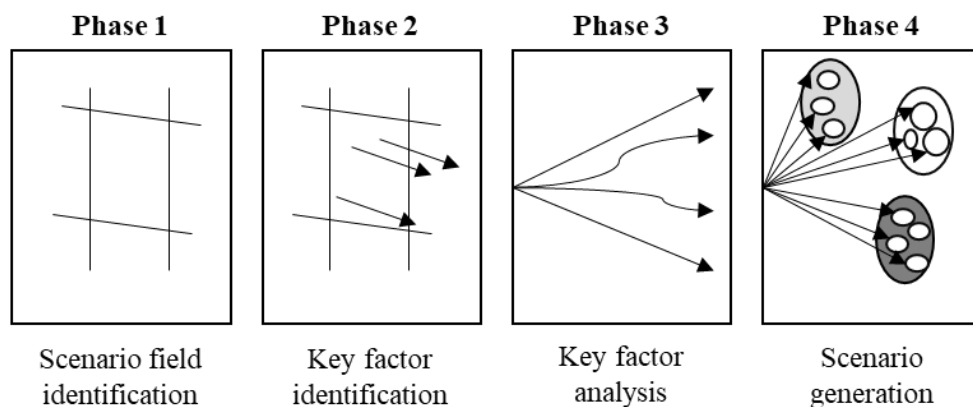
The interview questions were created with combination of findings from literature as well as knowledge of YIT. The interview questions are related to general aspects and financing of real estate development joint ventures. The data gathered from the interviews was analysed using theming-method. In theming the differences and similarities of the data is analysed to create findings (Saranen-Kauppinen & Puusniekka, 2006). The interview questions were created with the theming-analysis method in mind, and they are grouped by themes. Most of the interviews were recorded and transcript was formed from each interview on the interview question template. The questions can be found from Appendix 1.



**Figure 4:** Methods for predicting the future activities. (Created by author, from Tourki, Keisler & Linkov, 2013)

The quantitative part of the research positions itself in the middle of the framework introduced in Figure 4, which introduces methods for predicting the future: the research was conducted with a combination of scenario analysis and modelling. The data and main principles for the simulation were gathered from YIT knowledge. In the sense of protecting the company-specific classified information, i.e. cost levels, “dummy figures” were used to perform the analysis. The model was created using Microsoft Excel spreadsheets.

The scenarios for the quantitative study were created to investigate the behaviour of measured elements through sensitivity analysis of the key factors, and the process used for the development of scenario analysis in this study is introduced in Figure 5. The results of the created scenarios were analysed and reported. View from the cash flow model can be found from Appendix 2.



**Figure 5:** Process of building the scenario analysis. (created by author, Kosow & Gaßner, 2008, p. 25)

## 1.4 Structure of the thesis

The structure of the thesis, purpose of the section and the relation to research questions is introduced in Table 1. The research is divided into three parts: first, the theoretical framework for the research is introduced, then the interviews are conducted and analysed. The third part of the work is the quantitative section. The research is finalized through conclusions and summary chapters. Table 1 demonstrates the structure of the thesis as well as gives the reader and quick glance at purpose and the research questions concerned by section.

**Table 1:** Structure of the thesis.

| Chapter                  | Purpose   | Research question |
|--------------------------|---|-------------------|
| 1. Introduction          | To introduce the purpose, background, used research methods and goals of the research   | -                 |
| 2. Theoretical framework | To introduce the subject in general and current practices   | 1. 2. 3. 4.       |
| 3. Interview study       | To introduce the viewpoints of stakeholders in real estate development joint ventures   | 3. 4. 5.          |
| 4. Simulation study      | To introduce the conceptual differences and their economic differences of execution models  | 1. 2. 4.          |
| 5. Conclusions           | To conclude the results in relation to the research questions, assess the limitations and propose the subjects for further research | 1. 2. 3. 4.       |
| 6. Summary               | To summarize the research   | 1. 2. 3. 4.       |



## **2 THEORETICAL FRAMEWORK**

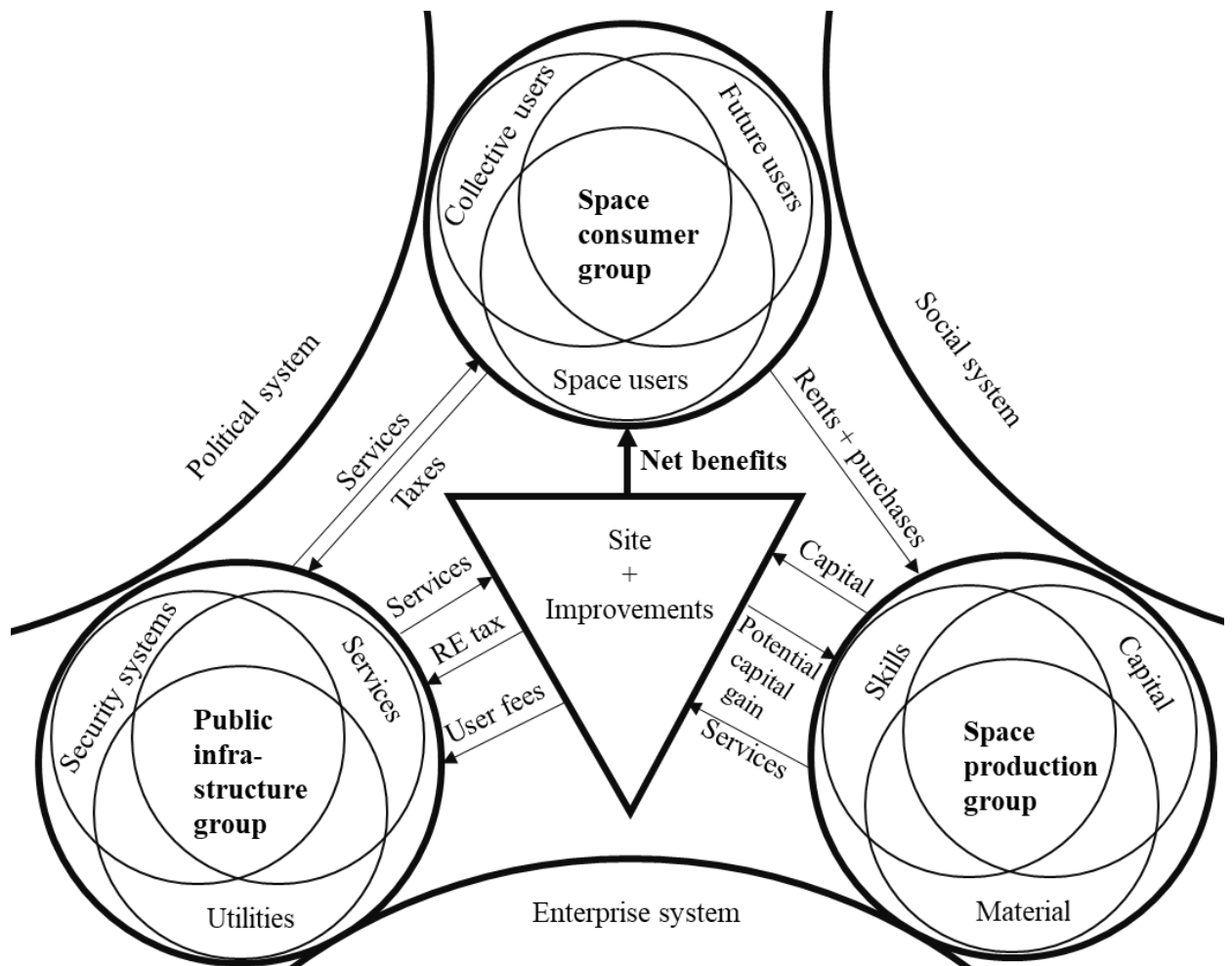
In this chapter the theoretical framework of this master's thesis is introduced. The first two sections give backbone to the domain and goals of real estate development. The third chapter introduces joint ventures in context of real estate development and the final chapter covers the financial perspective of RED and RED Joint Ventures (JVs).

### **2.1 The real estate industry**

To gain understanding of the RED, it is important to look how the real estate industry functions. The real estate market includes many stakeholders from the end-users to asset management. The business around built environment employs substantial amounts of active workforce: Alone the real estate sector that includes real estate services, property management, brokers, expert services and asset management, employed approximately 110 000 persons in 2016 in Finland. On top of that, the construction sector employed approximately 198 000 persons in 2018 (Kaleva, Oikarinen and Soutamo, 2017, p. 23; Official Statistics of Finland: Employment).

The market functions through supply provided by construction companies and developers to real estate owners and demand of leasable spaces by the space users (Geltner et al. 2009, p. 5). The interaction between the stakeholders and dynamics of the real estate industry is presented in the Figure 6. The “space consumer group”, the tenants, who ultimately gain the benefit from using the spaces for their purpose, needs premises. The spaces are provided by the “space production group”, who have to ability to create spaces to answer the demand. In exchange the production group gains rent, or direct purchases.

The “public infrastructure group” consists of municipal and governmental systems and provides services to both users and the real estate in exchange for taxes and fees. The infrastructure includes public functions that support the needs of space consumers: sewers, water and electricity systems as well as public buildings like hospitals, libraries and schools. (Graaskamp 1992)

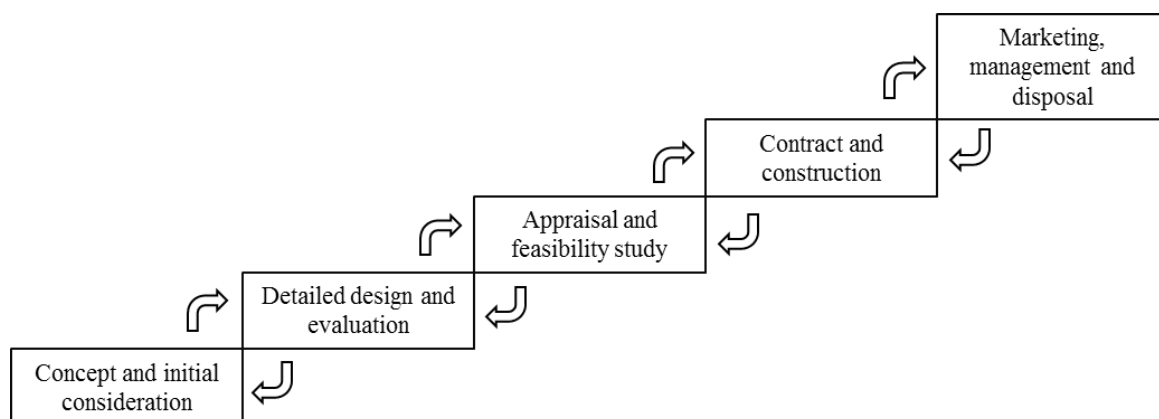


**Figure 6:** The interaction of participants in the real estate industry. (created by author, Graaskamp, 1992)

## 2.2 Real Estate Development

Creations of commercial real estate development are present in urban society: shopping malls, hotels, retail and business parks and offices. Commercial real estate development can be described as a process that creates built environment: from developers' viewpoint, preferably assets that are current and can be sold to investors. RED is not completely led by markets as policies and regulation, e.g. zoning, steer the decisions-making of real estate developers (Tiesdell & Adams, 2011, p. 3). Real estate development is summarized well by Geltner et. al (2007, p. 21): "The real estate development industry is the engine of entrepreneurial activity that assembles and applies the financial and physical resources to construct new built space (including the major rehabilitation or conversion of existing buildings)".

The very nature of commercial real estate development differentiates itself from other industrial production businesses due to high heterogeneity of the projects: they are almost individual, and variation is high even in contractual and commercial aspects (Ratcliffe, Stubbs and Keeping, 2009, p.328) The variation is present in project types: for example, offices and shopping malls, as well as within e.g. individual office projects.



**Figure 7:** Five steps of the RED process. (modified from Ratcliffe, Stubbs & Keeping, 2009, p.331)

The simplified real estate development process and its five stages are visualized in Figure 7. The whole process begins from a concept and initial consideration. From the concept-stage the project is refined with detailed design and evaluation. That is followed by site appraisal, e.g. soil surveys for contamination, and more detailed feasibility studies. After these steps the needed stakeholder groups, for example technical designers, contractors, financing and architects are engaged and the actual construction takes place. (Ratcliffe, Stubbs and Keeping, 2009, p.331-339) Waterhouse (1991) and Colliers (2008, p.67) lists similar factors: project goal setting, development philosophy and market, technical and financial analysis to be core elements of real estate development process.

The final step is marketing, management and disposal. In commercial real estate, the developed projects need tenants that pay rent for occupying the building. In a financial sense, the tenants are needed for the asset to produce cash flows, for it to be considered as an investment asset. The lease contracts are a in key position in this matter, and pre-letting is also common prerequisite of achieving external funding. Facility management is a must-

have in commercial real estate, although arranging the management might not be included to developers' responsibility, especially if the asset is divested before the completion. The sale of the asset at its' highest possible value is what the developer aims for in RED, and it is in key role on the profitability of the whole development process. These steps can and will overlap heavily, and the actual development is more iterative, spiral-like than a linear process. (Colliers, 2008, p. 67-69; Ratcliffe, Stubbs & Keeping, 2009, p. 339-342; 481)

### 2.3 Joint Ventures in Real Estate Development

Joint ventures are a general form of inter-company cooperation. In Finland, the popularity of joint ventures has risen over the years and are especially in favour of institutional investors (KTI 2019b). Joint Ventures can be defined as “any combination of two or more parties for the purpose of pursuing a common investment or investments” (Rosenbleeth, 2018). Partners of the real estate joint venture are developers, referred to as sponsors as relation to project finance terms, and other equity participants, referred as equity investors (Kamin, 2015).

**Table 2:** Project based JVs versus Traditional JVs. (created by author, from Rohm, 2017, p. 14)

| Item                         | Project JVs                          | Traditional JVs            |
|------------------------------|--------------------------------------|----------------------------|
| Lifespan                     | <i>Finite (project)</i>              | <i>Indefinite</i>          |
| Strategic Planning           | <i>Short-term oriented</i>           | <i>Long-term oriented</i>  |
| Decision making              | <i>Relatively quick</i>              | <i>Relatively slow</i>     |
| Management style             | <i>Task oriented</i>                 | <i>Business oriented</i>   |
| Partner relationship         | <i>Short-term oriented</i>           | <i>Long-term oriented</i>  |
| Information flow requirement | <i>Must be quick</i>                 | <i>On-going process</i>    |
| Operational activity         | <i>Defined by contract</i>           | <i>On-going process</i>    |
| Control                      | <i>Hierarchy</i>                     | <i>Teamwork</i>            |
| Primary objective            | <i>Completion of project on time</i> | <i>Business objectives</i> |
| Potential outcomes           | <i>Possible win-lose situation</i>   | <i>Win-win situation</i>   |

The characteristics of project-based joint ventures compared to traditional joint ventures are introduced in Table 2. The project joint ventures are generally more short term and aimed solely towards a single goal as other industrial joint ventures might look for longer partnerships. The project companies aim towards predefined goals and significant differences in the operational and strategic management. In real estate development joint ventures, the responsibilities and risks are allocated with contracts i.e. the partnership agreements. (Hutchinson, 2012)

The motives of joint venturing in real estate development come in many. The underlying, main motive is that the benefits gained through joint venturing is greater than sum of parties' effort (Rosenbleeth, 2018). The pooling and acquiring skills and technical knowhow are a major motivation in joint ventures. Closely related to previous, capital acquisition is a motive to engage RED JV. Conceptual example: the capital investor, e.g. institutional, gain skills and technical knowhow from developers in exchange for capital, and developers offer the entrepreneurial effort for the joint venture in addition to developers' invested capital. (McConnel & Nantell, 1985; Geltner et al. 2007, 23).

The increasing market power is a strong motive to team up into joint ventures. The partnered companies can achieve economies of scale through larger projects. (Rohm, 2017, p.14) Joint venturing also grants an opportunity to hedge financial risk in RED to the parties, and the financial aspect and motives are discussed in "Financial Perspective of Real Estate Development"-chapter.

The RED JVs are generally formed as special purpose vehicles (SPVs), or special purpose entities (SPEs), which are used synonymously (Sainati, Brookes & Locatelli, 2016). The quote from Carey and Stulz (2007) defines the SPVs as "... is a legal entity created by a firm (known as the sponsor or originator) by transferring assets to the SPV, to carry out some specific purpose or circumscribed activity, or a series of such transactions. SPVs have no purpose other than the transaction(s) for which they were created, and they can make no substantive decisions; the rules governing them are set down in advance and carefully circumscribe their activities. Indeed, no one works at an SPV and it has no physical location". SPVs can be formed as limited liability companies (LLC), corporations or Partnerships with special features regarding tax and accounting treatment. (Finnerty, 2013, p. 107)

The process of discovering suitable partner as well as the contractual aspects of joint venture structures has a heavy workload to tackle every single project before the joint venture development can take place. The standardization of joint venture arrangements with a partner, known as programmatic joint venturing, can bring aid towards these problems. In programmatic joint venturing, the two (or more) parties enter into a framework agreement or a legal entity with an intention to complete development projects in the future (Fisch & Mitchell, 2018).

