UNIVERSITY OF MISKOLC
FACULTY OF ECONOMICS

KLÁRA SZŰCS MARKOVICS

EMPIRICAL RESEARCH ON THE PROCESS AND METHODS OF PREPARING INVESTMENT DECISIONS IN CASE OF DOMESTIC MANUFACTURING COMPANIES

PH.D. THESES

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MISKOLC, 2013

TABLE OF CONTENTS

1. RESEARCH HISTORY

The subject of my doctoral dissertation is the examination of the decision-preparation process of corporate investments and the capital budgeting methods applied in practice. I have been making research on the determining factors of corporate management and the decision-preparation process since 2003. When studying the professional literature, I tried to narrow and refine the area of my research, then in November 2011, I officially applied for the modification of my research topic accordingly, and that was approved by the Doctoral Council of the Faculty of Economics in January 2012. *My dissertation is a result of over 10 years' research.*

As a part of my educational activity, I have studied a wide range of bibliography in the subject of corporate management – including topics like fixed-assets, current assets and stocks management, human resources and wages management, financial management, etc.

Together with my consultant and another co-author, I compiled the workbook 'Business Resource Economics'. The topics I found the most interesting, from those I got to know in details, were fixed assets management and the problems of decision-preparation of investments, which was also an area of my originally chosen topic. I redefined my research focus on these.

The investment decisions and the questions of decision-preparation – such as the capital budgeting methods or the required rate of return, already raised the researchers' interest decades ago. The reason for this must be the importance of the topic and the complex nature of decision-preparation. On the one hand, investment decisions can determine the margins of corporate management for years or even for decades, on the other hand, decision-preparation of investments is a complex process, in which several sophisticated decision problems can arise. Corporate professionals are gaining the part of their knowledge from the related literature; therefore a theoretical-methodological basis that is essential for correct investment decisions would be very important. But at the same time some literature includes misorientating methodological recommendations that might direct the less-prepared professionals to make bad decisions. Based on these, I found it necessary to examine the consistency between corporate practice and the recommendations of literature. In foreign countries, several empirical researches have been and are being done in the subject.

In Hungary, the empirical research of corporate investment decisions is rather inconsiderable. Most of the related studies are analysing mainly national economic trends and macro level correlations, such as the national economic trends of investments, the efficiency of national investment promoting economic political methods, etc. *With my research, I am trying to fill this gap to some extent.*

The chosen topic closely fits to the education profile of the Institute of Business Sciences, University of Miskolc. During the last years, I managed to participate in giving lectures in the subjects Business Economics, Business Resource Economics, Management Economics, Management Calculations and the Methodology of Controlling, and hope that I will be able to utilize the gained professional knowledge and the results of my empirical research when teaching these subjects in the future.

2. THE PURPOSE AND STRUCTURE OF THE DISSERTATION

The main purpose of my research was to discover the process of preparing investment decisions in case of companies of the domestic manufacturing sector and to identify the capital budgeting methods preferred and thresholds applied by corporate managers.

My dissertation consists of eight chapters. *In the first chapter* I am discussing the concept of investment with criticism that has different approaches within the literature of economics and business studies. Then I continue with the grouping and systemizing of investments from different aspects and I am closing the first chapter with the correspondence between fixed assets management and investment activity.

In the second chapter I am examining the main questions of investment decision-preparation process divided into two subtopics. First, in the sub-chapter 2.1, I am giving a short theoretical overview of the process, then, based on the studies sources, I am outlining my own economic decision-preparation model of investments. In the sub-chapter 2.2, I am discussing the other questions of the decision-preparation process: how long it takes in case of domestic processing industrial enterprises, what factors influence this time demand, and whether the companies organize any discussions during the decision-preparation in order to match opinions.

In the third chapter of my dissertation, I am examining the capital budgeting methods. In this chapter, I am also introducing the indexes used for evaluating the economic efficiency of investments or for ranking those projects that have previously been considered profitable. Then I am illustrating the method of calculating the required rate of return. One sub-chapter is dedicated to the evaluation methods of such investment projects, where the profit is inconsiderable or cannot be measured directly. Then, I am closing the third chapter with a short introduction of those risk management methods that are mostly recommended by the literature. Each subchapter has the following logical structure: first I am shortly introducing the literature that relates to the topic, then – if exists – I am describing the results of related empirical researches. These are followed by drawing my hypotheses.

In the fourth chapter I am describing the main characteristics of the applied questionnaire survey. In the beginning of the chapter, I am summarizing all basic information related to the survey, such as criteria of the samples, the method of selection, rate of response, etc. Then I dedicate a few sentences to the introduction of the structure of the questionnaire and the characteristics of the corporate samples (distribution by sector, turnover, equity ratio and number of employees). I am closing the fourth chapter with a brief summary of statistical methods applied for analysing the filled questionnaires.

The fifth chapter is divided into two bigger parts. In the first part, I am comparing the results of the survey with my hypotheses referring to the decision-preparing process of investments, while in the second, with the hypotheses concerning the capital budgeting methods. According to this, I decide to accept or reject a hypothesis and as a closure of the given topic, I am drawing my thesis.

At the end of the dissertation, I am summarizing the practical utilization possibilities of my research results, the observations and bounds of the research work and I am outlining the possible directions of a further research *(Chapter 6, 7 and 8).*

The process of my research is illustrated by Figure 1.