A benefit gained from programmatic joint venturing is the provided flexibility: for the developer the availability of capital is much higher when entering programmatic JV-scheme, as well as to the equity investor gaining instant access to profitable investment opportunities without bidding process. The project set up is more efficient as documentation, particularly legal, reduce drastically as the previous agreements can “reused”. The pooling of economics is a major advantage as the returns from previous projects can be reinvested to following projects. (Kamin, 2015; Fisch & Mitchell, 2018)

## **2.4 Financial perspective of Real Estate Development**

### **2.4.1 Income in real estate development**

As the goal of RED is to sell the developed assets with the highest possible price, it is vital to examine the factors affecting the value of a real estate, in other sense, the main source of income of a real estate developer. In general, the investment assets have a linkage between price, risks and returns. There many approaches to the valuation, but the income based-methods, for example discounted cash flow method (DCF) is generally applied to real estate by investors and experts to valuate assets. The other two methods are sales comparison and cost-based approaches. (Mooya, 2017, p. 8)

In the Finnish KTI’s real estate reseach at least 55% of total real estate valuations were conducted with discounted cash flow method (Kaleva, Oikarinen and Soutamo, 2017, p. 174). In DCF, the future net cash flows produced by a real estate are discounted with the required rate of return. As the cash flows are generated by lease agreements they play a key

role, the ending of lease agreements bring uncertainty to the valuation of the asset. (Geltner et. al., 2007, p. 203-206)

More traditional approach towards valuation is direct capitalization of net operating income of the first year, NOI. The net operating income of the first year is divided by required rate of return, capitalizing the rent (Mooya, 2017, p. 49). This is still in wide use: 61% of companies' internal valuations in Finland were conducted with this method. This is a simplified and misleading approach in relation to the actual returns produced by the assets, but the net initial yield is a common method to express real estate's value in relation to the initial income. Practically it's the present value of eternal cash flows. The actual valuation might still be conducted with other method, for example DCF. (Geltner et. al., 2007, p. 208; Geltner & De Neufville, 2018, p. 18; Kaleva, Oikarinen and Soutamo, 2017, p. 174; 188)

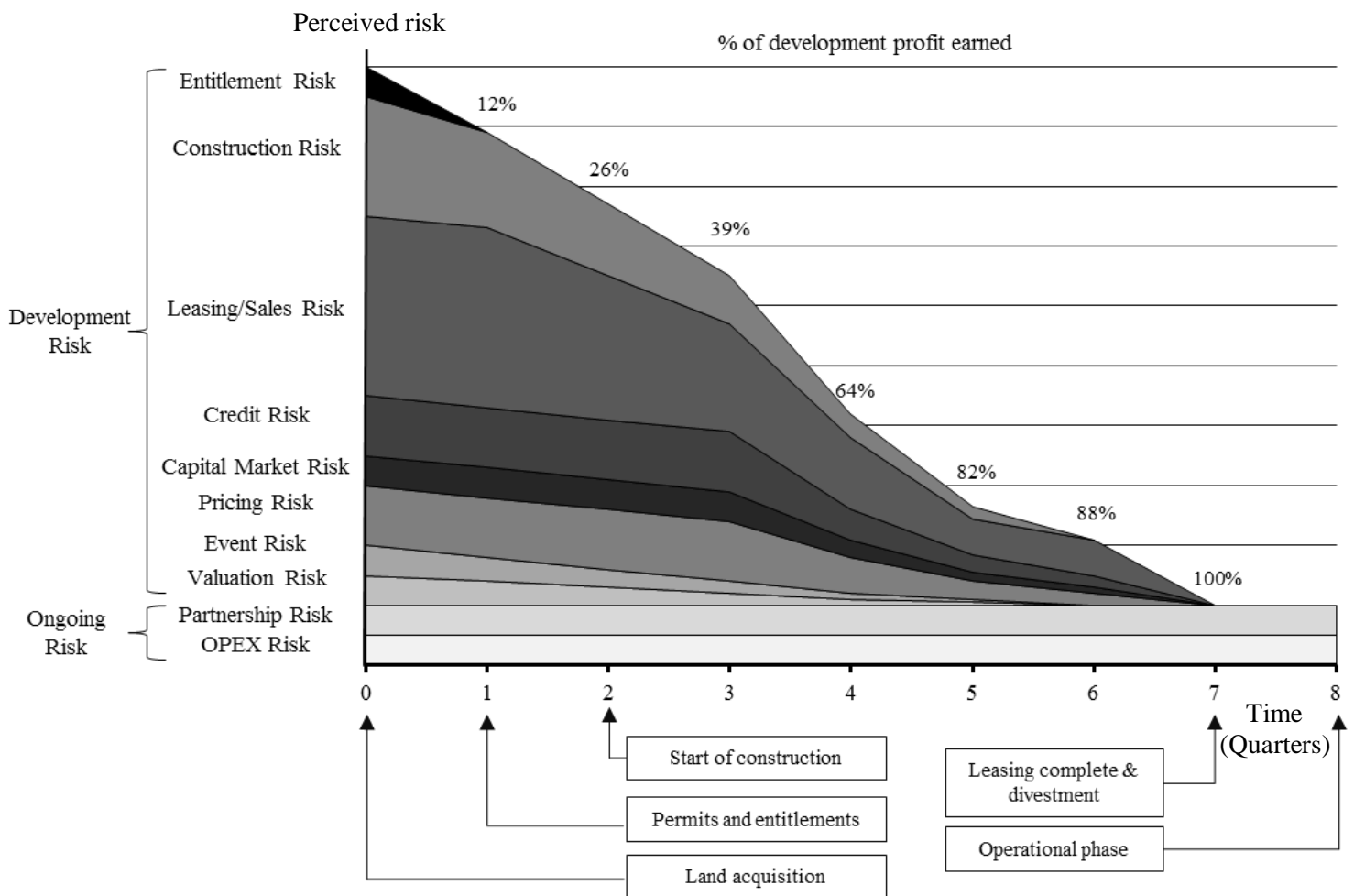
The rates of yield of direct capitalization and the discount rate of DCF might differ, but the principle is similar. The riskiness of an asset and the required rate of return is determined by the systematic and unsystematic risk and leans on the Capital Asset Pricing Model (CAPM) with modifications. (Copeland & Weston, 2000, p. 198) The simplified formula to calculate the initial net required rate of return is presented in the Formula 1:

$$n_r = R_f + R_p - g + d \quad (1)$$

Where the  $n_r$ , is the net rate of return requirement,  $R_f$  is the risk-free rate.  $R_p$  resembles the unsystematic, or the risk premium, of the asset. Real-estate specific additions to CAPM are  $g$ , growth of rental income and the  $d$ , is the depreciation, e.g. capital expenditure (CAPEX) required to maintain the asset. (Kaleva, Oikarinen and Soutamo, 2017, p. 202; Geltner & De Neufville, 2018, p. 18)

When examining the value creation of the real estate development process, the riskiness and the earned "developers' profit" walk somewhat hand in hand. In Figure 8 the Palmer & Wincott's framework conceptual value creation in relation to risk is introduced, and the numbers presented are conceptual and vary by project. The framework includes 10 factors creating uncertainty in RED. The first risk of entitlement regards uncertainty caused

construction permits and zoning, which are binary. The construction risk is a major factor during the development: schedules and contingencies related to costs are present in RED as well as in all construction business models, although construction risk manageable with contracts, such as fixed price construction contracts typical to joint ventures. The construction risk reduces to 0 as the building completes at “Time 6” in Figure 8. (Palmer & Wincott, 2015)



**Figure 8:** The cumulation of developer profit as risk diminishes. (Derived from Palmer & Wincott, 2015)

Since the cash flows generated play a key role in the real estate valuation hence the developers’ income, the risk of leasing underperforming to forecasted is one of the most major factors. The leasing with unfavourable terms is seen as a risk as well. As the leasing risk represents the uncertainty of acquiring the tenants, the credit risk represents the solvency of the tenants with lease agreement as well as the whole industry, if the asset is industry-



specific. The capital market risk contains the uncertainty related to capital availability for the buyers and opportunity costs related to alternative investment classes. Closely related to previous are valuation and pricing risk. Both address the risk of property value due to different reasons. In pricing risk, the economic cycle and competition in the area are addressed. In valuation the lack of market information might push the valuation of the property down. (Palmer & Wincott, 2015)

The partnership risk is thought-provoking when developing real estate within jointly owned structure like in a joint venture: presence of other investors in the ownership structure might have a negative impact on the valuation and performance of the investment. Operational expense (OPEX) risk, i.e. operational costs not staying in the forecasted amounts is a risk for the tenants as well, especially if their financial status is not strong. (Palmer & Wincott, 2015)

The value of real estate is maximized in the end of the development cycle, as presented in Figure 8. The real estate is commonly sold as a whole and according to Geltner et al. (2007, p. 178) selling partial interest or part of the property is seen problematic or even impossible. Wiggins & Rosenberg (2001) study showed that the discount of selling partial interested varied from low as 7.5% to massive 58.3% of the appraised pro rata value. Gilbert & Stewart (2010) also investigated the partial sales problematics and by their view the main factors driving the discount of partial sales are the lack of marketability and ownership control over the asset.

The developer might also receive other sources of income in development, e.g. rents if the developer decides to enjoy the rental income instead of divesting the developed asset. To summarize the income-side of commercial RED, the variables driving the valuation of the property are NOI and the yield, which resemble the cash flows and the relation to value, hence riskiness, of the asset. The valuation rises as vacancy of the development decreases, i.e. the NOI rises and other sources of risk diminish.

## 2.4.2 Costs in real estate development

The costs in RED can be divided roughly to following categories: land acquisition, construction, financial and marketing costs. (Mütze, 2008, p. 62) The structure of costs can be divided to soft costs, which are more intangible and are related to finance and expert services. The hard costs are related to the physical construction and property itself and have more tangible nature. (Geltner et. al., 2007, p. 767; Peca, 2009, p. 114; Waterhouse, 1991)

The detailed division of costs are presented in the Table 3. Cost types incurring vary by project and between project types. The joint venture schemes bring a new set of costs to the table due to legal documentation and project financing.

**Table 3:** The categorization of costs. (Created by author, from Mütze, 2008, p.62; Geltner et. al., 2007, p. 767)

| <b>Hard costs</b>   | <b>Soft costs</b>                   |
|---|-------------------------------------|
| <b>Land acquisition</b>   | <b>Financial</b>                    |
| <i>Land costs</i>   | <i>Loan fees</i>                    |
| <b>Construction</b>   | <i>Construction interests</i>       |
| <i>Site preparation costs</i>                                       | <b>Expert services</b>              |
| <i>Shell costs of existing structure in rehabilitation projects</i> | <i>Legal fees</i>                   |
| <i>Permits</i>  | <i>Soil testing</i>                 |
| <i>Contractor fees</i>  | <i>Environmental studies</i>        |
| <i>Construction management and overhead costs</i>                   | <i>Land planner fees</i>            |
| <i>Materials</i>  | <i>Architectural fees</i>           |
| <i>Labour</i>   | <i>Engineering fees</i>             |
| <i>Equipment rental</i>   | <b>Marketing</b>                    |
| <i>Tenant improvements</i>  | <i>Marketing costs</i>              |
| <i>Developer fees</i>   | <i>Leasing or sales commissions</i> |

### **2.4.3 Finance in real estate development**

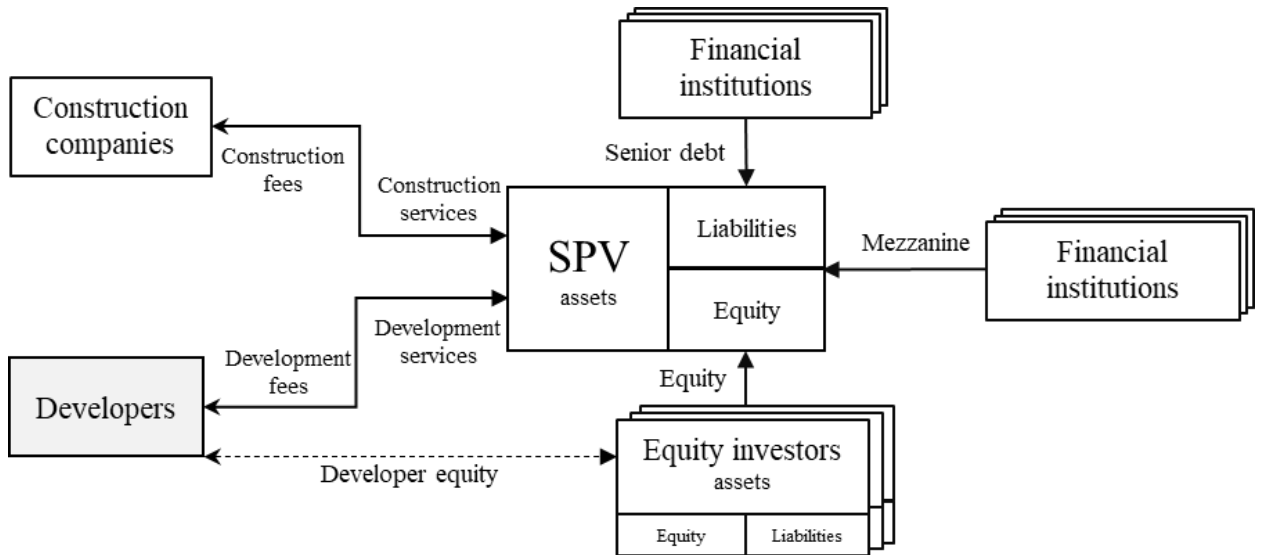
The real estate development requires large amounts of capital. As RED process described above suggests: the disposal of the developed asset is usually after the development is complete, and the costs must be covered one way or another. Radcliffe, Stubbs & Miles (2009, p. 433) playfully wrote, the first rule of real estate development is “never use your own money”, as they refer to the goal of achieving high loan-to-cost (LTC) ratio to leverage returns.

Funding the projects through the development company’s assets is a possible option and it is called on-balance sheet, or internal, financing. It is seen to include in the domain of corporate finance and is still a common practice carried out by construction companies and retailers. The internal financing has its limitations regarding the leverage available in projects, due to limitations caused by capital structure, guarantees and variables underlying the granting of financing. The internal financing also retains a higher risk profile as the financial responsibility of the project is solely on the developer, although completing projects with internal financing has an extremely heavy upside: the developer gains the returns in full. The requirements for internal funding of the projects are the availability of capital and suitable risk profile of the project. Important fact from a larger developer viewpoint is the low opportunity cost of capital, as in “the capital has nothing better to do”. (Gatti, 2013, p. 2-3, Ratcliffe, Stubbs & Miles, 2009, p. 433; Finnerty, 2007, p. 24)

The other option to finance real estate development is project financing through joint venture SPVs. Project financing is considered as completing a predefined project with predefined timeframe and costs funded by a specially designed capital structure (Kayser, 2013). The conceptual financial organization of RED SPV structure is introduced in Figure 9.

In the beginning of the life cycle of a development project, developers, equity investors and lenders inject capital into the SPV to fund the project. The funds are used to cover the construction and development costs, hard and soft, required to complete the project. It is important to remember that the sponsor and other capital investors equity invested in in the SPV is not necessarily equity from sponsor or investor viewpoint and has its own debt to equity ratio (Gatti, 2013, p. 147). The developers’ equity commitments are generally seen as

a necessity in development joint ventures, as it functions as an incentive for the developer to act in risk adverse manner while having “skin in the game” (Graiwer, 2008; Hutchinson, 2012).



**Figure 9:** Conceptual structure of project financing in RED. (derived from Finnerty, 2007, p. 3; Gatti, 2013, p. 147)

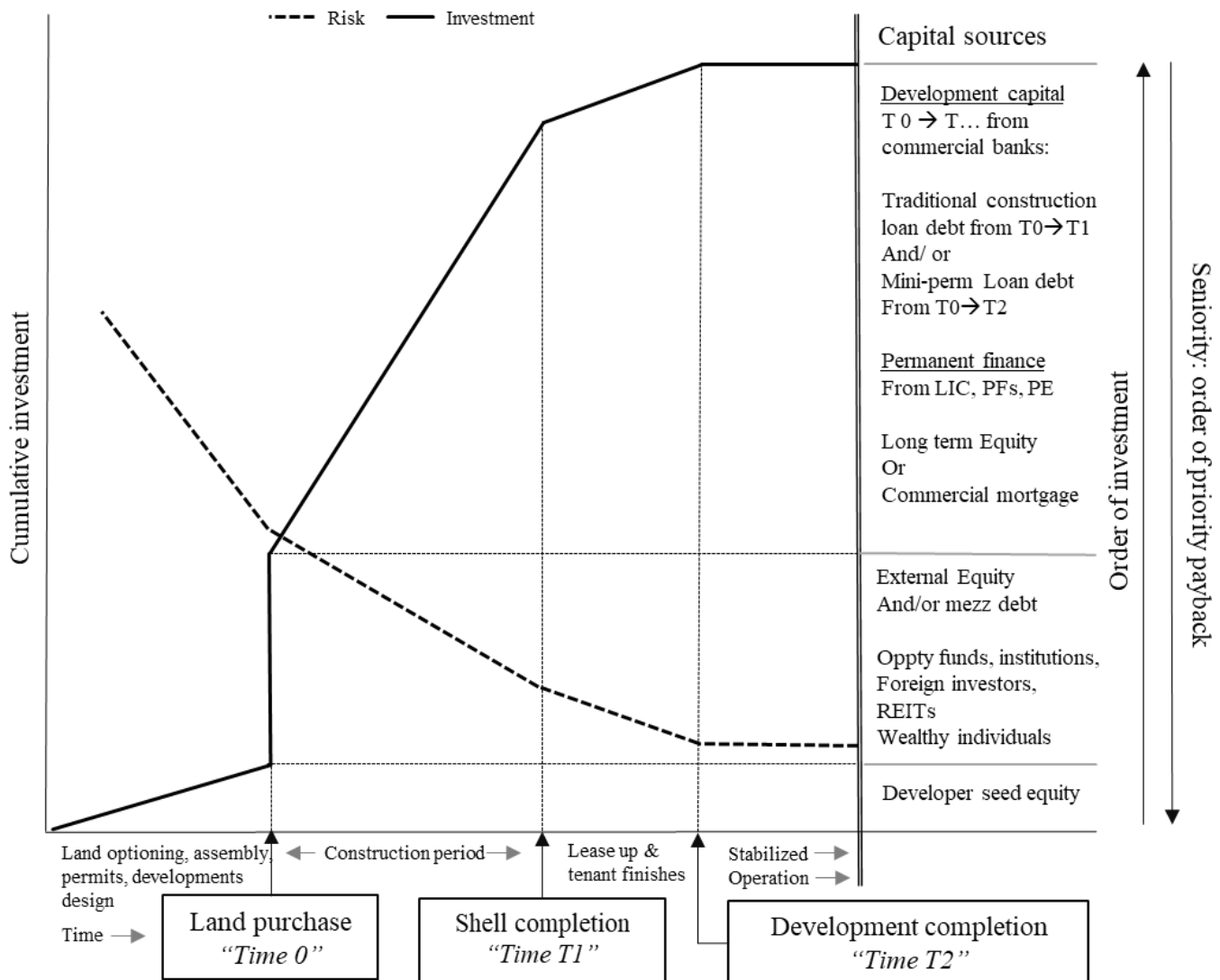
Project financing is also known as off-balance sheet financing. (Gatti, 2013, p. 3) When following the IFRS in accounting, as the public companies in Finland do, in order not to include the complete SPV as a balance sheet item the investing entity must fulfil strict criteria such as not having control in the investment vehicle. If the criteria are met, the investment to SPV is treated according to IAS 28 investments in associates and joint ventures. Then the SPV is not consolidated to the investing entity’s balance sheet in full.

| Tripla Mall Ky |       | YIT's consolidated balance sheet                       |       |
|----------------|-------|--|-------|
| Equity         | 472,0 | Non-current assets                                     |       |
|                |       | Investments in associated companies and joint ventures | 115,8 |
| Liabilities    | 177,3 | Current assets   |       |

38,75% ownership stake of net assets + Share of P/L 1,6m€

**Figure 10:** Tripla Mall on YIT’s consolidated balance sheet. (Created by author, YIT, 2018b, p. 80)

When the investment is treated according to IAS 28, the items included to parent company's balance sheet is a single line. It represents the share of net assets, i.e. the original equity investment, and the profit or loss of the investment. The owners share of profit or loss is represented as a single line in the income statement as well. (IFRS Foundation, 2018, p. 556-557; 989; PwC, 2017, p. 76). Practical example of IAS 28 is presented in Figure 11, where YIT's 2018 balance sheet treatment of Tripla Mall is presented.



**Figure 11:** Principles of cost cumulation and capital availability in RED project financing (modified from Geltner et al., 2007, p. 759; 762)

As discussed in chapter 2.4.1, the riskiness of a real estate development project is at its highest during the initial development phase. The progress on construction, leasing and the amount of capital invested, the riskiness of the project from the investor perspective

decreases. The initial development must usually be funded through model where equity is injected before other forms of financing is available, as pictured in Figure 11. The common investment decision criteria for equity investors is the internal rate of return (IRR) to equity and for the project in general, and the equity multiple of the project. Using both IRR and equity multiple is reasonable, as internal rate of return takes the time-dimension into an account while the Equity multiple is an absolute measure of returns. (Feller, 2011; Hutchinson, 2012) IRR to equity (or for total capital) is calculated as follows in formula 2:

$$C_0 + \frac{C_1}{1 + IRR} + \frac{C_2}{(1 + IRR)^2} + \dots + \frac{C_t}{(1 + IRR)^t} = 0 \quad (2)$$

Where  $C_x$  are cash flows to equity (or for the total capital) in project cash waterfall, which can will vary from negative cash flows from investment period to positive cash flows during disposal and/or hold period. IRR is the discount rate where NPV of cash flows equals to zero. The IRR generally is at its highest immediately after the development period and declines if the joint venture decides to hold. (Hutchinson, 2012). Equity multiple in project finance is comparable to net return on investment and is calculated as in formula 3 (Brealey, Myers & Allen, 2017, p. 122; 312):

$$Equity\ Multiple = \frac{Total\ Returns}{Total\ Investment} \quad (3)$$

The mechanisms to divide the returns provided by the project vary. The level of complexity varies from pro-rata of equity stakes to various performance fee mechanisms to the developer. (Rosenbleeth, 2018)

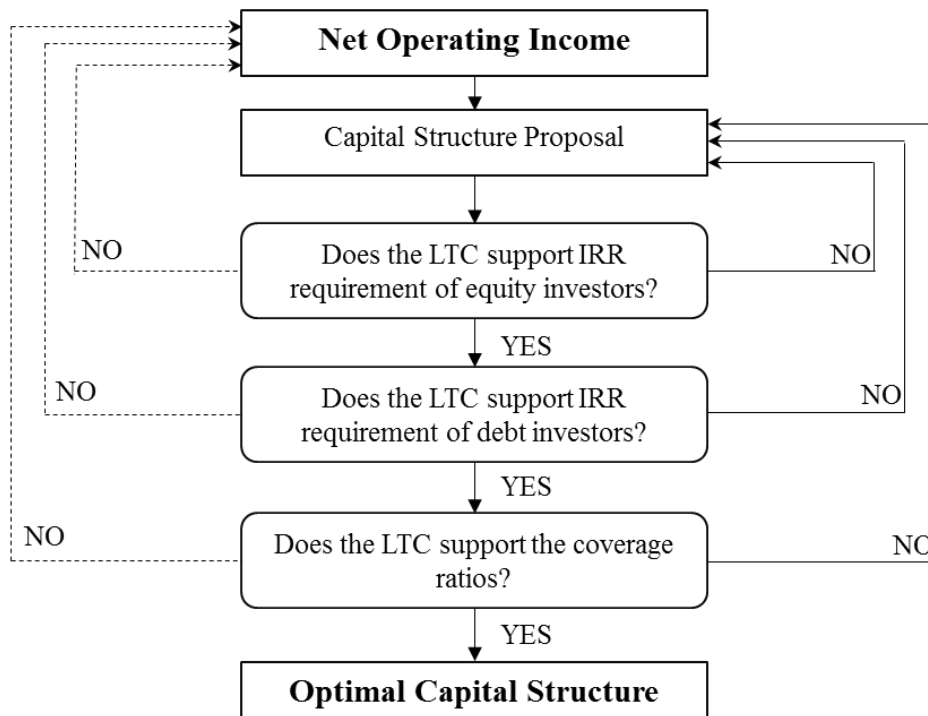
The common requirement for acquiring debt capital in project financing is the certain future cash flow of the project. The debt funding can comprise several traches of debt. Alongside future cash flows, the assets of the SPV, are available to be pledged to the financiers. Sometimes covenants prevent the pledging and the situation is referred as “negative pledge”. (Kayser, 2013; Gatti, 2013, p. 3; 145)

According to Borgonovo & Gatti (2013), the debt service coverage ratio (DSCR) is widely used as a covenant in project finance to quantify the project's ability to service its debt and general feasibility as well. The DSCR is calculated formula 4:

$$DSCR_t = \frac{FCF_t}{P_t + I_t} \quad \text{where } t = 1, 2, 3, \dots, T \quad (4)$$

Where the  $FCF_t$  is the cash flow before financing,  $P_t$  the principal repayment, and  $I_t$  the interest payment at a given time.

The DSCR and other covenants usually include buffers set out by lenders, which are based on the perceived risk. The common loan contract practice is to set out two covenant ratios: first one represents scenario where debtor accelerates the debt and the second, lower covenant ratio for declaring material breach. If the higher covenant value is undercut, the project technically defaults, and the payment terms usually must be renegotiated. Breach of the lower covenant level triggers material change in contract terms, and the project could be forced bankrupt. Other debt financing covenants can be the loan-to-value ratio (LTV), Loan life cover ratio (LLCR) and interest cover ratio (ICR), which practically similar to DSCR, but doesn't include the principal repayment component. (Borgonovo & Gatti, 2013; Mütze, 2008, p. 80)



**Figure 12:** Capital structure design framework in RED project finance (Created by author, Gatti, 2013, p. 147)

The framework for capital structure optimization of SPVs in RED is introduced in Figure 12. The sufficient level of expected NOI is in a key role in the capital structure arrangements: high enough NOI allows higher LTC hence possibly better IRR for equity investors while maintaining good ability to service debt, if the interest rate levels are reasonable compared to cost of equity. The equity investors might also layer the SPV capital structure by providing subordinated debt injections (Keck, 2010).

The maximized value thus most suitable exit may not lie at the end of the physical construction project in real estate development process, “Time T2” in Figure 11, and if the SPV decides to hold, updating the capital structure for holding period is recommended through refinancing (Daley, 2010; Colliers, 2008, p. 67). Using leverage in investment properties is common method to boost returns within Finnish real estate investors: loan-to-value ratio varied between 50% and 75% in 2013. (Seppälä 2013, p. 62)



**Table 4:** Summary of differences between corporate (internal) financing and project financing. (Created by author, Gatti, 2013, p. 3-6; Carey & Stulz, 2007; Kayser, 2013; Finnerty, 2007, p. 24)

| Factor  | Corporate financing  | Project financing   |
|---|--|---|
| Returns   | <i>“In full”</i>   | <i>Divided between equity investors, contractual</i>  |
| Guarantees for financing                            | <i>Assets of the borrower (already-in-place in firms)</i>  | <i>SPV’s assets<br/>Future coverage ratios</i>  |
| Effect on financial elasticity                      | <i>Reduction of financial elasticity for the borrower</i>  | <i>None or heavily reduced effect for investors</i>   |
| Financial flexibility                               | <i>Financing can be arranged quickly.<br/>Low information, contract, transaction costs</i>                       | <i>Information, contract, transaction costs are higher.<br/>Financing takes longer.</i>   |
| Accounting treatment                                | <i>On-balance sheet</i>  | <i>Off-balance sheet<sup>1</sup></i>  |
| Debt contract structure                             | <i>Company-wide viewpoint<br/>Unsecured in large corporations</i>  | <i>Specific or pool of assets-viewpoint.<br/>Tailored to fit projects.<br/>Typically secured.</i>   |
| Main variables underlying the granting of financing | <i>Solidity of balance sheet<br/>Profitability</i>   | <i>Future cash flows</i>  |
| Degree of leverage utilizable                       | <i>Depends on effects on borrower’s balance sheet</i>  | <i>Depends on cash flows generated by the project (usually higher leverage)</i>   |
| Financial risk – lenders perspective                | <i>Lenders have full recourse, depends on the loan contracts.<br/>Diversified risk across project portfolio.</i> | <i>Depends on loan contract, lenders have limited or no recourse to the sponsors/investors.<br/>Risk can be allocated towards the ones who can bear it.</i> |
| Bankruptcy of sponsor/investor                      | <i>Bankruptcy</i>  | <i>SPVs can be insulated</i>  |
| Major project failure                               | <i>Costs fall on the parent company: effect depends on project size, possible bankruptcy</i>                     | <i>Possible SPV bankruptcy if no further capital injections, no effect to parent company other than loss invested capital<sup>1</sup></i>                   |

<sup>1</sup>(In IFRS context only if conditions apply). (IFRS Foundation, 2018, p. 556-557; 989)

Table 4 summarizes the main differences of real estate development through internal and project financing of the projects. The project financing option grants many upsides compared to on internal financing from the perspective of the availability of financing and risk management and isolation with the SPV structure. The risk limitation through off-balance sheet insulation is major advantage in large projects as they might otherwise shake the financial health of the sponsor. On the downside the information, contract and transaction costs are higher and SPVs takes time to set up and the returns must be shared between the other investors.

## **3 INTERVIEW STUDY**

For this thesis, the traditional stakeholder groups of real estate development joint ventures were interviewed. The purpose of these interviews is to find generalizable viewpoints of real estate development with joint venture-structures. This chapter is structured to start with the background information of the interviews and interviewees, continued with reporting the results gathered from the interviews.

### **3.1 Background information**

In this chapter the backgrounds of interviewees are presented in following sub-chapters, and the last chapter is a summary table to simplify the aliases of the interviewees to the reader. Due to the sensitive nature of the interview questions and subject in general, the names and the companies of the interviewees are not disclosed. The interviews took place between 8<sup>th</sup> and 17<sup>th</sup> of May 2019 and ranged from 32 minutes to an hour in length. All interviews took place at the office of the respective interviewee. The interview questions can be found under the title of Appendix 1.

#### **3.1.1 Equity investor**

As introduced in previous section, equity partners are the foundation for real estate development joint ventures. For this reason, a “pure” equity investor was interviewed. The interviewee (from now on Equity investor) is in a Senior role in an institutional investment company. The role of Equity investor’s company is generally to be a passive participant in the RED joint ventures, and both the company and the interviewee has a broad experience in the field of real estate and has been involved in several real estate development joint ventures.

### **3.1.2 Debt financier**

To achieve understanding of debt financier's perspective and motives on real estate project financing, two employees of a large commercial bank were interviewed within the same interview. One of the interviewees (Debt financier 1 from now on) is a senior manager in real estate practice and second (Debt financier 2) is a director in corporate lending practice. Both the company and interviewees have a broad experience in the field of construction and real estate and been involved in several real estate development joint ventures.

### **3.1.3 Real Estate Developer**

Two real estate developers were interviewed within the same interview to gain understanding of "pure" developers' viewpoint on RED joint ventures. First interviewee (Developer 1) was the owner and CEO of a leading RED company and second (Developer 2) is a Director in the company. Together they are addressed as Developers. Both have decades of experience from real estate industry. The RED company has completed several joint venture projects.

### **3.1.4 Advisor**

An Advisor was interviewed to gain more generalized and less biased insights on real estate development joint ventures. The Advisor works in a global real estate advisory firm, engaged in commercial real estate services from property management to strategic consulting. The Advisor is in a senior capital markets role within the firm's operations in Finland. The interviewee has advised in several real estate development joint ventures in commercial aspects.

### **3.1.5 Construction company as developer-contractor**

Within YIT, two interviews were held. The first interviewee (alias YIT 1) was the head of real estate development division. YIT 1 has over 30 years of experience from construction and real estate industry. The second interviewee (YIT 2) at YIT was a director in joint

investments and has a background in finance with over 10 years of experience. Both interviewees have been involved in several RED joint ventures.

### 3.1.6 Summary Table

**Table 5:** Interviewees and their backgrounds.

| Interviewee      | Company                         | Role                                   |
|------------------|---------------------------------|--|
| Equity investor  | Institutional Investor          | Executive                              |
| Debt financier 1 | Large Commercial Bank           | Senior Manager in Real Estate practice |
| Debt financier 2 | Large Commercial Bank           | Director in Corporate Lending Practice |
| Developer 1      | Real Estate Development Company | CEO & Owner                            |
| Developer 2      | Real Estate Development Company | Director                               |
| Advisor          | International Advisory Firm     | Senior Role                            |
| YIT 1            | YIT                             | Head of Real Estate Development        |
| YIT 2            | YIT                             | Director, Joint Investments            |

## 3.2 Interview results

In this section the results from the interviews are presented, and they are grouped by themes of the interview questions. The similarities and differences of the viewpoints of the participants are discussed. Final chapter compresses the results.

### 3.2.1 General experiences

The general motives to participate in real estate development joint ventures varies considerably by participant. The participants with lower access to capital such as Developers and YIT, communicated that the main motives to create joint venture structures is the increased availability of capital and risk management. Especially the increasing availability of debt financing to amplify returns and capital efficiency acted as a motive for the both, YIT and Developers. The need to increase capital efficiency is related to the current market situation: the number of possible projects is too large for either YIT's and Developers' financial strength. For YIT as a public company, also the IFRS standards acts as a motive to develop projects with partners without controlling position in the SPV structure to avoid consolidation to the corporations' financial statements and balance sheet.

What all parties, except the debt financier, also pointed out was that generally the resources, knowhow and effort from other parties in the joint ventures play a role when speaking of motives. For equity investors, the main reason to invest into real estate joint ventures are the higher returns for a project that they could not develop on their own. The institutional equity investors are generally willing to participate in multiple RED strategies: instant exits and long holding periods and anything between those two. YIT 2 told that YIT is also willing to commit from investments for longer periods to gain steady cash flows and that there are major differences in the risk-taking ability and will between different investors. Advisor noted that for international equity partners, option might be to team up with local knowledge to even be able to invest into the market, but this is out of the scope of this study.