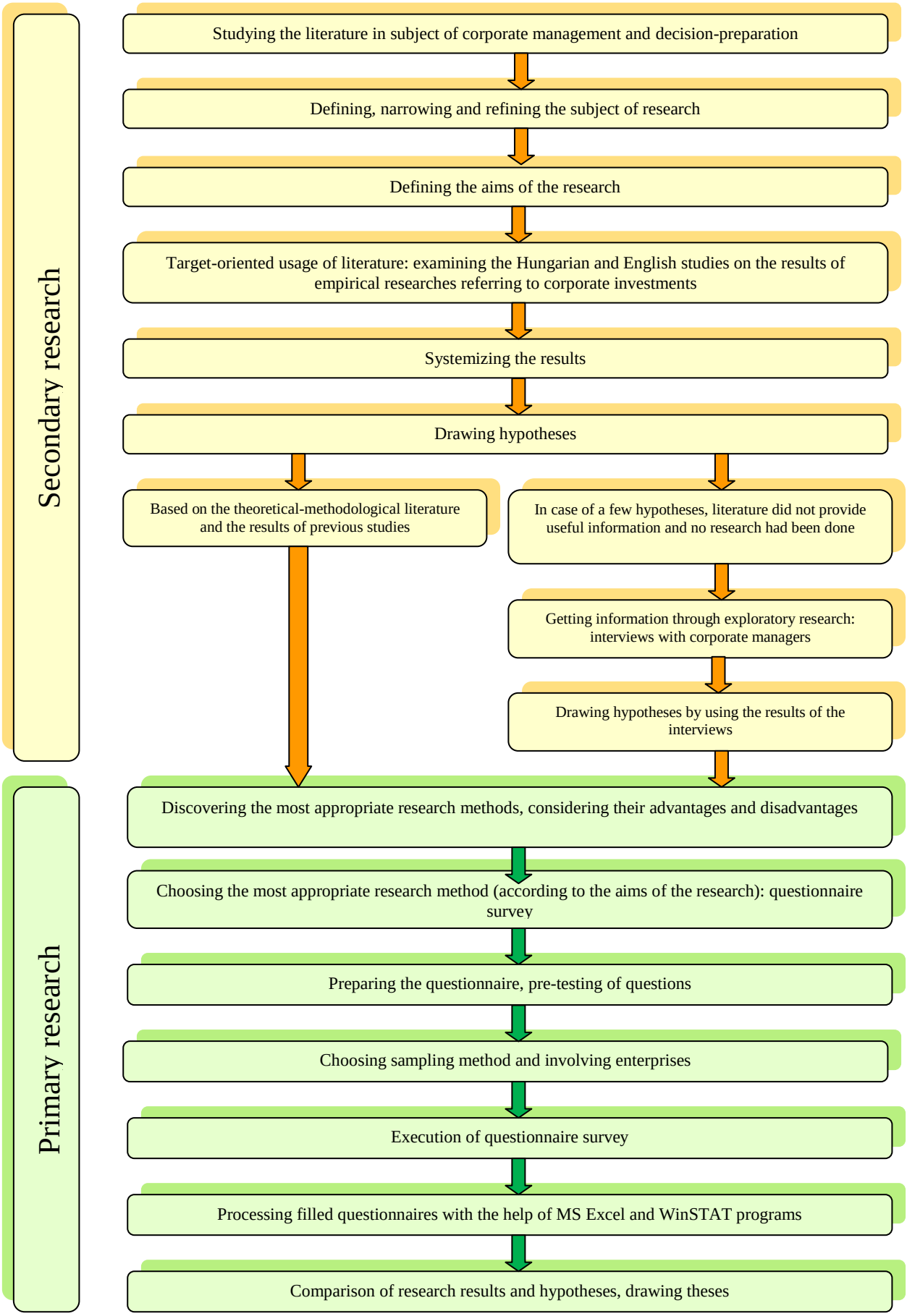

Figure 1: The research process

3. GENERAL QUESTIONS OF INVESTMENTS

The concept of investment is one of the most evident categories of business economics: there are no considerable differences in its definitions, only some details may vary. Most of them define the concept of investment based on the process and/or activity and on the subject of investment, e.g. the object. However, the concept of investment generally used in economics does differ from the concept used in business economics in some aspects. In economics, the growth of fixed assets and working capital of a given economy are usually considered investment. The concept of investment used in business economics is wider as it also includes purchasing of fixed assets from turn-back capital. Nevertheless, I find it important to highlight that the different areas of literature are dealing with the questions of investments and fixed assets management in different ways. In connection with this, 'there are also significant contrasts in the approach and content of the statements and methodological recommendations of business economics and financial economics'. (Illés M. 2013, p. 9.)

Considering that I am examining the decision-preparation process and method of corporate investments from the aspect of business economics, in my dissertation I am using the concept of investment generally accepted by business economics. According to the authoritive literature of business economics, investment is basically an activity, therefore a process that has a natural dimension that can be expressed in value as well. Based on the general wording of business economics, *investment refers to replacement and expansion of fixed assets, henceforth I am using the concept of investment with this content.*

Fixed assets mean one of the basic categories of business economics. 'Fixed assets can be used for several production cycles, for years or decades in a constant physical form in the material processes of the company and support a high volume of repetitive production processes. Their value is continuously being transferred into the products they are producing, while the process of deterioration is being converted into costs by amortisation and depreciation. Fixed assets are machines, equipments, buildings, technologic and other facilities, land, soil, and even valuable artworks that the company possesses.' (Illés M. 2004, p. 2.)

The operation of companies of the manufacturing sector would be impossible without fixed assets. *The volume, value and type of required fixed assets show considerable differences between the sectors.* The differences within one sector can also be significant. These depend on the size of the company, the nature and volume of its products and its technological characteristics. There are two different ways of fulfilling fixed assets demand. The most common way is creating an own fixed asset base. In this case the circular process starts with an investment.

The investment activity can mean both providing fixed assets and maintaining their functionality. In Hungary, providing fixed assets necessary for the operation of companies is done mostly through investments, by purchasing and creating fixed assets – however in practice there are some examples for borrowing, renting and leasing, as well. Investments are becoming fixed assets by activation, then as a result of usage, their repair, extension and replacement become necessary. *As the circular process starts with the investment, this activity should be considered a key task of fixed assets management.*

4. HYPOTHESES RELATED TO THE PREPARATION PROCESS OF INVESTMENT DECISIONS

The literature of decision-preparation of corporate investments can be described with a certain duality. Several authors are dealing with the description of the decision-preparation process itself in their books, but other questions of decision-preparation, such as the length of the process are hardly included in the examined sources. Nevertheless, not only the literature is poor, but – to the best of my knowledge – the investment researchers have not included topics related to decision-preparation process in their examination either. Consequently, I had to face difficulties when drawing hypotheses related to the subject of decision-preparation.

4.1. The model of economic decision-preparation of investments

Several Hungarian and foreign authors are dealing with the preparation process of investment decisions in their books (i.e. Fekete – Husti ed. 2005, Vargha 2001, Barta 1986, Butler – Davies – Pike – Sharp 1993, Northcott 1998). *The decision-preparation processes of investments outlined by the different authors practically include more or less the same activities, but at the same time, they differ considering their detailedness and content.* Some authors only mention economic activities when describing the decision-preparation process; others talk about both economic and technical activities performed to make investment decisions. In some books we can find such introductions of the decision-preparation process of investments that are listing such activities already in the preparation phase, that in the corporate practice are executed during the phase of realisation or after activation.

Based on the examined literature, I created the model of economic decision-preparation of investments, in which I only include activities of economic preparation. (The model does not include tasks related to technical preparation.) The decision-preparation requires an investment demand beforehand. The tasks of decision-preparation start with the analysis of the current situation and end with the ranking of profitable investment alternatives. The decision on the investment to be realized is not a part of the decision-preparation process any more. My model of economic decision-preparation of investments is illustrated by Figure 2.

During my research, I focused on the examination of investments with higher volume and that are more significant for the companies. The companies are necessarily paying more attention to these; therefore perform more intensive decision-founding activities. Depending on company size, corporates might realize investments in significantly different values. In connection with this, it might be different at each company what is considered a high value or a large volume investment. In my research I involved both smaller and larger companies, therefore I did not define which investments are considered ‘high volume’, and I rather let the company managers decide this when filling in the questionnaire.