The motive for debt financiers to be involved in JV's deviates heavily from the equity-side of the project: main motive is customer service, as they want to provide their existing customers support and services in different endeavours. For a non-customer developer, especially if not a prestigious one, raising debt capital is much harder and even the pricing could not compensate the notable motivational gap.

When interviewed about positive and negative experiences and the cause-and-effect relationships related to them, the importance of partners involved in the project was the priority of answers within all interviews of being the key towards success. The main factor

towards success in partnering is that the goals of partners are aligned. Advisor, Equity investor and Developers mentioned term “like-minded investors” to be the best partners in joint ventures, also the Equity investor and Debt financier emphasized that even more important than the like-mindedness of the investors are the capabilities of the developer to see execute the project.

Equity investor also noted that institutional investors are surprisingly similar in their behaviour in western countries. Interviewees generally agreed that different investment strategy is not “deal breaker” when creating joint ventures, but in such situations the shareholder agreements are heavier due to the different background of money and in specific the exit mechanisms must be stipulated in more detail. Developers emphasized that everything is based on trust.

The Developers viewpoint on partnering was that partners should have different background and have something to add to the table in addition to plain money, but all participants pointed out that the financial strength of partners is also a key factor. The Developers also mentioned that great partners in a joint venture can turn a mediocre project in to an excellent one. According to interviewees, the typical joint venture-setup has been institutional investor or similar (a family office for example) alongside a developer-contractor, basically a large construction company. Second factor having a link towards the positive outcome of a development project is avoiding exposure to unnecessary construction risk by avoiding experimental or challenging technical structures and solutions.

From the Developers and YIT’s viewpoint a clearly negative factor is the more challenging decision-making in the joint ventures compared to own development as the other equity partners can have an impact on it. On the other hand, the more controlled and slower decision making is beneficial for Debt financiers as they perceive changes in the business plan usually as a negative factor, but also noted that the changes are possible and can be negotiated. It seemed that it was much easier for the interviewees to find factors driving the positive outcomes for the project than negative.

The size of the equity partner pool in real estate joint ventures plays a role on the operational efficiency of the JV entity and the interviewees agreed that two or three is the optimal

number of partners. For the Equity investor, four partners are ultimately the maximum number, and less was preferable. Advisor noted, that if the joint venture ownership is too broad, the probability of random business risk events of partners occurring to the JV-partners rises and for larger ownership bases a fund-styled structure would be a better option. From the Debt financiers' perspective, the number of partners involved does not play a large role, as they are more interested on the credit risk rather than the number of partners.

### **3.2.2 Investment decision**

Like any investments, the capital invested to real estate joint ventures must provide certain returns depending on the characteristics. Consensus within the interviewees was that the target return levels vary heavily on the project type and the typical internal rate of return on RED JV investments is two-digit number, most preferably over 15 to 20 percent and as Equity investor said, the target should be aimed much higher. The Developers pointed out that a "good" project can easily have a three-digit IRR. General opinion was, that the projected return should be tied to the project type and its riskiness: the risks and returns should walk hand in hand. Advisor gave a conceptual example of a situation where lower returns have been acceptable: an institutional investor involved in a housing development can settle to a much lower, i.e. 8%, unlevered IRR as the risks are drastically lower. YIT 2 noted that core investors could settle to even lower returns if the risks are not allocated towards them.

Equity multiples are used as well, but as it is not relative to time it was hard for the interviewees to give any solid reference figures. Nominal euro returns are interesting figure for at least for the Developers, others probably did not see it worth mentioning it since margin is a large driver for IRR. Both from YIT and the Advisor noted that there can be other motives to settle for lower returns aside from risk: the opportunity to generate other business opportunities with the help of completing the project with lower returns. For, YIT the construction contracting creates cash flows as well, but they are usually left outside the consideration when making an investment decision.

The commercial banks business is not similarly driven by return potential and is based more on interest margins. The lease agreements are the main driver towards the possibility of



gaining external debt financing. The debt withdrawals can be linked to the occupancy rate. The Debt financiers pointed out that common covenants used in Finland for real estate development JV project financing are ICR, LTC during the construction period and LTV when the project is completed. DSCR is more in favour of American and multilateral banks. Banks also require at least partial interest rate swaps to hedge interest rate risk. The Developer noted, that in contemplation of maintaining flexibility in the development process, the operational covenants, i.e. ones tied to construction progress, should be kept at minimum.

According to the interviewees, the appetite of Finnish institutional investors to equity investment in RED JV's lies generally between 20 to 150 million euros. In the current market situation YIT's and Developers' mindset is that project size should be around 100 million euros, but could be lower depending on the case, to find it reasonable to create joint venture structure instead of completing it by themselves. Hence, the appetites of general JV parties are aligned. The driver for having a lower limit in project size comes through the heavy workload of setting up and governing the SPV. The Debt financiers pointed out that the other costs related to debt financing such as arrangement fees grow out of proportion as the loan amount is less than, say 5 million euros. Advisor noted that practically even the smallest projects from renovating brick and mortar shops can be completed with joint venture model, but projects like that are out of the scope of large players due to reasons mentioned above.

The factors driving the maximum capital allocation are highly relative. The main driver for limiting capital investments for all parties was to avoid bulky risk concentrations for both debt and equity sides of the projects. The Advisor mentioned that equity-sides concern is related to the liquidity of the project if the allocation grows. Debt financiers mentioned that the possible refinancing risk grows with larger debt investment, and its beneficial for a bank to share that refinancing risk with other debt investor. The banks also have customer-specific credit limitations and depending on the equity investor base, the customer-specific credit limits may limit amount debt issued by a commercial bank into the SPV.

Equity investor noted that it would be beneficial to favour larger ticket sizes, but larger projects tend to take long times before completion and create problems therefore. YIT 1 also noted that that long, large projects create questions like how funds should from the first

phases should be handled. He also commented that they have experiences on allocating substantial amounts of capital to a single project but diversifying the capital to multiple investments, thus diversifying risk across the project portfolio would be the preferred approach, if it is an option.

When interviewed about the preferred capital structure, Equity investor noted that the market situation dictates it considerably, i.e. costs of different types of capital. The capital structure in RED joint ventures has generally consisted of equity and senior debt in the largest, most notable projects. The interviewees welcomed the use of more exotic investment instruments for real estate industry such as mezzanine and junior debt instruments, which are common in leveraged finance. The Debt financiers concern in the capital structuring is that the total leverage would not rise above certain levels ensuring that the developers remain committed throughout the project, having “skin in the game” while the real estate developers’ general objective is to minimize the capital invested to a certain extent. The extent according to the Developers is the power to maintain control in the business decisions without interference of debtors.

Equity investor told that they are comfortable at ~50% total loan to value. Advisor agreed on that the general leverage levels of ~50% LTC-LTV are quite common in the real estate development joint ventures but noted that higher leverage is possible in a “good project”. The trend for the pool of different financial instruments used in real estate development projects is growing. Subordinated debts and mezzanine inserted by developers were seen a possibility, and the Debt financier and Equity investor suggested that they can sometimes be counted in as equity investment in the eyes of lenders, and do not grow the total leverage ratio.

For senior lenders the structuring of the arrangement with junior and mezzanine instruments, not issued by equity partners, in the capital structure create challenges as the division of rights i.e. to covenants are problematic. Another problematic aspect are the dividend distribution mechanisms. In leveraged finance, where mezzanine instruments are common, and in leveraged finance there are restrictions to dividend distributions and in the other hand in real estate there are very little or none. In uncontrolled profit sharing mixed with exotic financial instruments combined and high leverage the Equity investors and Developers might

get their money out of the project quickly and leave the underperforming project to the banks harm.

As all the real estate development includes the risk of the project failing, common to all development even without joint venture structure as the interviewees listed the critical ones: leasing falling short, construction and technical risk, cost management problems and entitlement risk. Partnering in a joint venture brings partnership risk to the game. The Advisor referred joint venturing as taking direct business risk from the other participant in addition to normal development risk. Debt financiers, Developers, YIT and Equity investor all noted that if the project starts to face problems and would require further capital injections, it's vital that all partners can contribute in the following investor financing rounds to avoid losing their investment share as the valuation can differ from the initial. The Developers particularly emphasized that the equity partners must have a clear understanding what they are getting into.

Debt financier noted, that especially if the contractor in the project has a customer relation towards the banks' lending for the SPV, the banks want to be assured that the contractor understands what they are committing for. If the leasing is in good shape, the banks concentrate on the construction and technical risk of the project, and if the leasing is underperforming the availability of debt financing could be poor and that leads to capital structural problems in the project. Debt financiers mentioned also that the credit ratings of the companies signing the lease agreements have a key role with financing as the credibility of the future rental cash flows are highly related to the financial performance of the tenants.

The Developers opened their risk management philosophy and they view risks based on the financial impact and can a risk bring down the project. According to their philosophy the risks should be viewed rather in the light of how they can be eliminated than cumulating them on top of each other. Developers also mentioned that the risks and their severity vary heavily on who is evaluating them.

### 3.2.3 Exits

Real estate development process generally ends to divestment of the developed property or properties. The interviewees agreed that the decision to divest the developed project(s) in a joint venture with a simultaneous exit with all partners involved to be the optimal and maximal valuation for the project is achieved through it. The reasons behind the valuation on partial versus complete exits is beyond the scope of this study. The main point from all interviewees on exits was that shareholder's agreement usually define and should define the exit strategies of joint ventures comprehensively and in detail.

As real estate developers have a relatively short-term investment horizon compared to institutions, the simultaneous exit does not always serve every parties' interests. Discussing the alternative options for total exit for a developer-contractor like YIT, the consensus of a joint venture shareholder trading the shares, let alone the developer, during the development phase was seen problematic due to many reasons. Interviewees also agreed that the valuation discount during development would be severe due to the uncertainties related to the development. From the Equity investors perspective if the developer wishes to free capital from the joint venture it would reduce their incentive to maximize the value of the development, hence it has no "skin in the game" and would create interest conflicts.

The Advisor noted that "early-exits" would create the need for heavy incentive structures like the ones in forward purchase-agreements and would drive the situation into an agent-principal setup. YIT 1 noted that incentive structures would not be a problem since developer-contractor like YIT is extremely familiar with forward purchases. After all, the Equity investor did not close the option for extending the ownership share but noted that Finnish institutions have limitations on ownership shares of operative companies, which development joint ventures can be viewed as before completion.

The senior lenders are also interested in the solvency of the participants and control in the SPV thus the "early-exits" would harm their interest. Debt financiers communicated that they could allow such activities if it would support their interests somewhere else. They also commented that the magnitude of the equity investment should be in the first place at a level that there would not be any problems holding it until the optimal exit. The Developers, on

the other hand noted that control over the decision making is the key in real estate development and changes in other parties or their ownership share would change the dynamics of the SPV, potentially with devastating consequences. The developers emphasized that the one reason for success of JV's are the partners.

Partial exits after the completion, when the project is fully operational, is also problematic according to the interviewees. Developer 2 noted that the aftermarket for unlisted investments in Finland is extremely weak in all classes and the valuation still could be not at it's for the partial share deal than the whole real estate. The Debt financiers' viewpoint is that partial share-deal would probably trade at a discount and it would raise suspicions towards the valuation appraisal, hence the LTV covenants, if the shares are traded at significantly lower valuation. Debt financiers are interested in the ownership structure and who are the owners during the operational phase as well. One option for partial exits could be whitelisting the possible buyers. Even with whitelisting a bank waiver could be required.

### **3.2.4 Standardization**

The concept of standardizing the joint venture contracts, such as shareholders agreements, received a positive reception. The perceived benefits were related to the lower transaction costs and easier negotiation process as the division of responsibilities would be somewhat standard. The viewpoint for an investor who participates often to JV's, like YIT, is that the number of real estate development joint ventures is growing and the contract management could be more efficient with standardized set of contracts.

On the other hand, the standardization of contracts was seen difficult by all the interviewees due to the variation within the projects the joint ventures are created for. In addition, the participants vary in projects and they have a lot of differences on the corporate governance that effects the scope of documentation. The Developers particularly mentioned that the nature of the project dictates the contents of the shareholders agreements. Advisor noted that similarity in elements are currently present in the sale-and-purchase agreements, with differences created by the type of project. The Debt financiers are not a participant in the shareholders' agreements, but they found standardization a difficult process based on their

experiences from following the negotiations from the side, as the negotiations have not been “easy” by their experience.

The Advisor speculated the possible development path for a standardized contract structure. From his viewpoint, a way for successful standardization comes through trial and error by completing projects and through it the contracts would refine to address all the parts with right approach. Equity investor agreed that there are two routes towards standardization: either as described by Advisor above or general standardization with the help of umbrella-organization of some kind. YIT 1’s comment on general standardization was that his company’s clear competitive advantage is the knowhow from creating and executing joint venture projects and rather not share the information freely to everyone, which is highly understandable.

On the standardization of JV-shares the Equity investor expressed that they are comfortable with the type of investment and his employer could allocate the funds towards more liquid assets like public stock exchange by choice. Developer 2 mentioned that the analogy for partial share deals on real estate could be found in investments to unlisted companies and to create value, something alongside returns should be provided. As a possible solution, Developer 2 mentioned this “something” could be the liquidity provided by stock exchange if the joint venture decides to go public with a single asset. YIT 1 mentioned that the other option on partial exit could be predefined valuation model on the shares, but naturally it would be suboptimal for the seller.

YIT 2 viewpoint on trading shares would be that structuring the JV as a fund with general partner, that would be a 3<sup>rd</sup> party apart from the investors and developers, to oversee for the benefits of the parties, could improve liquidity of the shares. The reasons could lie in the standardized legal features of funds and due to the supervision of Finnish Financial Supervision Authority.

### **3.2.5 Key results from interviews**

Purpose of this chapter is to summarize the key findings from the simulation study in the light of research questions 2, 3 and 4. The type of real estate development project did matter for the interviewees regarding the riskiness and the required return, and as the intention traditionally has been to leverage returns with over 50% LTC debt financing, the bankability and profitability of the project plays a role. Also, the size of the project has an impact: the joint venture project should be adequate, approximately at 100 million euros for it to be interesting investment opportunity for the types of players interviewed due to the investment appetite, governance and other workload. With larger projects, JV-model should be favoured from the developer-contractors viewpoint as well.

The viewpoints of the interviewees are highly similar regarding real estate development in joint ventures despite the differing motives to participate in them. But as always, the participants want to maximize their own position and control over the business. The developers want to maintain flexibility while banks wish to have strict business plans to control risks. Generally agreed was that the competences and financial strength of other participants are the key factor in RED JVs and that a clear investment horizon should be defined when entering joint venture agreements, and it could be problematic to deviate from what's already agreed on. Mainly for those reasons, the varying exit mechanisms of joint venture partners were seen highly problematic. The viewpoints of the interviewees on risks and capital structuring are highly similar as well, but the developers' intentions to minimize equity in the SPV and the banks' intentions to commit participants create disagreement.

The interviewees agreed on the key benefits of standardization of contract structures such as lower transaction costs and simplifying the negotiation process, but the heterogeneity of the projects and participants causes troubles on the standardization of the contract structures. The development to standardized contracts were seen as an outcome of longer-term partnerships. To the standardization of shares to improve liquidity, the illiquid nature of real estate investment rises as a limiting factor. Entering of larger-scale arrangements such as in the exit IPOs or creation fund structures in the development phase could improve the liquidity.

## **4 SIMULATION STUDY**

YIT always operates in a “dual-role” in real estate development joint ventures: both as the construction contractor and the developer (thereinafter “developer-contractor”). The motivation for this case study is to provide the reader a solid, generalizable demonstration on the quantitative effects of the joint venture execution model in comparison to the option of the developer-contractor financing the development within its own balance sheet. Multiple scenarios are demonstrated and sensitivity analysis within the scenarios, in this study to investigate the behaviour of returns, capital use and risk exposure aspects.

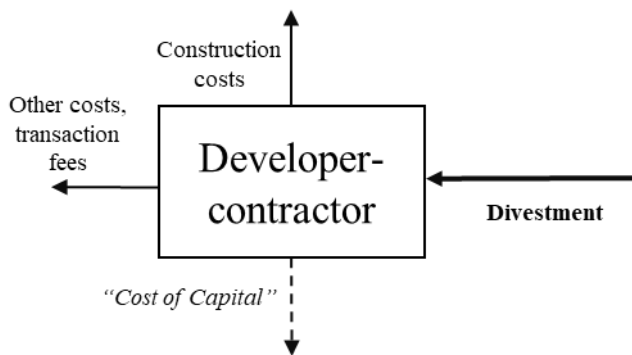
This chapter is composed of two sections. In the first section, model and inputs, the inputs and underlying model that runs the scenario analysis are introduced and in the second chapter, where the results of the scenario analysis are introduced.

### **4.1 Model and inputs**

For the modelling purposes an artificial, but realistic, new development office project was created to represent the same real estate development project executed with two different models, the on-balance-sheet financing and with project financing setup. The office-type of project was seen fit to demonstrate the different scenarios. The type of project is reflected on the parameters. Taxes of any kind are left out of the consideration replicating the concept of Finnish partnership structures.