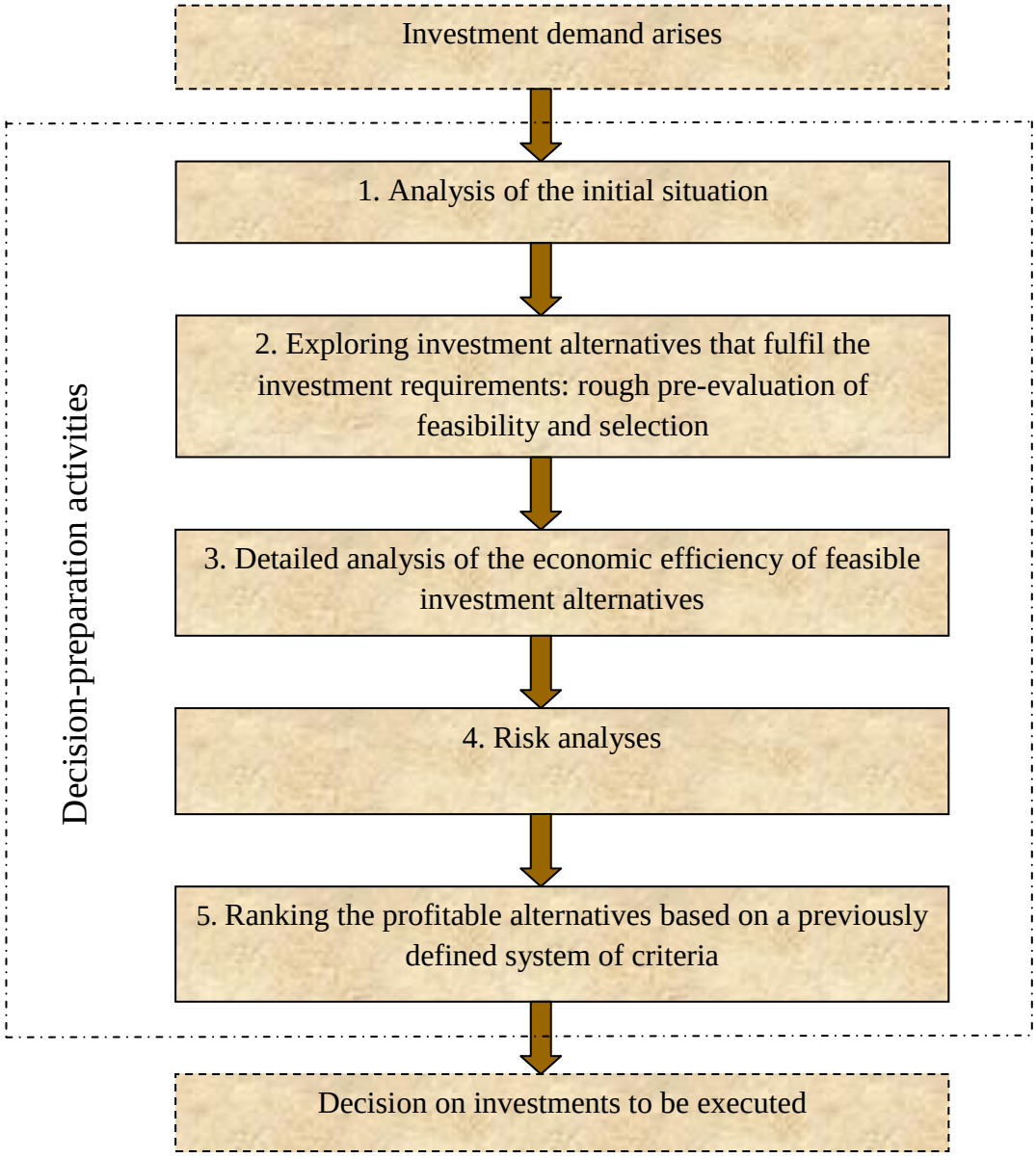

Figure 2 – Model of economic decision-preparation of investments
Source: Edited by the author – based on the examined literature

Based on my assumptions, *medium-size and large companies are more cautious in preparing investment decisions*, which can be explained by the following factors:

- they are possessing a better, professionally more prepared team of experts;
- unlike at micro and small enterprises, not only a few people but a whole team is dealing with the preparation of decisions;
- they are possessing great experiences related to the decision-preparation of investments;
- they are having the necessary financial resources to purchase all the information that is required to make the right decisions.

In connection with the decision-preparation process of investments, I am drawing the following hypothesis:

Hypothesis H1: At the domestic manufacturing companies, the economic decision-preparation process of large volume investments is executed according to my model. Compared to micro and small enterprises, *the medium-size and large companies are more cautious in economic decision-preparation of investments.*

4.2. Further questions of the decision-preparation process: the length of decision-preparation, and forums for negotiations

Authors writing in the related subject all agree that the decision-preparation of investments is a very complex process (Barta 1986, Vargha 2001). From this complex nature of the process comes the assumption that the appropriate professional preparation of a large volume investment is a series of activities which can take several weeks or even months.

In case of foreign-owned companies, professionals of the parent company are often involved in the decision-preparation process as well. (In case of 14 from the 18 companies with foreign majority in ownership that fulfilled my questionnaire, the colleagues of the parent company were also involved in decision-preparation.) This probably means *a longer preparation time in case of foreign-owned companies.*

Smaller enterprises often do not possess such well-prepared staff of experts as the larger ones, and therefore will probably simplify the process. This can be executed in two ways: they either miss out some phases of the process, or perform all tasks less detailed than the larger companies. This assumption is supported by a New-Zealander research as well (Vos – Vos 2000, pp. 44-55.).

Managers of smaller companies, who are often the owners of their enterprises, are able to oversee and control the corporate processes as a whole. At these companies, decision-preparation of investments is often done by the manager as well. Unlike this, the managers of larger companies are not able to oversee the whole economic process in details, therefore will probably involve representatives of several areas (i.e. financial expert, head of production, etc.) in the preparation of investment decisions. *The more employees are involved in decision-preparation, probably the more negotiation will be needed to make a decision, and therefore I assume that parallel with the number of participants in decision-preparation, the number of discussions will also increase.* Regarding this question, I have not found any studies – neither in Hungarian, nor in English – demonstrating the results of any previous empirical research, but at the same time, I found it important to examine it, so I contacted the leaders and top-position employees of a few companies personally, and – as an exploratory research – made a short interview with them, where I dealt with this question as well. The executed interviews also confirmed my assumption.

Hypothesis 2/a: *In case of domestic manufacturing companies, the preparation of 'large volume' investment decisions is a process that takes several months. The length of decision-preparation process probably varies based on the equity ratio and the size of the company.*

Hypothesis 2/b: *The more employees are involved in the decision-preparing activities, the more negotiation is needed to make a decision, and therefore parallel with the number of participants in the decision-preparation, the number of discussions will also increase.*

5. HYPOTHESES ON THE CAPITAL BUDGETING METHODS

Capital budgeting methods mean a significant phase of decision-preparation process of investments. These methods have a well-established methodology that has a large focus both in the foreign and domestic literature. Earlier, literature recommended static indicators – that disregarded the time value of money – to value the economic efficiency of investment projects. From the 1930-s, with the idea of net present value calculation, other dynamic indicators were introduced as well – firstly in the books and articles of Anglo-Saxon authors.

5.1. Capital budgeting methods used for evaluation of investments

Capital budgeting methods mean a significant phase of decision-preparation process of investments. These methods have a well-established methodology that has a large focus both in the foreign and domestic literature. Today's relevant economics literature deals with both the static and dynamic methods, however, the authors describe the point of each method with different elaboration and thoroughness, sometimes in a misleading way. But they agree on the practical usage of dynamic methods that consider the time factor as well.

To evaluate the economic efficiency of investments, in theory, only one properly defined dynamic index is enough. *However, the information content and expressiveness of the indexes is different, therefore a parallel usage of several methods could help widening the analysis and gives a clear picture for the decision-makers.* During the secondary research, I found three sources regarding the question, how many indexes the decision-makers use to evaluate the economic efficiency of investment alternatives: Sangster (1993) in Scotland, Pike (1996) in the United Kingdom, and Zakaira Zaki Osemy (2002) in Egypt made some research regarding the number of indexes applied. Based on the studies examined, I can state that at most foreign companies two, three or four indexes are parallel used for this purpose. As a conclusion, I drew the below hypothesis:

Hypothesis H3: *At the majority of domestic manufacturing companies, more indexes are parallel used to evaluate the economic efficiency of investments.*

There have been relatively many national and international researches done to identify what capital budgeting method or methods is/are preferred by the companies in the phase of decision-preparation.

At the same time, in Hungary, with one single exception (Andor, Mohanty and Tóth, 2011), *there has not been any considerable research – to the best of my knowledge – focusing on capital budgeting methods widely-used by domestic companies.*

Two important statements can be done based on the results of foreign researches related to the applied capital budgeting methods:

1. Regardless the geographic location of the given country, most companies calculate the payback period, however some studies suggest that this method is only used with informative purpose as secondary index to evaluate investment projects.
2. From the methods that also consider the time factor, net present value and the internal rate of return are the two most commonly used ones. The usage of

profitability index is less typical in corporate practice – but a few countries i.e. Jordan, Egypt and New-Zealand are exceptions.

Based on the results of foreign empirical researches, I drew the following hypothesis:

Hypothesis H4/a: *Decision-makers of domestic manufacturing companies usually calculate the payback period. From the dynamic indexes, net present value and the internal rate of return are the two most commonly used methods of evaluating the economic efficiency of investment alternatives.*

5.2. Indexes used for ranking

Today's literature generally does not recommend static indexes to be used for ranking. Some books (i.e. Illés B. Cs. 1997) are even explaining why static indexes are unsuitable for this purpose. **For ranking, literature mostly recommends net present value and internal rate of return,** but these two indexes – even in case of investments with typical a profit range – can give different rankings. This leads to the question: which ranking should be accepted? *This topic has been controversial for almost 80 years.* Examining the literature related to this question is not the purpose of my dissertation.

Several empirical researches have been done in foreign countries, in order to examine what capital budgeting methods the corporate decision-makers prefer during the process of decision-preparation. But all of these researches (without any exception) only examined the indicators used for evaluating the economic efficiency of projects. No study contained any reference on indicators corporate leaders would use for ranking projects.

Based on the fact that corporate experts are gaining part of their knowledge from the books and that the domestic literature refers to net present value and internal rate of return when talking about ranking of investments, I am drawing the following hypothesis:

Hypothesis H4/b: *At the domestic manufacturing companies, decision-makers are mostly using the indicators net present value and internal rate of return for ranking investment alternatives.*

5.3. Calculating the required rate of return (discount rate)

Defining the discount rate is a complex task of corporate practice. There is **no common method used for its calculation**, corporate experts can choose from a number of recommendations. There are several recommendations that prefer the capital structure-related discount rate; others make a criticism of this way of calculation. Considering the fact that defining the discount rate is mostly based on estimation, its value is affected not only by objective but also by subjective factors.

During the secondary research on this topic, I worked with results of overall researches made in 18 countries and the Middle-East-European region. As the literature recommendations, referring to the required rate of capital return, are different, the **researchers are dealing with different methods and indexes** in their researches. *In this variegation, it is difficult to compare the results of the researches.*

A part of the researchers examined whether the companies recalculate the required rate of return for every investment project again and again, or use the same discount rate for every investment.

Regarding this question the following researchers executed their own surveys: Graham and Harvey (2001) in the United States, Brounen, Jong and Koedijk (2004) in four European countries (United Kingdom, the Netherlands, Germany and France), and Truong, Partington and Peat (2004) in Australia. Based on the results of these surveys, we can state that in the United Stated, in the United Kingdom, in Germany and in Australia, corporate managers often use the same and fix corporate-level discount rate during the economic preparation of investment decisions, therefore the features of individual projects do not affect the applied discount rate. I am drawing my hypothesis H5/a based on these research results.

Hypothesis H5/a: *The domestic manufacturing companies are usually using the same required rate of capital return in case of valuating any investment alternatives. The features of individual project do not affect this.*

Thanks to the growing importance of financial literature in the methodology of general decision-preparation, corporate decision-makers are often using Weighted Average Cost of Capital (commonly known as WACC) that depend on the capital structure, as discount rate in the dynamic calculations. (This required rate of capital return is problematic from economic considerations.) According to the studies examined, there are countries, where corporate decision-makers are using some form of Weighted Average Cost of Capital to define the discount rate in a surprisingly high ratio, i.e. three fourth of the companies listed on the Finish stock exchange (Liljeblom – Vaihekoski 2004), and two third of Dutch companies (Hermes – Smid – Yao 2004). The ratio of defining the discount rate based on the Weighted Average Cost of Capital is a little lower but is still rather high (54.5%) in the Middle-East-European countries (Andor – Mohanty – Tóth 2011). Based on the results of the above mentioned studies, I draw my hypothesis H5/b.

Hypothesis H5/b: *The majority of domestic manufacturing companies define the required rate of capital return related to the capital structure, e.g. in case of credits, the only return requirement is the interest rate.*

5.4. Methods of evaluating projects with non-measurable profit

In Hungary, there is a large literature basis about the methods of evaluating the economic efficiency of investments with measurable profit. On the contrary, the literature about the methods applicable for evaluating investments with directly non-measurable profit is rather poor, however, in the corporate practice, '**a high part of decisions have not or have non-measurable profit.** These are the so called **function-orientated decisions'**. (Illés M. 2007, p.120.) *In case of such investments, economic efficiency analyses are always based on comparison.*

The authors usually recommend three methods for evaluating investment projects with non-measurable profit. One method is based on the comparison of return requirement of the investment projects, which means a comparison of yearly average cost of capital and operational costs of the possible investment alternatives. A very similar method is, when the sum of first year's operational cost, 1 year's depreciation and 1 year's interest rate as per each investment alternatives are compared to each other. The third method evaluates the economic efficiency based on the comparison of net present value of expenses, e.g. it discounts, summarizes and compares the expenses arising during the whole lifetime of investment alternatives.

During my research, I have not found any domestic or foreign studies on the corporate evaluation of investment projects with non-measurable profit. Considering the rather poor literature, I am making an assumption that at the majority of companies, the economic efficiency of such investments is not defined by methods recommended in the literature.