With the on-balance-sheet financing option the ownership stake of the project is naturally 100%: all the costs are borne by the developer-contractors capital as the income is collected in full as well. In this study separating developer-contractors capital into equity and debt was not seen reasonable, and the returns of developer-contractor are calculated in relation to capital employed. The negative cash flows of the developer-contractor in on-balance-sheet financing consist of construction costs, acquisition costs and transaction costs. The income is generated from divestment. Cost of capital is added after other calculations, to avoid mixing virtual and actual cash flows with each other. The cash flows of on-balance-sheet financing is presented in Figure 13.





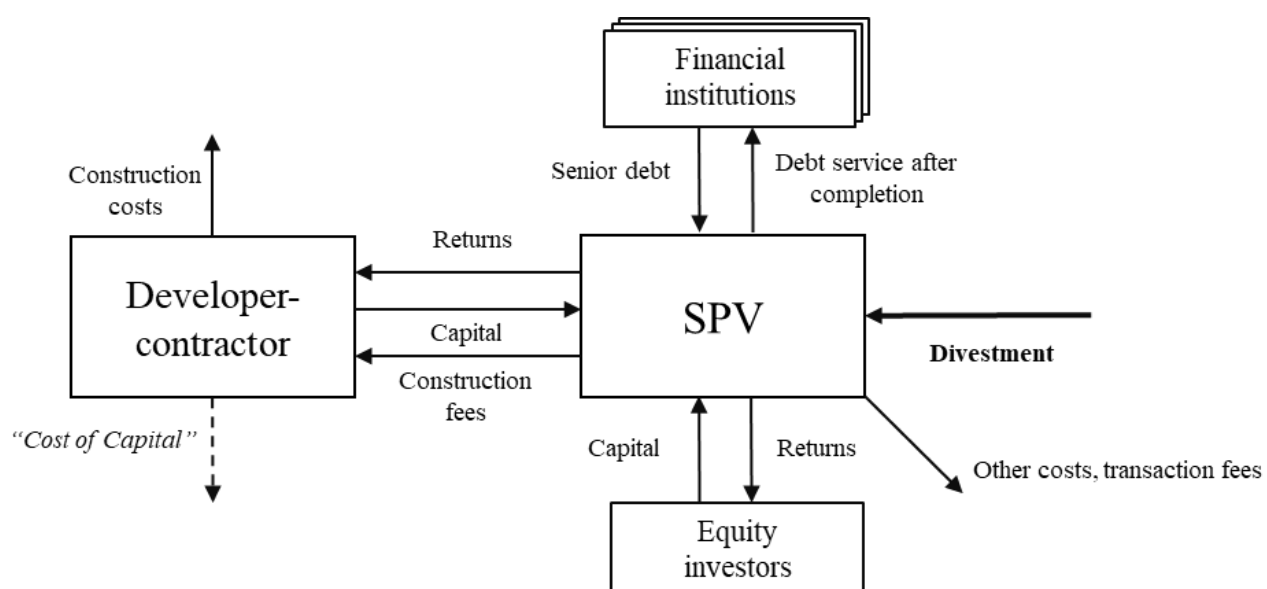
**Figure 13:** Cash flows of on-balance sheet financing setup.

The general inputs of the base-case are presented in Table 6. The purpose of the base inputs is to model a realistic development project, and the inputs and their sensitivities are changed according to the different scenarios. The basic inputs are part of the calculation regardless of the development taking place in the SPV or “on balance sheet”.

**Table 6:** General inputs, values and explanations of the base-case.

| Input                    | Value      | Explanation   |
|--------------------------|------------|---|
| Net leasable area        | 25 000 sqm | Area was chosen to generate approximately 100m€ project.  |
| Capital rent             | 20€/sqm    | Prime Espoo or Vantaa rent level. (KTI, 2018)   |
| Construction period      | 24 months  | Constant.   |
| Exit period              | Month 25   | Constant.   |
| Actual construction cost | 2500 €/sqm | Dummy variable. The actual cost falling for the developer-contractor.   |
| Acquisition costs        | 600 €/sqm  | Dummy variable. Presents the initial acquisition cost of the plot or existing building.                           |
| Transaction costs        | 0,5%       | Transaction costs related to selling the property. 0,5% of exit value.  |
| Cost of capital          | 15% p.a.   | Presented as paid interest on the employed capital. 15% in base case. YIT’s goal for ROCE-% is >12%. (YIT, 2018b) |
| Yield for let premises   | ~6,15%     | Prime Espoo or Vantaa office yield. (KTI, 2018)<br>Leads to 20% project margin in own development-case.           |

In the joint venture-scheme the developer-contractor is a shareholder in the joint venture company, a special purpose vehicle, with varying ownership stakes. The ownership stake is limited to 50% to address the IFRS consolidation delimitation, although the ownership stake is not the only driver towards control thus consolidation and the SPV might be consolidated even with lower ownership share. The negative cashflows of the developer-contractor are equity injections to the SPV as well as construction costs generated by the project. Like in on-balance sheet scenario, the cost of capital is presented as cash flow. The interests and commitment fees of the senior debt during the construction phase are rolled up to the principal debt in the SPV.



**Figure 14:** Cash flows of joint venture setup.

The cash flows of joint venture setup with SPV-structure are presented in Figure 14. The developers-contractor positive cashflows are generated from the construction fees and exit cash flow “pro rata” of ownership share. The JV-related costs, i.e. legal costs and arrangement fees of debt financing are borne by the SPV. On top of the actual costs occurring, the purpose of the “JV-related costs” is to resemble the workload required to create the project financing structures and are included. There are inputs related only for the SPV and they are presented in Table 7.

**Table 7:** SPV-specific inputs, values and explanations of the base-case. (Created by author)

| Input                      | Value      | Explanation  |
|----------------------------|------------|--|
| JV-related costs           | 0,5%       | <i>Dummy variable. 0,5% of exit value. Resembles the arrangement fees, other costs and workload creating and managing Joint Venture-structures inflicts.</i> |
| LTC                        | 50%        | <i>Loan-to-cost variable.</i>  |
| Interest rate              | 3%         | <i>Dummy figure. Interest rate of the senior debt. Commitment fee of 30% of the interest rate is applied to undrawn debt balance.</i>                        |
| Ownership-%                | 33%        | <i>Developer-contractors ownership share in the SPV</i>  |
| Contract margin-%          | 10%        | <i>Dummy variable. The margin is added to the planned construction costs.</i>  |
| Planned construction costs | 2500 €/sqm | <i>Aggregated with square meters and Contract margin-% to define the construction fees between the SPV and developer-contractor in JV-option.</i>            |

With the model and inputs described, multiple scenarios were created. Unless addressed separately, only the expressed variables change in the scenario analysis, otherwise inputs remain “ceteris paribus”. For clarity, in this thesis cumulative cash flows are referred as capital employed, even though accounting-wise the definition is different.

The dependent variables created for this research are Return on max capital employed, Net Value, IRR premium and Net Value premium. Return on max capital employed is calculated with following Formula 5:

$$Return\ on\ max\ capital\ employed = \frac{Project\ Margin}{Maximum\ capital\ employed} \quad (5)$$

There is timely differences of the maximum capital employment and project margin actualizing, as emphasizing the principle of invested capital in relation to the return is the main purpose of this ratio.

The second new dependent variable introduced in this research is Net Value, and it is calculated as follows in Formula 6:

$$Net\ Value = Project\ Margin - \sum_0^n (Cost\ of\ capital * Capital\ employed) \quad (6)$$

$n$  being the ending month of the project. The cost of capital is applied monthly to the employed capital. The purpose of this indicator is to examine the project's ability to provide absolute returns over the required cost of capital.

The dependent variable "IRR premium" is calculated by subtracting the internal rate return of own development with the IRR of the JV-option as in formula 7:

$$IRR_{premium} = IRR_{JV-setup} - IRR_{Own\ development} \quad (7)$$

The Net Value premium is calculated just as IRR in formula 7, but with Net Values. The purpose of premium variables is to express the differences of the execution models.

The different margins presented in the results and the underlying exit value of the project can be achieved with different mix of occupancies, tenants and their credit rating thus net initial yield, and the detailed real estate valuation is out of scope of this research. The margin is calculated from the own development option as a proxy of yield. The availability of debt capital, LTC, is widely used as a variable in this research, but due to the situation-reliant nature of the terms and covenants behind the granting of the debt financing the variables are left out of the scope as well.

## 4.2 Simulation results

In this section the results of the scenarios are reported in two chapters: in the first one the effects on returns and capital use are presented. The second chapter the benefits of risk mitigation effect of joint venture structures are demonstrated.

#### 4.2.1 Base case outputs

In this chapter, the results of the base case and the structure of the returns are reported. The outputs of the base scenario are presented below in Table 8. In own development of the developer-contractor, the IRR is 19,4% while as a partner in a joint venture 46,1%. Capital multiple is 0,72 higher. Both these demonstrate that the returns for the developer-contractor with the JV-structure are remarkably higher. The maximum capital employed also extremely low, only 14,6% from the amount employed on the own development option, due to the limited ownership, debt financing and construction fees from the SPV.

The project margin of JV-option is merely 54% the amount of the own development. The returns on max capital employed differ significantly: in own development its 25,2% while with JV-execution 92,3%. In the base case, the Net Value is higher in JV-option, 5,2 m€ of own development versus 7,7 m€. This means that JV-option provides better absolute returns when developer-contractors cost of capital is applied to the employed capital in the base case.

**Table 8:** Returns in the base scenario.

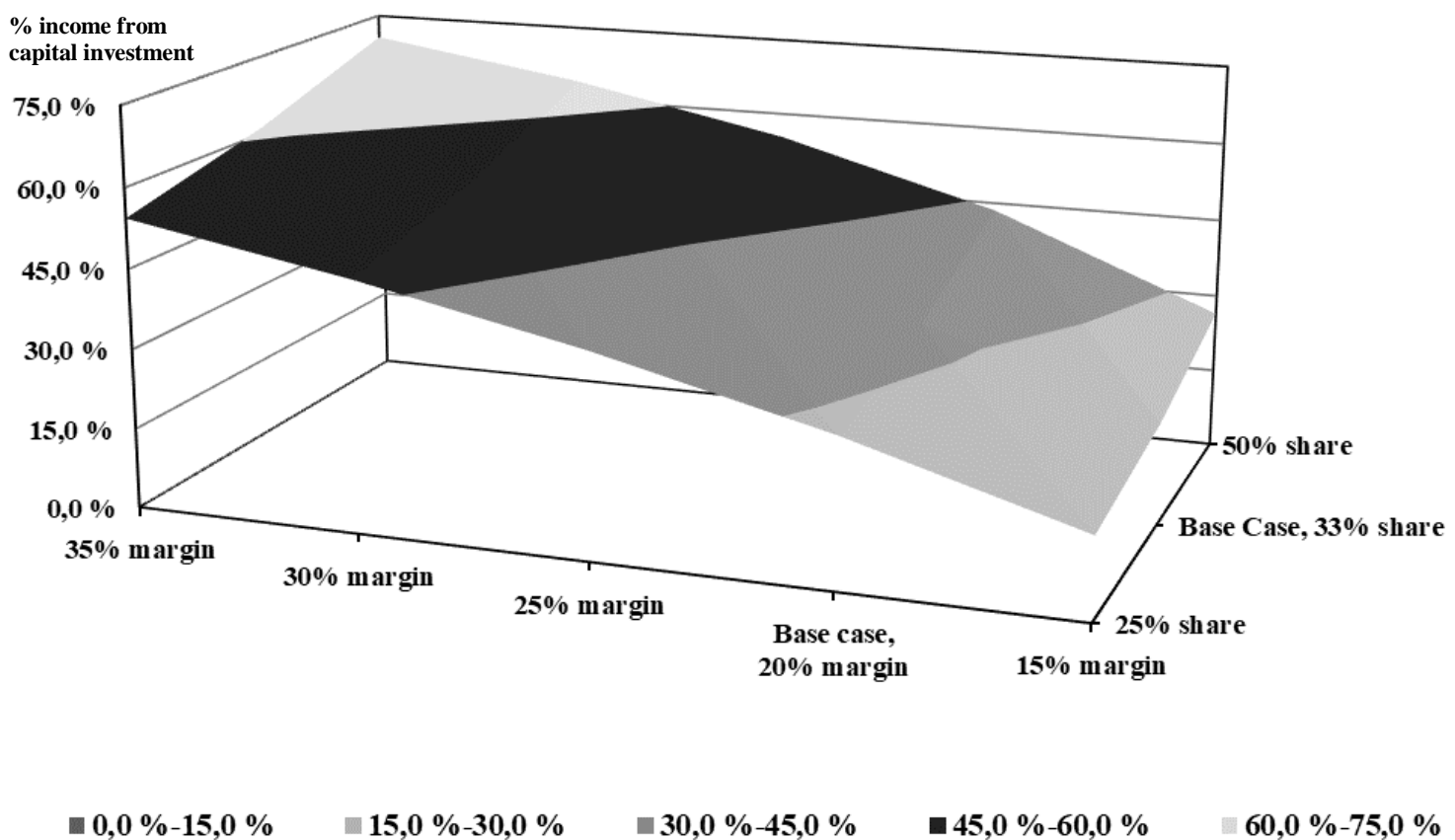
| Output                         | Own development | Developer-contractor in JV | SPV              |
|--------------------------------|-----------------|----------------------------|------------------|
| IRR                            | 19,4%           | 47,2%                      | 13,2%            |
| Capital multiple               | 1,25            | 1,92                       | 1,24             |
| Project margin                 | 19,5m€          | 10,5 m€                    | 10,7 m€          |
| Project margin-% <sup>1</sup>  | 20,0%           | 10,7%                      | 11,0%            |
| Maximum capital employed       | 77,5 m€         | 11,3 m€                    | 43,1 m€ (equity) |
| Return on max capital employed | 25,2%           | 92,3%                      | 24,8%            |
| Net Value                      | 5,2 m€          | 7,7 m€                     | -                |

<sup>1</sup>From exit value

The SPV's returns are only vaguely comparable to own development due to the financing costs as own development takes cost of capital into account after other output calculation to

maintain a division between actual and virtual cash flows. The actual comparison is conducted between own development and developer-contractor in the JV.

To understand the income mechanisms of the developer-contractor, analysis on the returns by source is unfolded. For this purpose, a visualisation of the source returns in relation to the ownership share is described in Figure 15. The developer-contractor receives the same payoffs for the invested capital as other partners of the SPV due to the pro rata division mechanism. The portion of margin generated by the capital investment varies from the lowest of 15,2% of the 25% ownership share and 15% margin project to 70,5% of the total returns when ownership share is 50% and the project produces high 35% margin. In the base case, 33,7% of total returns is produced by the capital investment. The income from construction contract remains constant while the capital return is the variable part. Income of the own development-option naturally is generated by the divestment of the project.



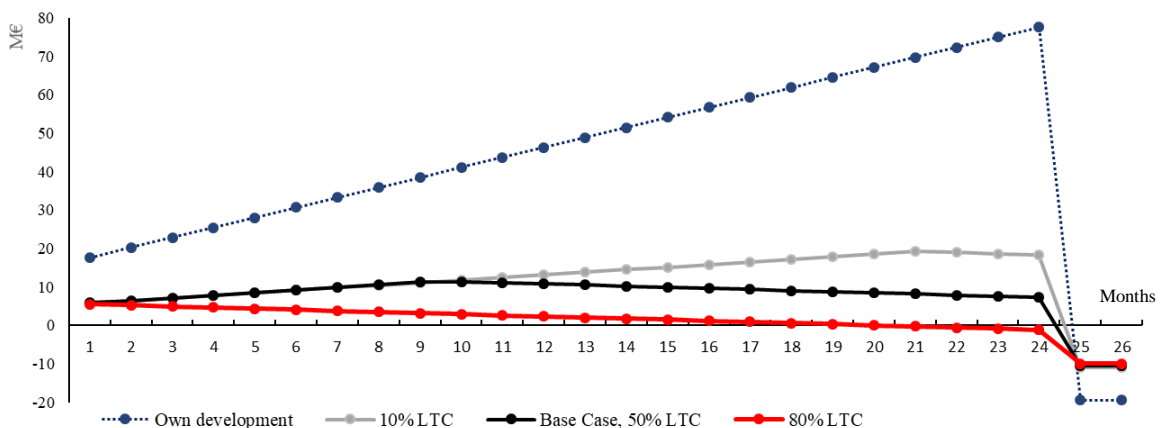
**Figure 15:** Percentage of income generated by the capital investment.

With the increasing ownership share and margin of the project, growing portion of developer-contractor income is generated by the capital investment rather than the construction contract. This promotes the argument of requiring capital commitment from the developer-contractor to ensure the motivation of developer-contractor to maximize the value of the property with throughout development effort.