Hypothesis H6: *When examining the economic efficiency of investments with non-measurbale profit, the majority of domestic manufacturing companies does not apply methods recommended in the literature.*

5.5. Risk management methods

In practice, investment projects can diverse regarding the rate and type of risk. *The majority of financial literature recommends the increase of discount rate as risk management method. Besides this, the economics literature recommends several other methods, i.e. increasing costs, decreasing incomes, calculating the payback period and parallel calculations (i.e. sensitivity analyses).* Some foreign researchers (i.e. Pike 1996, Kester and co-writers 1999, Zakaira Zaki Osemy 2002) tried to examine which risk management methods are used and considered important by the corporate decision-makers. Based on the studies examined, I made the conclusion that the **most commonly used risk management methods are the parallel calculations** (i.e. sensitivity analyses, decision tree, etc.).

Considering the results of the examined studies, I drew my statement in hypothesis H7.

Hypothesis H7: *At domestic processing industrial enterprises, the most commonly used risk management methods are the parallel calculations (i.e. sensitivity analyses).*

5.6. Hypotheses regarding the process of decision-preparation and the capital budgeting methods

For the better understanding, I have summarized my hypotheses regarding the preparation of investment decisions and its methodology in one table (Table 1).

Table 1 – Hypotheses of my research

Hypotheses regarding the preparation of investment decisions	**Hypothesis H1**	At the domestic manufacturing companies, the economic decision-preparation process of large volume investments is executed according to my model. Compared to micro and small enterprises, the medium-size and large companies are more cautious in economic decision-preparation of investments.
	Hypothesis H2/a	In case of domestic manufacturing companies, the preparation of 'large volume' investment decisions is a process that takes several months. The length of decision-preparation process probably varies based on the equity ratio and the size of the company.
	Hypothesis H2/b	The more employees are involved in the decision-preparing activities, the more negotiation is needed to make a decision, and therefore parallel with the number of participants in the decision-preparation, the number of discussions will also increase.
Hypotheses regarding the capital budgeting methods	**Hypothesis H3**	At the majority of domestic manufacturing companies, more indexes are parallel used to evaluate the economic efficiency of investments.
	Hypothesis H4/a	Decision-makers of domestic manufacturing companies usually calculate the payback period. From the dynamic indexes, net present value and the internal rate of return are the two most commonly used methods of evaluating the economic efficiency of investment alternatives.
	Hypothesis H4/b	At the domestic manufacturing companies, decision-makers are mostly using the indicators net present value and internal rate of return for ranking investment alternatives.
	Hypothesis H5/a	The domestic manufacturing companies are usually using the same required rate of capital return in case of valuating any investment alternatives. The features of individual project do not affect this.
	Hypothesis H5/b	The majority of domestic manufacturing companies define the required rate of capital return related to the capital structure, e.g. in case of credits, the only return requirement is the interest rate.
	Hypothesis H6	When examining the economic efficiency of investments with non-measurbale profit, the majority of domestic manufacturing companies does not apply methods recommended in the literature.
	Hypothesis H7	At domestic processing industrial enterprises, the most commonly used risk management methods are the parallel calculations (i.e. sensitivity analyses).

Source: Edited by the author

6. THE QUESTIONNAIRE SURVEY

In my questionnaire survey, I involved processing industrial enterprises operating in Hungary. I excluded a part of the micro enterprises from the analyses. I set up three parallel criteria of the samples:

- the company must pursue processing industrial activities as main activity,
- the total net sales turnover must be over 300 million HUF, and
- the average number of employees must be at least 10.

From almost 42 thousand Hungarian processing industrial enterprises, only 3,334 companies fulfilled all the three criteria at the same time.

In the summer of 2012, the questionnaire survey was executed partly through mail, party electronically. I sent the questionnaire to circa 500 companies by mail and to other 1,000 enterprises via e-mail. *Altogether 76 companies sent back the questionnaire completely filled-in (with appropriate content for evaluation), which means a response rate of 5.1%.* This rate might seem low, but we often get such a low rate in case of foreign researches on similar topics as well.

My questionnaire focused on defining the preparation process and capital budgeting methods of investments at domestic manufacturing companies. It consisted of 5 pages, covering the following topics:

I. General information about the enterprise: 4 questions
II. General information regarding the decision-preparation process and the capital budgeting methods of investments: 8 questions
III. Information on the capital budgeting methods: 8 questions

I have summarized the data of the filled-in questionnaires in the Ms Excel spreadsheet program, and analysed them using WinSTAT, a program used for statistical analyses. In my analyses, I have used both simple, descriptive statistical methods, i.e. distribution coefficients, group averages, etc. and also comparative statistical analyses, i.e. Chi-squared indicator, correlation coefficient, discriminant analysis and variant analysis.

7. NEW AND NOVEL OBSERVATIONS OF THE RESEARCH

I have executed the questionnaire survey in order to verify my assumptions drawn in my hypotheses. First, I made a comparison between the results of my analyses and the assumptions in my hypotheses, and then I took a stand on the acceptance or the rejection of the given hypothesis, and drew my thesis accordingly.

7.1. Observations on the decision-preparation process of investments

Several Hungarian and foreign authors are dealing with the decision-preparation process of investments in their books. *Although the described processes do not differ significantly in basics, they still cannot be considered standard.*

7.1.1. The model of economic decision-preparation of investments

As per the previous description, based on the examined researches, I have created the model of economic decision-preparation of investments that I have tested with question II/3 of my questionnaire. The interviewed corporate professionals had to mark on a five-grade scale how often they executed the activity phases of the theoretical model.

With the exception of risk analysis the majority of responders declared that they always or at least often executed the given phases of decision-preparation. It is somehow surprising that almost one-third of the interviewed companies never or very rarely make risk analyses. *In my opinion, at those companies that do not make target-oriented risk analyses, investment alternatives with higher risk are deselected during the pre-selection phase.*

In hypothesis H1, I assumed that in case of the examined enterprises, the economic preparation of high volume investment decisions is done according to my model. Considering the results of the empirical research, **it can be stated that the activities included in my model of economic decision-preparation of investments – with the exception of risk analyses – are always or at least often executed by the interviewed manufacturing companies.**

It was also a statement of hypothesis H1 that medium-sized and large companies are more cautious in preparing investment decisions, therefore I examined whether company size had any effect on the answers for this question. **Analysing the group averages by company size, I found that small enterprises marked higher ratings than the medium-sized ones, in case of activities (**analysis and evaluation of the initial situation and the rough analysis of investment alternatives). Micro enterprises – with the exception of ranking the profitable alternatives – marked the lowest ratings in case of each activity. At the same time, the leaders of the four big companies that filled in the questionnaire gave each decision-preparation phase higher ratings than the experts of micro, small and medium-sized enterprises, which means that they execute all phases of decision-preparation process more often.