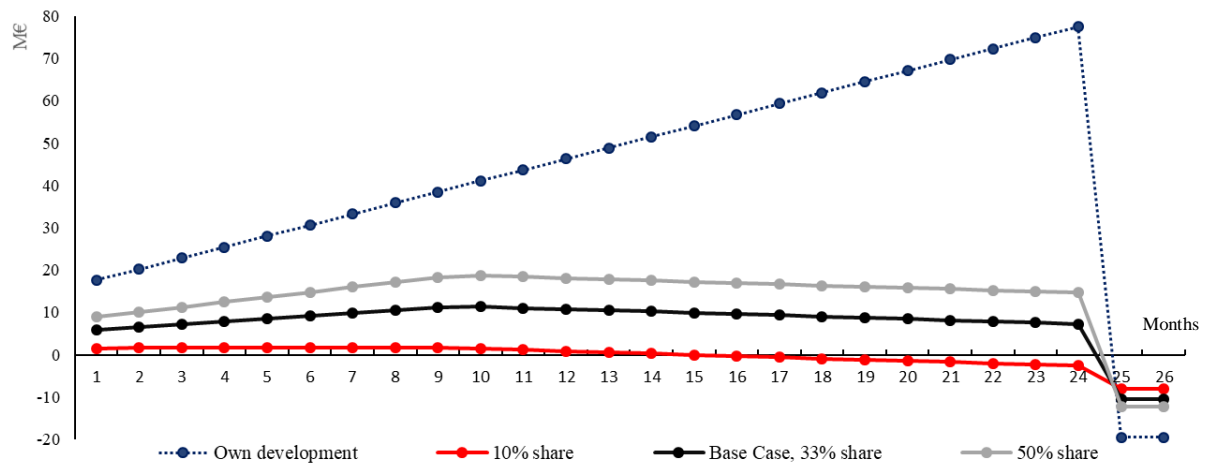
#### 4.2.2 Capital use and returns

In this chapter the effects of leverage, profitability, ownership share and the project type on returns are investigated. The capital use is presented at a principle level with varying ownership and leverage ratios.

Figure 16 presents the capital employed over the course of the project. The own development-line grows linearly as the construction are modelled as linear. As the SPV is filled with equity injections before debt drawdowns, the initial shape of the line is similar with lower and higher leverages. The capital employed declines in joint venturing as the construction contracting provides margins for the developer-contractor. Capital employed reaching negative values means that the project has provided returns exceeding the invested capital at given time.



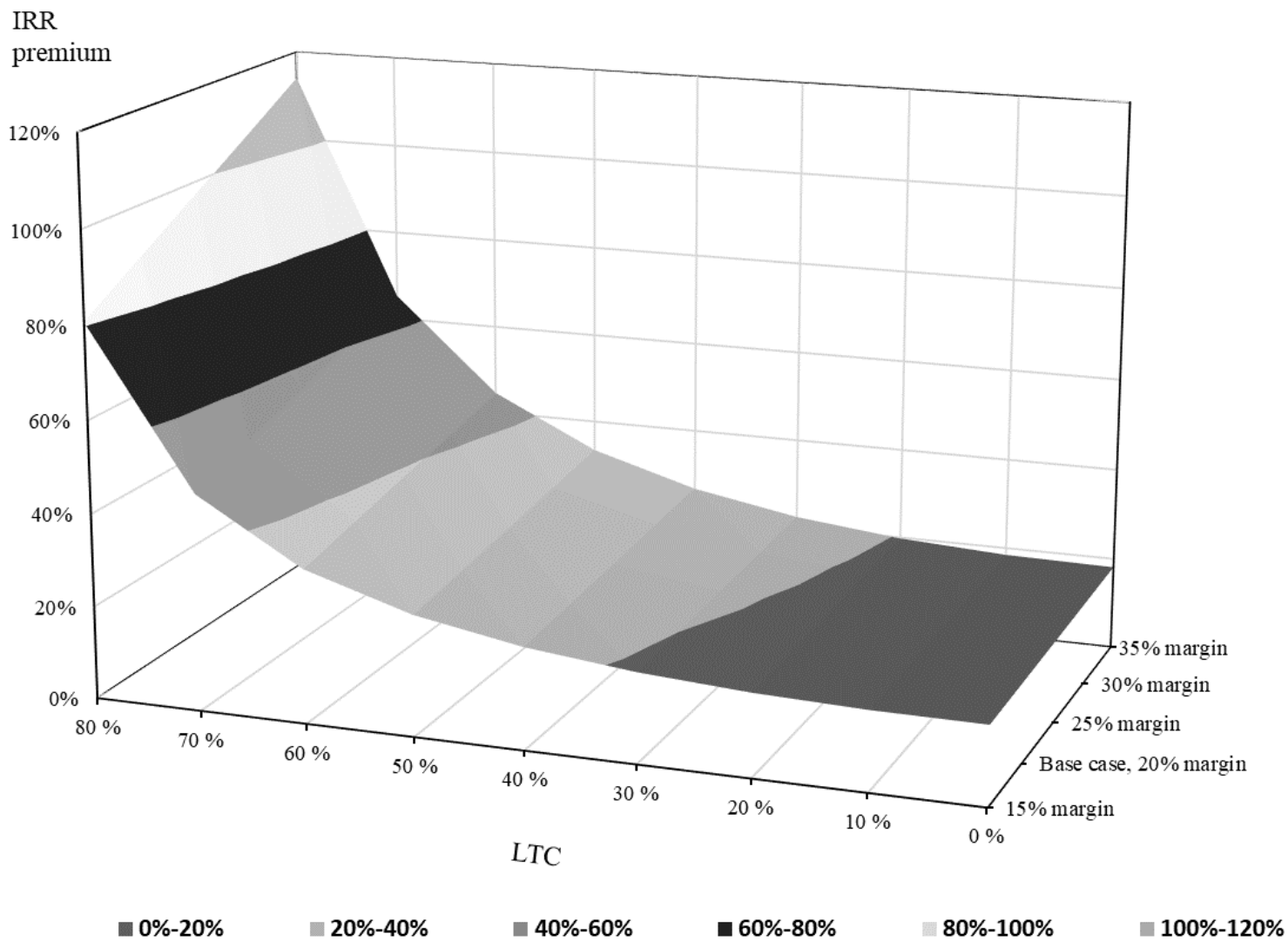
**Figure 16:** Developer-contractors capital employed in own development and joint venture model with different levels of leverage.



**Figure 17:** Developer-contractors capital employed in own development and joint venture model with different ownership shares.

Similar to leverage utilized in the joint venture, the changes in ownership has an effect on the capital employed. The returns diminish alongside the capital commitment. Even with 50% ownership of the joint venture, the investment remains extremely moderate in comparison to the own development. With 10% ownership share of the SPV, capital commitment of the developer-contractor is barely noticeable, and with such ownership stake the existence of required “skin in the game” of the developer could be argued as developer-contractor gains quickly the invested capital back from in the form of contractor fees.



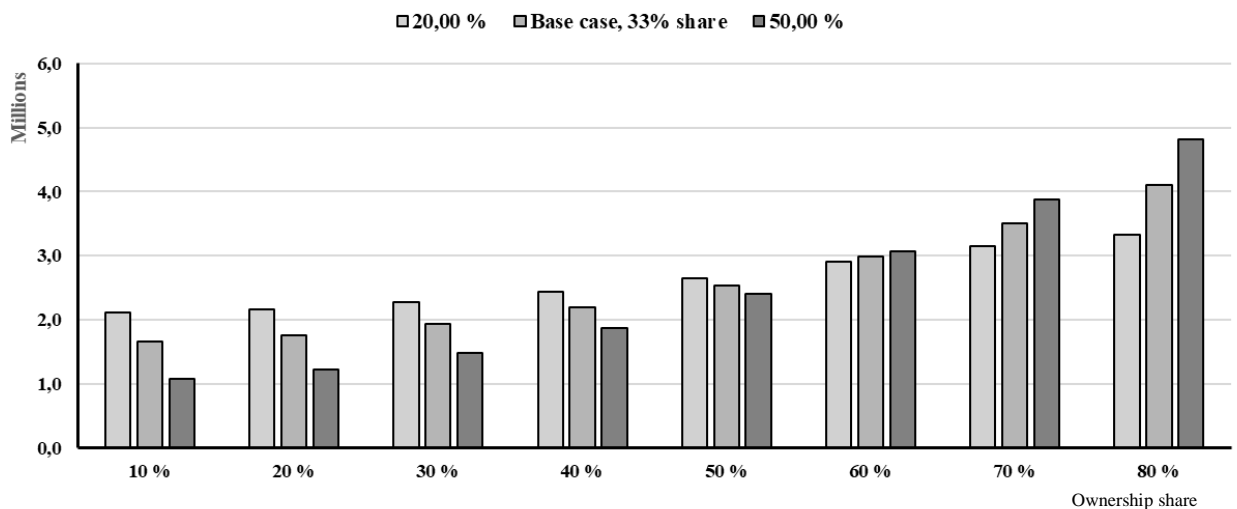


**Figure 18:** IRR premium as LTC and profitability changes.

Examining the returns of the joint venture execution model in comparison to the option developing the project on balance sheet with own development option, the joint venture setup delivers much higher returns due to several reasons: the leverage provided by debt capital and limited capital invested combined with construction fees. The data visualized in a plane of Figure 18 reflects the IRR premium generated by completing the project in a joint venture-setup. From Figure 18 can also be observed that increases in either leverage or profitability of the project the IRR premium increases. In the base case, the premium varies from zero leverage low margin projects' 16,9% to high-leverage high-profit scenarios 114%.

Notable is, that even the project being completely through equity, the contractor margins create additional returns, but in this case the underlying strategic question is the up to 20% additional IRR enough to make up for the lost project margin, as it has to be shared with other equity partners. The plane bends towards the end and the marginal IRR premium gained per increase in profitability or leverage is increased in an increasing manner, and the JV-model provides best returns when having high access to debt financing.

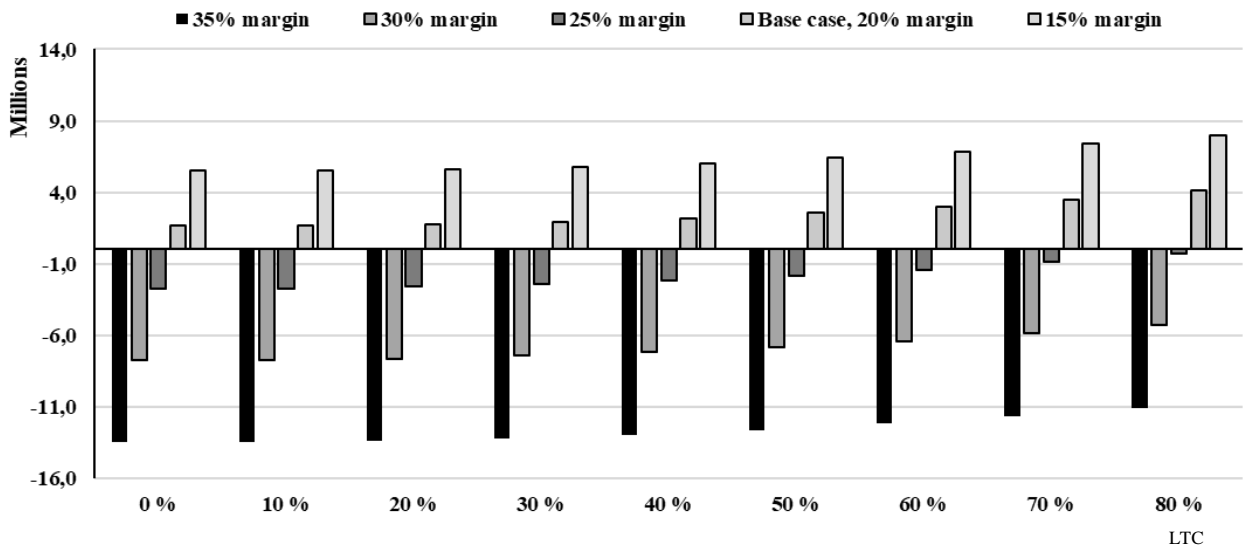
“Net Value premium” is calculated as a spread by subtracting the Net Value of joint venture from the Net Value generated by the JV-option similar to IRR premium. The results of base case with varying ownership share is presented in Figure 19, and the joint venture-setup creates better value for the developer-contractor than funding it on their own. With the growing leverage available, the larger ownership shares gain more Net Value premium, i.e. exceeds more the returns over the cost of capital compared to the own development. While having a larger share of ownership the benefits of leverage are amplified.



**Figure 19:** Net value premium with different LTC ratios and ownership shares.

The ownership share does not seem to be the key factor defining the better execution on different values of LTC as in the base case the net value is larger even when having a low access to debt capital. When examining the altering project profitability margin and Net Value, as shown in Figure 20, as the project profitability rises the best option for developer-contractor to execute the project would be with the own development option as with margins from 35% to 25% create heavy upside in comparison to the joint venture regardless the LTC.

Negative values mean that own development generates more Net Value than JV-option and vica versa. For less profitable projects, such as the one with 15% margin the joint venture option would be the better one, and the difference to own development grows steadily with leverage.

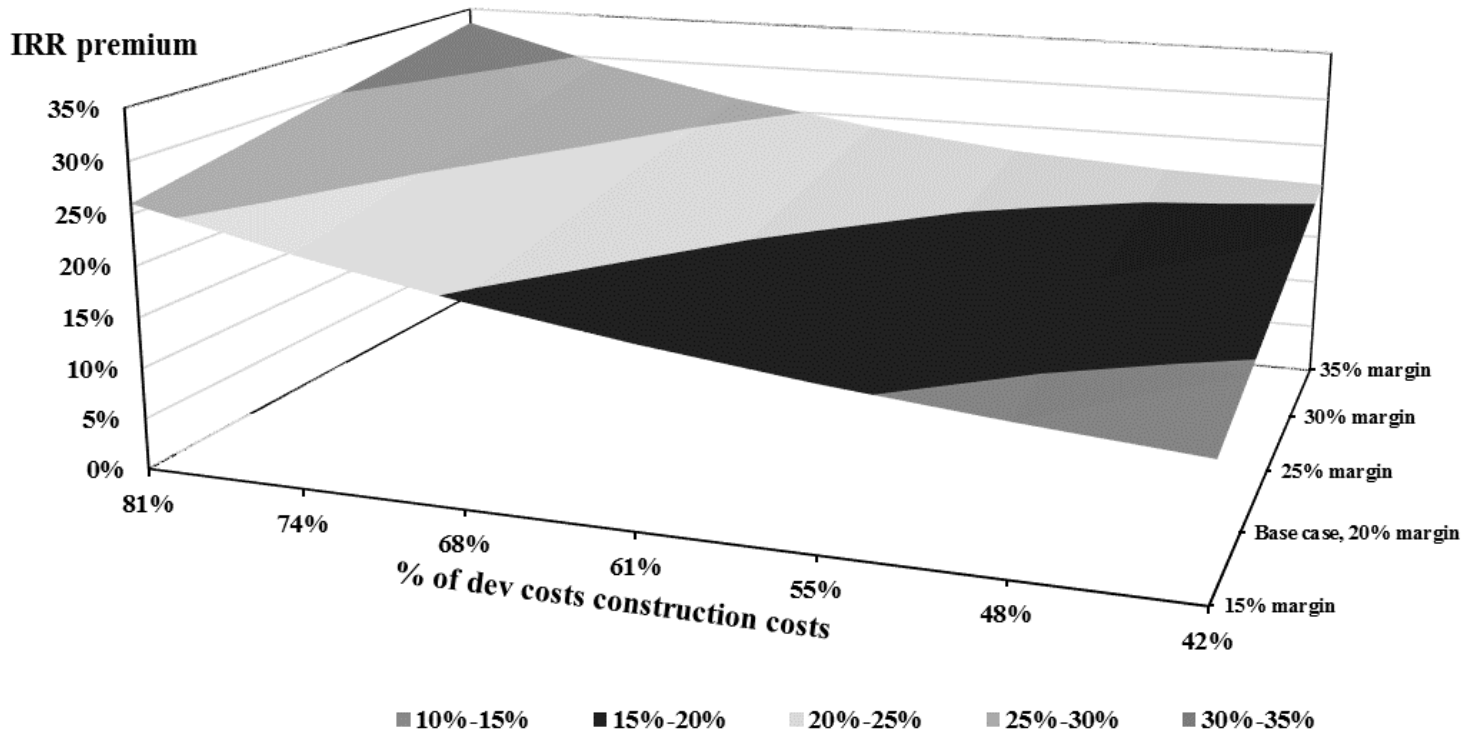


**Figure 20:** Net value premium with varying project profitability and leverage.

From data behind Figures 19 and 20 could be concluded, that the most profitable projects provide better nominal return despite the rate of return requirement for the capital employed and would be better to complete them as own development regardless the availability of debt capital in the joint venture option. It would require that the general capital availability of the developer-contractor is not a limiting factor and there are no (better) alternative investment opportunities but as described in Figure 18, the returns on capital are superb over own development with JV-option. The nominal returns over the required 15% cost of capital on employed capital is exceeded in an increasing manner as the project's profitability improves in the own development option. Due to the riskiness during the planning phase, the same project can turn out to be 15% or 35% margin project depending on the success of leasing, the capital market conditions and cost management.

Project types commonly vary as well from renovating the existing building to completely new development on an empty plot. The main difference for the developer-contractor is the contracting margin, as it is applied to the construction contract between the SPV and

developer-contractor. The differences are examined by keeping the total cost for development, 600€/sqm for the plot added with 2500€/sqm from construction in the base case that equal to 3100€/sqm, as a constant but varying the proportion between construction and the initial acquisition cost.