The executed analyses only partially verified the statements of hypothesis H1. My model also included risk analysis as a phase of the decision-preparation process but a rather big part of the enterprises does not apply target-oriented risk analyses. My assumption that medium-sized and large enterprises are more cautious when preparing investment decisions, has not been clearly proven either, as the small enterprises gave higher ratings to two

activities than the medium-sized ones. Based on the results of the analyses, I drew the following thesis:

Thesis T1: At the majority of domestic processing industrial enterprises, the economic decision-preparation process of investments generally consists of the following phases:

1. **Analysis and evaluation of the initial situation;**
2. **Exploration and pre-selection of investment alternatives;**
3. **Rough feasibility study on alternatives fulfilling the investment demand;**
4. **Detailed analysis of the economic efficiency of the feasible investment alternatives;**
5. **Ranking of the alternatives based on certain pre-defined criteria.**

7.1.2. Further questions of the decision-preparation process: the length of decision-preparation, and forums for negotiations

In the first half of hypothesis H2/a, I assumed, that the preparation of high volume investments at the domestic processing industrial enterprises is a process that takes several months. The question II/1 of my survey focused on the average time demand of the preparation of high volume investments decisions at the companies. 29% of the respondents spend 1-2 months, while their fourth 3-6 months preparing investment decisions, and a rather large part, the fifth of the companies responded that the length of decision-preparation can vary a lot.

During my research, I wanted to know not only the time companies spend with the preparation of high volume investment decisions, but also whether the length of decision-preparation is affected by equity ratio or company size. My related assumptions are included in hypothesis H2/a. *I have also analyzed the answers given for the question (II/1.) concerning the length of decision-preparation by equity ratio and company size.*

The largest part (35%) of the enterprises with domestic majority ownership responded that their decision-preparation process usually lasts 1-2 months. In case of companies with foreign majority ownership, the process usually takes 3-6 months at nearly half (47%) of the respondents. It is worth to mention that no company with foreign majority ownership marked the answer '2-3 weeks', while 22% of the companies with domestic majority ownership spend exactly this period of time on preparing investment decisions.

The answers suggested that the decision-preparation process takes longer at manufacturing companies with foreign majority ownership. I examined the strength of correlation between equity ratio and the length of decision-preparation using Chi-squared indicator that showed loose relationship between the two factors. Despite the fact that based on the distribution of the answers, one could come to the conclusion that companies with foreign majority ownership spend more time on economic preparation of investment decisions, *the Chi-squared test showed only loose correlation between the two variables*. As these results are controversial, **it cannot be stated clearly that the process of decision-preparation takes longer at companies with foreign majority ownership.**

Micro enterprises usually spend 1-2 months or only 2-3 weeks with the preparation of investment decisions. At small and medium-sized companies the preparation takes longer, usually 1-2 or 3-6 months. The four large companies that responded to the questionnaire marked four different answers, thus in their case no clear conclusion can be drawn regarding the length of decision-preparation. (When evaluating the results, we have to consider that rate of those companies where the length of decision-preparation varied much was quite high.)

In order to define the correlation between company size and the length of decision-preparation, I made discriminant analysis and Chi-squared test. The discriminant analysis gave a result of 10.96 %. This means that company size as an independent variant determines only by 11%, which group the company belongs to considering the length of decision-preparation. This is a very low rate. I also examined the strength of correlation between the two variants using Chi-squared indicator that showed a mid-range correlation between company size and the length of decision-preparation. *This leads to the conclusion that there is a connection between company size and the length of decision-preparation. The research results only partially verified hypothesis H2/a, but still justify the following thesis:*

Thesis T2/a: The preparation of high volume investment decisions is a process that generally takes several months in case of the domestic manufacturing companies. The length of decision-preparation is in relation with the size of the company.

The managers of larger companies are not able to completely oversee all areas (i.e. technical, financial, etc.) in details that are necessary to make appropriate investment decisions any more, therefore will probably involve representatives of several areas (i.e. financial expert, head of production, etc.) in the preparation process of investment decisions. The more employees are involved in decision-preparation, probably the more negotiation will be needed to make a decision, and therefore *I assumed in hypothesis H2/b that parallel with the number of participants in decision-preparation, the number of discussions will also increase.*

With question II/5 of my survey, I asked whether companies are organizing discussions for negotiations during the decision-preparation phase. At 37% of the responding companies, there are generally no discussions. At 30% of them, discussions are held only in case of investments considered important by the managers and owners. At 14% of the corporates there is one discussion arranged for each investment decision-preparation, while at 17% of them organizes more discussion rounds in this phase.

In order to verify hypothesis H2/b, I also examined the distribution of the answers based on the number of employees involved in the decision-preparation process. *In case of companies that involve less than three employees in this process, usually no discussions are held. At those companies where four-five employees are preparing investment decisions, discussions are generally held in case of investments considered important by the managers and owners. 42% of those companies that involve six or more employees in the preparation of decisions answered that they organize more discussion rounds during the decision-preparation phase of each investment.*

In order to define the correlation between company size and the length of decision-preparation, I made discriminant analysis and Chi-squared test. The discriminant analysis gave a result of 48%. This means that company size as an independent variant determines by 48%, which group the company belongs to considering whether they organize discussions during the decision-preparation phase or not. This is a low rate. I examined the strength of correlation between the two variants even by using Chi-squared indicator that showed medium-stong relationship between the two factors.

The distribution of the answers and the Chi-squared indicator that shows medium-strong relationship verifies my assumption that **those companies organize more discussions where more employees are involved in the preparation of investment decisions.** *This verifies my assumption stated in hypothesis H2/b, based on which I am drawing the following thesis:*

Thesis T2/b: The more employees are involved in the process of decision-preparation, the more negotiation will be needed to make a decision, e.g. parallel with the number of participants in decision-preparation, the number of discussions will also increase.

7.2. Observations on the capital budgeting methods

7.2.1. The number of indicators used for the evaluation of the economic efficiency of investments with measurable profit

Based on foreign research results, I made the assumption in hypothesis H3 that at the majority of domestic manufacturing companies not only one but more indicators are used to evaluate the profitability of investments. With question III/1 of my survey, I asked whether one or more indicators are used by the examined companies to evaluate the economic efficiency of investments. At a rather big part, 34% of the responding companies, usually no methods are used. **This rate is very high compared to foreign companies.** This raises the question what aspects those companies consider, that do not evaluate the profitability of investment alternatives, when deciding on the execution or the rejection of certain projects.