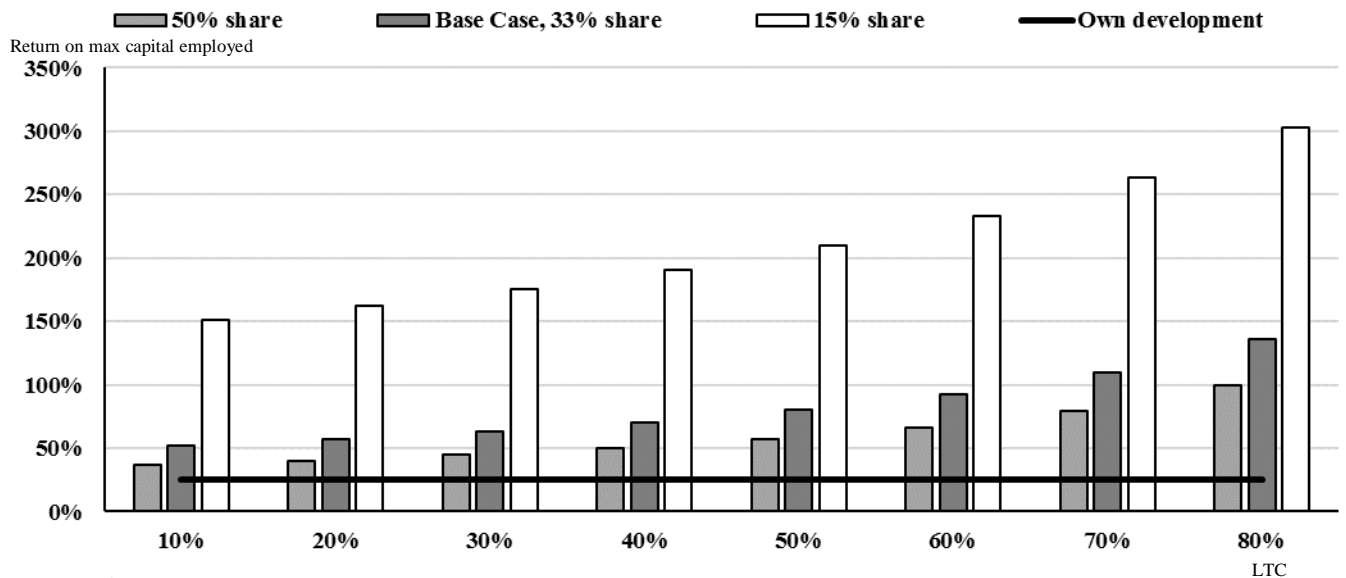
**Figure 21:** IRR premium with varying construction-to-total-development cost ratio.

The type of project providing the best returns for the invested capital is examined in Figure 21. A high construction to total cost ratio resembles a new development project on an empty plot while the other end of the scale resembles a renovation project of an existing property with broad renovation works. The insight presented on the plane is that the higher proportion of construction costs benefit the developer-contractor over the lower ratio, but even lower construction cost to development cost ratio project still provides return premiums over own development option. The range of IRR premiums varies between 13% to 26% with the least profitable project to the 21-to 33% range of the most profitable.

### 4.2.3 Risk mitigation aspect

In this chapter the scenarios where the project might face failures are investigated alongside the returns in relation to the maximum capital exposure. The scenarios are cost overruns and capital market failures like where the project is traded at a value not even meeting the costs. The effects of scenarios on returns and capital exposure are reported.

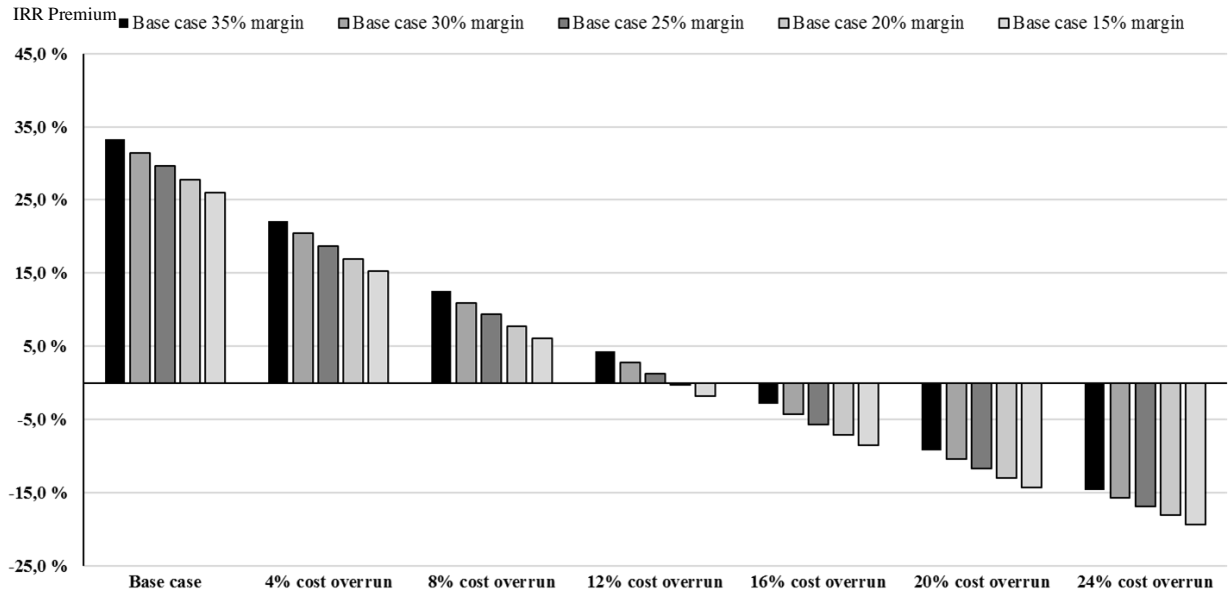
The relationship between risk, considering capital allocation being the absolute measurement, and return is significantly different for the execution models. In Figure 22 the project margin in relation to the capital allocation with different levels of debt utilized. The return on maximum capital employed is larger in joint venture projects even without leverage due to the construction margins. With the growing LTC the relationship of highest employed capital and the project margin compresses significantly. The by lowering the ownership share the relationship down to 15% the relationship is extremely high.



**Figure 22:** Return on max capital employed with varying LTC.

Moving on to the effects of possible cost overruns to IRR are presented in Figure 23. In the horizontal axis the IRR premium of joint venture model is presented as the cost overruns increase. As the construction contract price is fixed and includes a 10% margin, the joint venture model protects the developer-contractors over own development until certain extent.

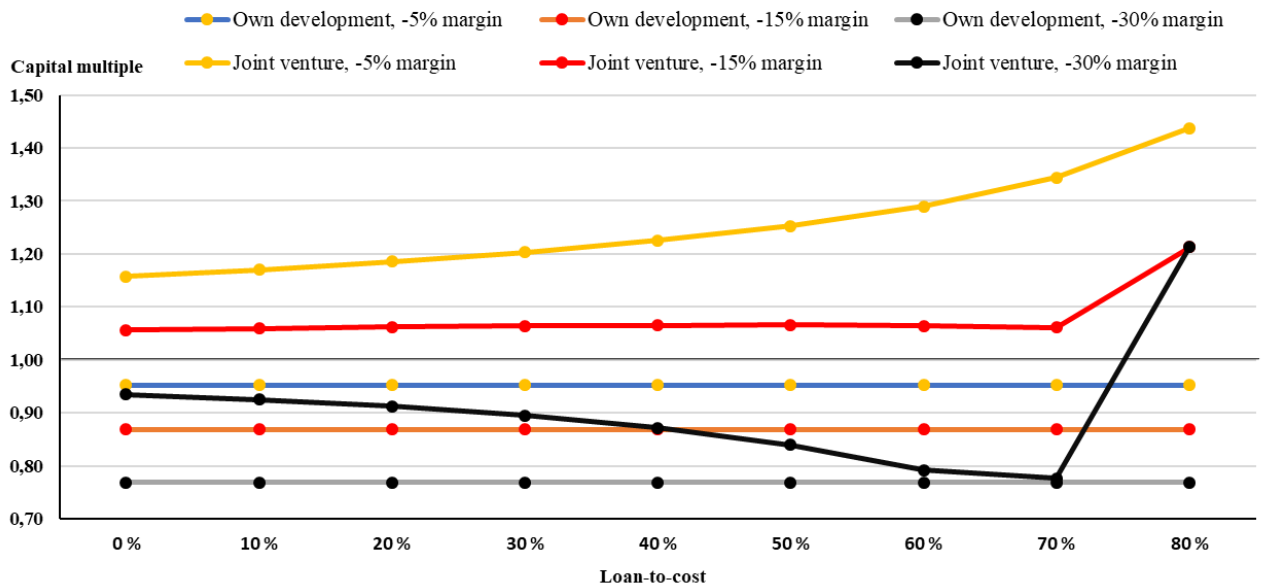
At 12% (300€/sqm over projected) cost overrun, only the most profitable projects provide better IRR over the own development option.



**Figure 23:** Effects of cost overruns on IRR premium with varying LTC.

With higher cost overruns the joint venture model is harmful on the sense of IRR in comparison to the own development. Notable from the data behind the graph is that at the worst case presented, at 15% margin is unprofitable at 24% cost overrun in own development option, but negative returns thus IRRs show up for the developer-contractor in the JV-option at 20% overrun even in the base case, the 20% margin project.

Reasons behind projects valuation collapsing could be altering capital market conditions or troubles related to leasing that could influence the valuation of the project and one possible solution is to divest it at any possible price. Possible scenarios are visualized in Figure 24, where the capital multiples are presented. The joint venture structure protects the developer-contractor when the project trades at -5% and -15% margin, the capital multiples are over 1 meaning that it does not lose its invested capital. In own development the capital multiples remain under 1 as the developer-contractor bears all the expenses on its own.



**Figure 24:** Capital multiples when project trades at discount with varying LTC.

When the project trades at -30% margin, the capital multiple falls under 1 even with JV-option, meaning that developer-contractor does not get its money back. When total leverage rises to 80% the capital multiple rises over 1 due to such thin capitalization in the SPV, but the income is purely produced by the construction contract as the sales price is not even enough to repay the debt raised by the SPV, although the described scenario is highly improbable. The developer-contractor would not probably redeem the last contract payment instalments as LTV-covenants are breached and debt capital could not be raised, the project would virtually be forced bankrupt. This scenario pinpoints the protective aspect of the project financings SPV structure as the losses of the banks would not need to be reimbursed by equity partners. The capital multiples are a relative measure, and the magnitude of losses is heavier due to the employed capital as presented in Figure 16, and the nominal losses are larger in own development than JV-option as the project trades at -30% margin. Naturally, the ownership share alongside leverage effects the nominal losses.

#### **4.2.4 Key results from the simulations**

Purpose of this chapter is to summarize the key findings from the simulation study in the light of research questions 1, 2 and 4. As results from the simulation, the joint venture option is lucrative model to execute projects when facing capital allocation limitations and high project availability. The return boost provided by the access to project financing increases returns significantly in the joint venture option over the own development. The returns (IRR) are larger regardless the type of project from new development to renovation with joint venture model, although the amount of construction work does increase the returns. The bankability of the project plays a significant role in the reasonability of JV-execution model, as the IRR-benefits are weaker with low leverage. As learned from the interview and literature study, the signed lease agreements thus future cash flows are prerequisite for debt funding.

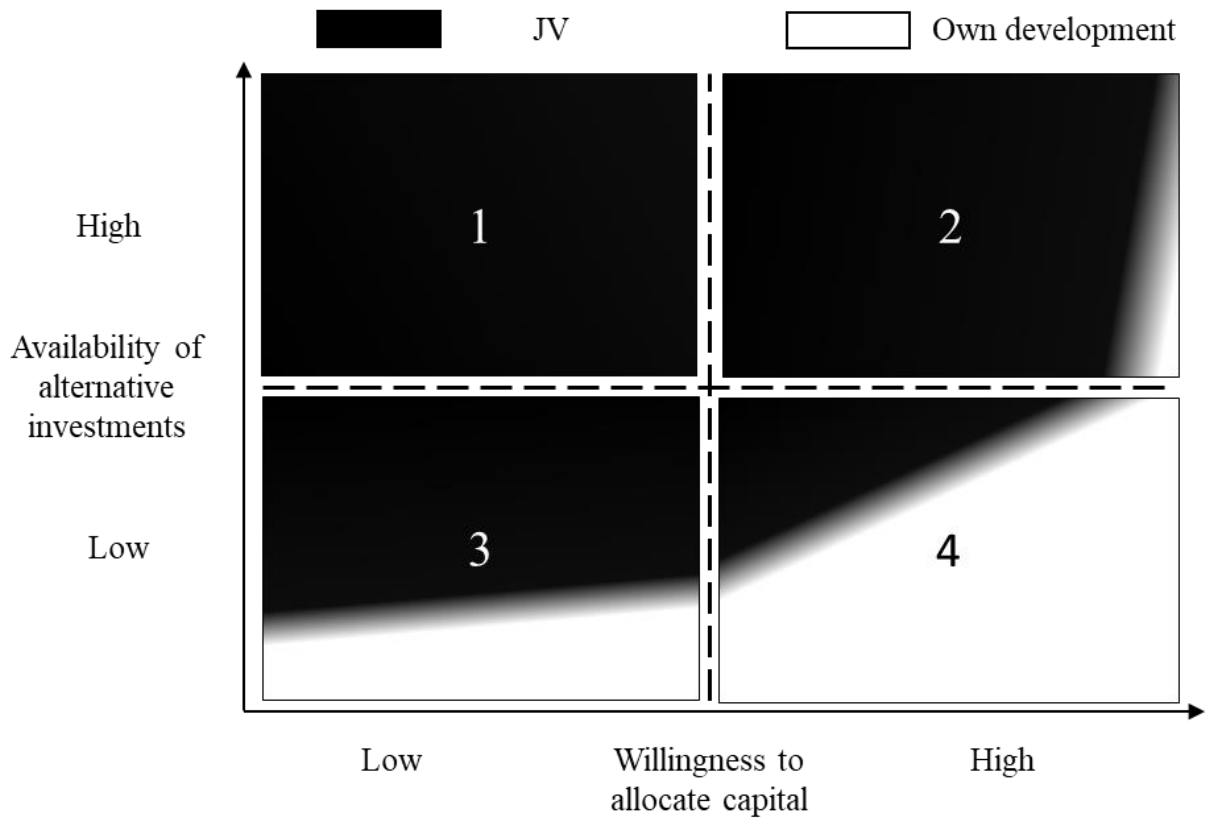
The differences in capital employed between the options is material regardless the leverage and ownership share in joint venture options favour. In absolute measures with the capital cost of capital subtracted from the project margin, the most profitable projects provide better value executed with own development rather than joint venture model if the availability of developer-contractors capital is not a constraint and alternative investment opportunities are scarce. The final decision is left on the willingness to be exposed to risk through capital allocation to a single project.

From the risk mitigation perspective, results that joint venture option functions as risk mitigation tool as the partners share the risk with their own ownership share and external debt financing increases the relationship of financial risk in the form of capital allocation to the returns provided by the project could be made. The JV-model protects the developer-contractor in cost overruns and material valuation deviations.

The results of the simulation study are compressed to a conceptual matrix presenting optimal execution model in Figure 25. The underlying assumption behind the breakdown of optimal execution model is that the bankability of the project is at least at a decent level for the returns to be leveraged through project financing, and the available, suitable joint venturing



partners are not a limitation. Both assumptions are highly binary and limit the validity of the framework.



**Figure 25:** Conceptual optimal execution model framework from the developer-contractors perspective.

In the field #1, as the availability of alternative investments is high, the capital being the limitative factor the developer-contractor is better off completing projects with JV-model. In field #2, the developer-contractor is still better off completing the projects with the JV-models. Exception for the extreme case where willingness to commit capital to project is not a limitation, the far-right corner of field #2. The reasoning behind is simply the ultimately higher IRR and capital employed.

The field #3 resembles situation where both the availability of investment targets and willingness to commit capital is low. Then until certain extent is reasonable to invest with the joint venture model, until there are very limited options to invest in. Then the own development turns out more reasonable as the Net Value is larger in own development with profitable projects. As the availability of alternative investment is low and willingness to

invest capital is high as in field #4, the commitment to own development starts to seem more attractive until certain extent of project availability.

Although, the willingness to allocate capital is a highly relative concept, as the capital requirements, returns and motives to complete projects vary significantly. Alongside the results presented in this chapter, the soft factors of development such as the competences brought by other partners can uplift the project thus decision making towards the JV-option.

## 5 CONCLUSIONS

The purpose of this chapter is to conclude this thesis. First the results of the literature review, quantitative and qualitative researches are combined, discussed and concluded to answer the research questions. The limitations are discussed in the following chapter and finally ideas for further research are presented.

### 5.1 Findings

The goal of this master's thesis was to seek out the benefits of real estate development in joint ventures to a company that both develops real estate projects and is in the role of a construction contractor. To achieve this goal, research included gathering the thoughts and viewpoints of players participating in the Finnish real estate development market about joint venture real estate development projects. In addition to the insights gathered interviews, a simulation study of joint venturing in comparison to own development was performed with a purpose to quantify the benefits for the developer-contractor.

Purpose of this section is to answer the research questions. It was performed by combining, concluding and discussing the results light of the theoretical framework. As the simulation study concentrates on the financial side of the real estate development joint ventures from the perspective of the developer-contractor, the interviews and literature review bring softer and broader viewpoints on the subject.

- 1. How joint venture execution model effects on the returns and capital use of real estate development projects in comparison to own development?*

The results of simulation study showed that real estate development in joint ventures provides significantly larger returns in means of IRR over the own development option and drastically reduces the need of capital in the projects, especially when having access to debt capital. When the alternative investment opportunities are scarce, the own development turns out to be the more lucrative option for the most profitable projects for a company that is a developer-contractor as the returns have to be shared with other equity participants. The joint venture structures also function as a risk management tool to protect the developer-contractors returns over own development in case of cost management failing, valuation risk

realizing, and through sharing the capital allocation risk. It also increases the relationship of returns and capital allocation risk. The findings of the simulation study are backed the findings from interviews, as the risk mitigation and capital efficiency perspective were the motives of developer-contractor participants to partner in joint ventures.

2. *What type of real estate development project is suitable to be executed with the joint venture-model?*

The results of the interview study showed that for the type of companies interviewed the projects executed with joint ventures should be large in scale, depending on the number of partners due to the workload, investment appetite and governance. The risks and returns of the projects should also be balanced. The simulations showed that type of project from renovating an existing premise to completely new development influences the feasibility of the joint venture model over own development, as extensive construction work benefits the returns of the developer-contractor due to the contract margins applied.

As interviews showed, the feasibility and access to debt financing is important. Significant factor on gaining desired return levels is the profitability and bankability of the project: gaining good access to debt capital with lease agreements plays a material role on the rationale of the joint venture model over own development from the perspective of contractor-developer as well. To conclude, the optimal joint venture projects are large, profitable in relation to the risk, new development with high amount of construction, has a good access to project financing and is composed of skilled, financially sound partners.

3. *How do the stakeholder groups view real estate development in joint ventures?*

The key results of the interview study were that the real estate development joint ventures are interesting and sound investment opportunities in general and the partners involved in the project play a key role in every single aspect from general operational collaboration to acquisition of external financing. One particularly interesting finding was that all the interviewees seemed to carry major interest towards the situation if the project starts to fail.

The general motives of the interviewees to prefer joint venture models was aligned with previous publications presented in the theoretical framework section, depending on the viewpoint either the entrepreneurial effort and/or the availability of capital were the main motives to invest in real estate development joint ventures in Finland (see Rosenbleeth, 2018). The debt financier's main motivational driver of customer service was surprising, but understandable.

The results on investment decisions and the drivers behind them the interviewees were highly unanimous and aligned with the project finance frameworks introduced in theory. The capital structuring and the bankability of project financing in Finland works similarly as in the literature (see Gatti 2013, p.3). Important finding was that the use of more exotic financial instruments such as mezzanine is rare in Finnish real estate development joint ventures unlike for example in the U.S. (see Geltner et al., 2007, p. 759). The combination of traditional equity investments and senior debt is the incumbent capital structure in Finnish RED joint ventures. Especially the debt financiers found problems in more exotic instruments and their suitability to the real estate development.

The strong (enough) capital commitment, the "skin in the game", of the developer-contractor was seen a necessity, both by the Developers to maintain the control over decision making and for the other investors to motivate the developer-contractor to maximize the value of the project. The argument was supported by the findings from the simulation as with low ownership share the income generated and capital commitment of the developer-contractor is not high. The perception of risk varied between the interviewees, but the sources of risk were similar to previous research (see Palmer & Wincott, 2015)

The different exit mechanisms, like the partial and whole share deals of partners ownership stake, were seen sub-optimal by the interviewees as in literature (see Wiggins & Rosenberg, 2001). The partial exit opportunities desired by the developer-contractor are not completely an excluded option by the equity partners and debt financiers according to the interviews but would require substantial arrangements and should be included in the initial shareholder agreements. The aftermarket for unlisted investments vehicles in Finland was seen weak, hence the complete, concurrent exits were seen as the best option to maximize value creation.

In the simulation study the partial exit mechanisms were ignored due to the valuation being extremely specific to each situation.

*4. Is standardization of joint venture investment model feasible business model for a construction company?*

The concept of standardized contractual JV-structures was seen as a positive development in the interviews and would help all parties. It was also seen quite difficult due to the heterogeneity of the projects. The perceived benefits of standard structures were highly similar as Fisch's and Mitchells (2018) research on programmatic joint ventures: the lowered transaction costs and easier negotiation process. The possible development paths to standardized joint venture contracts were found also similar to the concept of programmatic joint venture by the interviewees: through trial and error of the best practices could be captured to benefit larger group of investors and the real estate development market in general. The liquidity of shares could also be improved. Combining the findings from all researches, standardizing the JV investment model would most definitely be a feasible business model for a developer-contractor due to gaining access on capital efficient returns and possibly even competence gains in more convenient manner.

## **5.2 Limitations**

The purpose of this chapter is to identify the limitations and assess the research. Like any research, this research has limitations with the findings. To achieve depth on the overall analysis, the interview study was performed before starting the quantitative study. The general aspects of assessment for research are reliability, validity and generalizability.

For the quantitative part of this thesis, the validity of research is reliant on the inputs and the model. The validity issue is partly generated by the sensitivity of the actual, real-life parameters like cost levels and interest rates on project financing that were replaced with dummy figures. Apart from dummy figures the inputs were gathered from a valid source. Some validity issues are present due nature of modelling, the compressing real-life events into a mathematical model. Despite the validity issues, the results are valid for the purpose of this master's thesis. The reliability of quantitative study's results is at a high level through

to the simplicity and robustness of the Excel-model. The created dependent variables are conceptually robust and served the purpose of the research well. The generalization of the results is at a decent level. Factor increasing generalizability is rather than using definitive measures, like certain exit value of the property, relative measure of project margin was rather used as a proxy input.

Reliability of the interview study is at a decent level, as the findings from different participants yielded similar results to each other and the previous research. Threats to reliability of the interviews was the setting that as the interviewer I presented myself as representative of an organization, thus the answers might include a bias. Reliability of the study has problems due to the setting of the interview, a semi structured interview with open answers. Validity of the interview study is at a good level due to the length of the interviews and decent amount of questions. There is a major problem with generalization due to the small sample size per stakeholder group, but some generalizable aspects can be found as the interviewees agreed on many aspects.

Despite all the mentioned above, the results are valid, reliable and generalizable enough with limitations, in Finland and in the current market situation.

### **5.3 Further research**

In this section the proposals for the avenues of further research are presented. As the study is divided into two, there are two possible pathways to further research. The first possible avenue would reside on investigating the possibility to quantify the value adding activities that can be enhanced by finding suitable joint venture partners. The outcome of that research would be the characteristics of optimal real estate development joint venture composition.

The second possible path to further research lies in the hard, financial side. The research would concentrate on the optimization and financial engineering of the project finance structures of real estate development joint venture under uncertainty. As the outcome this research could be the optimal capital structure that balances the risks and returns between the partners under uncertainty.

## 6 SUMMARY

The goal of this master's thesis was to seek out the benefits of real estate development in joint ventures to a company that both develops real estate projects and is in the role of a construction contractor. The research is divided in three sections. First, a literature review was conducted. The literature and research review concentrated on real estate development, joint ventures in RED, finance behind RED and project finance. In the second section the viewpoints and thoughts of Finnish real estate and investment professionals on real estate development joint ventures are investigated. The viewpoints and thoughts are gathered through qualitative interviews. Additionally, the benefits of joint venture execution model over the own development are researched with a quantitative simulation study.

To achieve the goals of the study, traditional participants in the joint venture arrangements were interviewed: pure real estate developer, debt financiers, equity investor, an advisor and representatives of a developer-contractor. The interview questions were related to general experiences on joint ventures, factors behind investment decisions, exit mechanisms and the standardization of joint venture model.

The benefits of joint venture execution model in comparison to own development was examined in the quantitative part of the study with a financial model. In simulation model the possible scenarios were investigated in the perspective of returns, capital use and risk mitigation.

The results of the interview study showed that the stakeholders had similar perceptions on the most remarkable factors of RED joint venturing, such as the partners being the most important success factors, motivation, variables and levels of return behind investment decision, exits and the benefits of standardization.

Results of the simulation study showed that gaining access to project financing in RED joint ventures increase returns, like IRR, significantly over the option of developing the project on own balance sheet. The amount of construction work in the project effects the returns of the developer-contractor positively. As the ownership share is limited in joint ventures, the nominal returns are smaller due to sharing the returns with other investors. The joint venture



execution model functions as a risk mitigation tool through limiting capital investment, increasing the relationship between capital allocation and returns and protects the developer-contractor from slight cost overruns and capital market conditions.

As a conclusion, the real estate development in joint ventures are interesting and sound investment opportunities in Finnish markets and highly recommendable for the developer-contractor, unless the amount of possible alternative investments is low.

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## Interviews

Interview of “Equity investor” on 17.4.2019. Length: 32 minutes

Interview of “Advisor” on 8.4.2019. Length: 45 minutes.

Interview of “Developer 1” and “Developer 2” on 23.4.2019. Length: 60 minutes.

Interview of “Debt financier 1” and “Debt financier 2” on 16.4.2019. Length: 52 minutes.

Interview of “YIT 1” on 18.4.2019. Length: 52 minutes.

Interview of “YIT 2” on 17.5.2019. Length: 45 minutes.

## **Appendix 1 – Interview questions**

### **Basic information:**

- General motives to invest/lend in real estate development joint ventures
- Experiences on real estate development joint ventures?
  - Positive experiences / Negative experiences
  - Common and/or differentiating factors between JV-projects and has there been a cause-and-effect factors for the experiences?
  - General overview
- Desired number of partners?
- Problems created by different investment strategies of partners?
  - Deal breaker?

### **Investment decision:**

- What are the target return levels on i.e. IRR and equity multiple?
  - Other measurements?
- Minimum project size
  - Drivers?
- Preferred capital structure
  - Presence of junior debt
- Minimum capital allocation
  - Drivers?
- Maximum capital allocation
  - Relationship to risk?
  
- What drives the risk?
  - Name X most significant drivers of risk
  - How riskiness is measured
  - Relationship of risk and returns



**Exits:**

- Partner exits (i.e. selling shares to a 3<sup>rd</sup> party)
  - Partner exit during development?
    - Developer-contractors exit during development?
- Partial vs. complete exit.
  - Experience from valuation of partial shares vs. valuation of full project
- Equity investor: Interest of extending ownership stake of the project?
  - Factors driving the valuation of shares

**Standardization:**

- How do you view standardization of joint venture contracts?
  - Perceived benefits?
  - Perceived problems?
- How realistic you see the standardization of JV-shares?
  - E.g. bond finance instruments are rather similar with each other

## APPENDIX 2 - REAL ESTATE DEVELOPMENT CASH FLOW MODEL

| Own development cash flow model              | 1.1.2020 | 1.2.2020 | 1.3.2020 | 1.4.2020 | 1.5.2020 | 1.6.2020 | 1.7.2020 | 1.8.2020 | 1.9.2020 | 1.10.2020 | 1.11.2020 | 1.12.2020 | 1.1.2021 | 1.2.2021 | 1.3.2021 | 1.4.2021 | 1.5.2021 | 1.6.2021 | 1.7.2021 | 1.8.2021 | 1.9.2021 | 1.10.2021 | 1.11.2021 | 1.12.2021 | 1.1.2022   |
|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|------------|
|  | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | 10        | 11        | 12        | 13       | 14       | 15       | 16       | 17       | 18       | 19       | 20       | 21       | 22        | 23        | 24        | Exit       |
| <b>Months</b>                                |          |          |          |          |          |          |          |          |          |           |           |           |          |          |          |          |          |          |          |          |          |           |           |           |            |
| <b>Costs</b>                                 |          |          |          |          |          |          |          |          |          |           |           |           |          |          |          |          |          |          |          |          |          |           |           |           |            |
| Construction costs                           | -        | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6       | 2,6       | 2,6       | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6       | 2,6       | 2,6       | -          |
| Plot costs                                   | -        | 15,0     | -        | -        | -        | -        | -        | -        | -        | -         | -         | -         | -        | -        | -        | -        | -        | -        | -        | -        | -        | -         | -         | -         | -          |
| Transaction costs                            | -        | -        | -        | -        | -        | -        | -        | -        | -        | -         | -         | -         | -        | -        | -        | -        | -        | -        | -        | -        | -        | -         | -         | -         | 0,5        |
| <b>Financing costs from employed capital</b> | -        | -        | -        | -        | -        | -        | -        | -        | -        | -         | -         | -         | -        | -        | -        | -        | -        | -        | -        | -        | -        | -         | -         | -         | -          |
| <b>Net negative cash flow</b>                | -        | 17,6     | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6       | 2,6       | 2,6       | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6       | 2,6       | 2,6       | 0,5        |
| <b>Cumulative negative</b>                   | -        | 17,6     | 20,2     | 22,8     | 25,4     | 28,0     | 30,6     | 33,2     | 35,8     | 38,4      | 41,0      | 43,6      | 46,3     | 48,9     | 51,5     | 54,1     | 56,7     | 59,3     | 61,9     | 64,5     | 67,1     | 69,7      | 72,3      | 74,9      | 77,5       |
| <b>Income</b>                                |          |          |          |          |          |          |          |          |          |           |           |           |          |          |          |          |          |          |          |          |          |           |           |           |            |
| Exit   | -        | -        | -        | -        | -        | -        | -        | -        | -        | -         | -         | -         | -        | -        | -        | -        | -        | -        | -        | -        | -        | -         | -         | -         | 97,5       |
| <b>Net positive</b>                          | -        | -        | -        | -        | -        | -        | -        | -        | -        | -         | -         | -         | -        | -        | -        | -        | -        | -        | -        | -        | -        | -         | -         | -         | 97,5       |
| <b>Cumulative positive</b>                   | -        | -        | -        | -        | -        | -        | -        | -        | -        | -         | -         | -         | -        | -        | -        | -        | -        | -        | -        | -        | -        | -         | -         | -         | 97,5       |
| <b>Net CF</b>                                | -        | 17,6     | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6       | 2,6       | 2,6       | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6      | 2,6       | 2,6       | 2,6       | 97,0       |
| <b>Capital employed</b>                      | -        | 17,6     | 20,2     | 22,8     | 25,4     | 28,0     | 30,6     | 33,2     | 35,8     | 38,4      | 41,0      | 43,6      | 46,3     | 48,9     | 51,5     | 54,1     | 56,7     | 59,3     | 61,9     | 64,5     | 67,1     | 69,7      | 72,3      | 74,9      | 77,5       |
| <b>Cost of capital</b>                       | -        | 0,2      | 0,3      | 0,3      | 0,3      | 0,4      | 0,4      | 0,4      | 0,4      | 0,5       | 0,5       | 0,5       | 0,6      | 0,6      | 0,6      | 0,7      | 0,7      | 0,7      | 0,8      | 0,8      | 0,8      | 0,9       | 0,9       | 0,9       | 1,0        |
| <b>Outputs</b>                               |          |          |          |          |          |          |          |          |          |           |           |           |          |          |          |          |          |          |          |          |          |           |           |           |            |
| IRR  |          |          |          |          |          |          |          |          |          |           |           |           |          |          |          |          |          |          |          |          |          |           |           |           | 19,4 %     |
| Capital multiple                             |          |          |          |          |          |          |          |          |          |           |           |           |          |          |          |          |          |          |          |          |          |           |           |           | 1,25       |
| Project Margin-% from exit value             |          |          |          |          |          |          |          |          |          |           |           |           |          |          |          |          |          |          |          |          |          |           |           |           | 20,0 %     |
| Project margin                               |          |          |          |          |          |          |          |          |          |           |           |           |          |          |          |          |          |          |          |          |          |           |           |           | 19 496 855 |
| Capital employed                             |          |          |          |          |          |          |          |          |          |           |           |           |          |          |          |          |          |          |          |          |          |           |           |           | 77 500 000 |
| Return on max capital employed:              |          |          |          |          |          |          |          |          |          |           |           |           |          |          |          |          |          |          |          |          |          |           |           |           | 25,2 %     |
| Net value:                                   |          |          |          |          |          |          |          |          |          |           |           |           |          |          |          |          |          |          |          |          |          |           |           |           | 5,23       |

| Basic inputs                |             |
|-----------------------------|-------------|
| Net leasable area:          | 25 000 sqm  |
| Capital rent:               | 20 €/sqm    |
| Planned construction costs: | 25000 €/sqm |
| Actual construction costs:  | 25000 €/sqm |
| Plot costs:                 | 600 €/sqm   |
| Transaction costs           | 487 421 €   |
| Construction period         | 24 months   |
| Exit at month:              | 25          |
| Exit yield                  | 6,15 %      |
| Cost of capital             | 15,0 %      |

| Joint venture-specific inputs  |             |
|--------------------------------|-------------|
| JV-related costs               | 487 421 €   |
| Leverage                       | 50 % senior |
| Interest rate, project finance | 3 % p.a.    |
| Ownership-%                    | 33 %        |
| Contract margin-%              | 10 %        |