14% of the respondents usually uses only one, 7% two, 22% three, 7% four and 5% five or more indicators to evaluate the profitability of investments. I also examined the distribution of answers considering company size. The results showed that parallel with the growth of company size, the ratio of companies decreases where the economic efficiency of the projects is usually not evaluated. In case of micro enterprises this rate is 61%, while at medium-sized companies 'only' 21%. At each of the four large companies examined the economic efficiency of investment alternatives is analyzed with some methods. **In my opinion, the reason for this can be explained by more factors.** Micro and small enterprises possess less and maybe less-qualified professionals. It can happen that only the book-keeper of the company has an economic degree. At smaller enterprises, decision-preparation of investments is done by one or two employees, while in case of large companies often a team of 5 to 6 members fulfils the tasks of decision-preparation. Another reason for not using capital budgeting methods can be the lack of experience in the decision-preparation of investments. At those companies that use capital budgeting methods, **in every size category, with the exception of medium-sized companies, the evaluation is done using three indicators**. Differently from this, medium-sized companies only use one indicator to evaluate the economic efficiency of investments. I have analyzed the existence and strength of correlation between company size and the indicators used for evaluation, using four statistical methods:

- The value of correlation coefficient (assuming significance level of 5%) valued 0.22 which means certain but weak correlation.
- Chi-squared indicator showed a medium-strong correlation between the two variants (the conditions of utilization were not fulfilled).
- The discriminant analysis resulted 49.25 %, which means that company size determines by 48%, how many indicators the company uses for the evaluation of investment profitability. This can be considered a low rate.
- The conditions of execution of variant analysis were not fulfilled, therefore the analysis could not have been executed.

According to the results of the empirical research, my hypothesis H3 cannot be considered verified, because on the one hand the ratio of those micro and small enterprises is rather high that do not make any calculations, on the other hand a big part of medium-sized companies are using only one indicator to evaluate the economic efficiency of possible

investment projects. Based on the results of the analyses executed, I am drawing the following thesis:

Thesis T3: In the domestic manufacturing sector, the usage of capital budgeting methods differs by company size. A large part of micro and small companies usually do not evaluate the economic efficiency of investments.

7.2.2. Methods used for evaluating and ranking investments with measurable profit

In my hypothesis H4/a, I assumed that – similarly to foreign companies – the decision-makers of the Hungarian manufacturing companies also prefer three indicators (payback period, net present value and internal rate of return) when evaluating investment projects. In case of the related question of my survey, corporate managers had to evaluate on a five-grade scale how often they used a certain indicator and also had to define the indicator they used primarily and secondarily for their analyses. 47% of the respondents always or often used the payback period, 37% the profitability index, 25% the accounting rate of return and the discounted payback period, 21% the net present value and 14% the internal rate of return to evaluate the economic efficiency of investments. At 45% of the respondent companies the payback period, at 30% of them the profitability index were used as primary indicator, while at 29% the net present value and at 25% the profitability index were the secondary indicators for **evaluating investment profitability.**

The answers for these questions are surprising from many aspects. From theoretical-methodological aspect, payback period is a problematic indicator. In spite of this – similarly to other countries – *in Hungary, the proportion of companies that calculate payback period in order to get informed and also to use it as primary method for evaluating investment projects is significant.* **The majority of companies that completed the questionnaire are using profitability index as dynamic method the most often.** Considering the features of profitability index, this is surprising and it also differs from the results of foreign researches. *Two indicators, net present value and internal rate of return, that are often recommended by the authors and applied by foreign companies, are less commonly used by the examined domestic companies.*

Some foreign researches gave the result that indicators used for evaluating the economic efficiency of investments differ by company size: static indicators are preferred by the smaller enterprises, while dynamic methods by the larger ones.

I expanded my research to examine whether this correlation is valid for the domestic manufacturing companies. Calculating the group averages for each company size category, I found that **static indicators and the profitability index are preferred by the decision-makers of smaller companies, while dynamic indicators – with the exception of profitability index – are most often used by larger companies.**

The literature mainly recommends the usage of net present value and internal rate of return for ranking investments, therefore I made an assumption in my hypothesis H4/b that domestic manufacturing companies are using these two indicators the most often to rank the investment alternatives. Just like in case of the question about the evaluation of investment economic efficiency, the interviewed company managers had to evaluate on a five-grade scale how often they used a certain indicator and also had to define the indicator they used primarily and secondarily for their rankings.

40% of the respondents always or often used the payback period, 35% the profitability index, 24% the net present value calculation, 23% the discounted payback period, 20% the

accounting rate of return, and 12% the internal rate of return to rank investments. **At 38% of the respondent companies the payback period, at 32% of them the profitability index were used as primary indicator, while at 22-22% payback period and discounted payback period and at 21% the internal rate of return were the secondary indicators for ranking profitable investment alternatives.** *This is an interesting result considering that the literature generally recommends net present value and internal rate of return for ranking investments.*

I also examined the group averages for each company size category in case of indicators used for ranking, and I have got similar results as in case of indicators used for evaluating investment alternatives.

Summarizing the results of the analyses, one can state that – depending on company size – the same indicators are used in the domestic manufacturing industry for evaluating and ranking the investment alternatives. Smaller companies prefer static indicators and profitability index, while the larger ones are using net present value, internal rate of return and payback period both for evaluation and ranking investments.

Based on the results of my own research, I am drawing the following thesis:

Thesis T4: In the domestic manufacturing sector - of those companies that are using capital budgeting methods for their investment decisions - decision-makers of smaller companies prefer static indicators and the profitability index, while experts of larger companies are using net present value, internal rate of return and discounted payback period for both evaluation economic efficiency and ranking investment alternatives.

7.2.3. Calculating the required rate of return (discount rate)

Based on foreign research results, I drew my hypothesis H5/a, in which I assumed that usually the same required rate of capital return is applied for the evaluation of each investment project in case of the examined companies. According to the answers given for the related question, at 41% of the respondent companies, the required rate of return is defined for each investment project separately, while the third of them usually apply the same discount rate for every investment and only use different rates when necessary. **Only 9% of the managers answered that their company evaluates the economic efficiency of each investment by using the same discount rate.**

The analyses show that the number of companies using a common corporate required rate of capital return nearly equals to the number of companies that define the discount rate for each investment alternative separately. These results differ from my statement in hypothesis H5/a, therefore I do not consider this hypothesis verified, but it still justifies the following thesis:

Thesis T5: The practice of domestic manufacturing companies differs a lot, considering whether they set up common or different required rate of returns. Almost half of the companies are using different discount rate for each project, while the other half of them – disregarding some exceptions – are using the same discount rate for the investment economic efficiency calculations.

The financial literature often recommends weighted average cost of capital (WACC) that depends on capital structure as discount rate for evaluation of investments. Several foreign researchers examined the question whether in corporate practice the required rate of capital return has any correlation with the capital structure. Based on the examined studies, I made

the statement that foreign companies often use weighted average cost of capital as discount rate for their calculations, and assumed in hypothesis H5/b that, in practice, the domestic manufacturing companies also define the value of required rate of return according to the capital structure.

Differently from the practice of foreign countries, the discount rate is defined regardless the capital structure at 36% of the respondent companies, while 29% of them consider this factor. This also shows a difference from the results published by foreign authors. When analysing the answers for this question and drawing conclusions, we should not ignore the fact that the *proportion of those companies that did not respond to this question was rather high. According to this, I am not drawing any thesis on the results.*

7.2.4. Methods used for evaluating the investments with non-measurable profit

Relatively few sources are dealing with the methods of evaluating the economic efficiency of investments with non-measurable profit. The authors usually recommend three methods to evaluate such investment profits. *Considering the inconsiderable literature on this topic, I made an assumption in my hypothesis H6, that corporate experts at most companies do not evaluate the economic efficiency of such investments with the methods recommended by the literature.*

More **than the half, 55% of the respondents** of the related question **stated that in case of investments with non-measurable profit they never use the investment economic efficiency calculation methods recommended by literature.** 16% of the companies make a comparison between the annual average cost of capital and the operational costs, e.g. the return requirements of possible investment alternatives, while 12% compares the sum of annual operational cost + annual amortisation + annual interest rate occurring related to certain investment alternatives in their analyses.

Based on my analyses, my hypothesis H6 can be considered verified, therefore I am drawing the following thesis:

Thesis T6: In case of evaluating the investments with non-measurable profit, most domestic manufacturing companies do not apply the methods recommended by the literature.

7.2.5. Methods of risk management

Some foreign researchers examined which risk management methods are used and considered important by the corporate decision-makers in certain countries. *Based on the examined studies, I came to the conclusion that parallel calculations (i.e. sensitivity analyses) can be considered as the most commonly used risk management methods. In hypothesis H7, made an assumption that – similarly to foreign companies – the domestic manufacturing companies also prefer this method of risk management.*

The questionnaire survey gave the result that at a significant part, 39% of the companies investment-related risks are managed with the help of calculating payback period. Increasing costs can be considered the second, while decreasing incomes the third most commonly used method. When evaluating the answers, we shouldn't ignore the fact that **a rather big part, 36% of the respondent companies does not apply any risk management method.** This is accordant with the previously introduced result that *a rather small part of the companies make risk analyses regularly. 11% of the respondents never, while 22% only very*

rarely make any kind of risk analysis. Those companies that do not make any risk analyses of the investment projects, probably do not apply any risk management methods either. **Parallel calculations are made by only a little more than 10% of the companies.** These results are not accordant with the results of foreign researchers.

Considering the results of my analysis, we can tell that this hypothesis is not verified. Parallel calculations that are preferred by foreign companies are used only at a small part of domestic manufacturing companies. Based on the results of the questionnaire survey, I am drawing the following thesis:

Thesis T7: In the domestic manufacturing sector, target-oriented risk analyses are only used by a rather small part of the companies. In this sector, the payback period can be considered as the most commonly used risk management method.

7.2.6. The summary of new and novel observations of the research

Table 2: New and novel observations of the dissertation

Theses regarding the preparation of investment decisions	**H1**	partly verified	**T1**	At the majority of domestic processing industrial enterprises, the economic decision-preparation process of investments generally consists of the following phases: 1. Analysis and evaluation of the initial situation; 2. Exploration and pre-selection of investment alternatives; 3. Rough feasibility study on alternatives fulfilling the investment demand; 4. Detailed analysis of the economic efficiency of the feasible investment alternatives; 5. Ranking of the alternatives based on certain pre-defined criteria.
	H2/a	partly verified	**T2/a**	The preparation of high volume investment decisions is a process that generally takes several months in case of the domestic manufacturing companies. The length of decision-preparation is in relation with the size of the company.
	H2/b	fully verified	**T2/b**	The more employees are involved in the process of decision-preparation, the more negotiation will be needed to make a decision, e.g. parallel with the number of participants in decision-preparation, the number of discussions will also increase.
Theses regarding the capital budgeting methods	**H3**	not verified	**T3**	In the domestic manufacturing sector, the usage of capital budgeting methods differs by company size. A large part of micro and small companies usually do not evaluate the economic efficiency of investments.
	H4/a	partly verified	**T4**	In the domestic manufacturing sector - of those companies that are using capital budgeting methods for their investment decisions - decision-makers of smaller companies prefer static indicators and the profitability index, while experts of larger companies are using net present value, internal rate of return and discounted payback period for both evaluation economic efficiency and ranking investment alternatives.
	H4/b	not verified		
	H5/a	not verified	**T5**	The practice of domestic manufacturing companies differs a lot, considering whether they set up common or different required rate of returns. Almost half of the companies are using different discount rate for each project, while the other half of them – disregarding some exceptions – are using the same discount rate for the investment economic efficiency calculations.
	H5/b	not verified	**--**	The proportion of those companies that did not respond to this question was rather high. According to this, I am not drawing any thesis on the results.
	H6	fully verified	**T6**	In case of evaluating the investments with non-measurable profit, most domestic manufacturing companies do not apply the methods recommended by the literature.
	H7	not verified	**T7**	In the domestic manufacturing sector, target-oriented risk analyses are only used by a rather small part of the companies. In this sector, the payback period can be considered as the most commonly used risk management method.

Source: Edited by the author

8. PRACTICAL UTILISATION POSSIBILITIES OF THE RESEARCH RESULTS

The most important outcome of my research is that it gives an overall picture on the investment decision-preparation processes and the applied capital budgeting methods at the Hungarian manufacturing companies.

In my dissertation, I tried to give a summary of the literature related to the subject of my research, sometimes in a critical way. Based on the sources, I set up the model of economical decision-preparation of investments, and – using the studies on the empirical research results available in English – I analysed which capital budgeting methods are preferred by the decision makers in other countries. In the course of a questionnaire-survey covering a relatively wide topic, I mapped the decision-preparation processes of the domestic manufacturing companies, especially focusing on some characteristics (i.e. the length of decision-preparation, the number of employees involved, etc.). Beside these I examined the methods used for the evaluation and ranking of investments, for defining the discount rate and for the risk analyses. Some questions (i.e. methods for evaluating the investments with non- or hardly measurable profit) of my empirical research are innovative in that sense that – to the best of my knowledge – in Hungary no considerable survey has been executed before.

In my dissertation, I tried to compile a research – synthesizing the theoretical, methodological and practical aspects of business approach – in the topic of investment-preparation and applied capital budgeting methods. *The analyses provide useful results for both the managers, decision-makers, and for the experts (i.e. consultants) and organisations (i.e. economic chambers) that are supporting their activities. The results of the research can also be instructive for the business education.*

The methodological basis of the capital budgeting methods is quite mature, thus the **purpose of my research was to explore the present practice** and not to establish a new methodology. To my best knowledge, in Hungary – apart from one exception – no detailed research has been done on the processes and methodology of the investment decision-preparation, while a rather big number of foreign researchers have examined the capital budgeting methods that were used in practice. **The scientific value of my dissertation is that concerning some questions it can be considered a gap-filling research.**

A potential target group for the further usage of the results of my research are those decision-makers who are getting some help for the economical preparation of investment decisions: on the one hand, they can have an overview on the possible methods of investment economic efficiency calculations, on the other hand – thanks to the critical approach – they can also have an overview on the possible insufficiency of the methods recommended by the literature. As another benefit, they can become acquainted with each-others' practice, for which there is a demand from the experts of domestic companies. Nothing proves this better than the fact, that at the end of the questionnaire the respondent managers had the possibility to express their interest on the research results by submitting their e-mail addresses. 60% of the respondent companies took this opportunity.

Beside the company leaders, experts and organisations, supporting their activities can also utilize the results of my research: through becoming acquainted with the decision-preparation processes of the domestic manufacturing companies and the methods of the applied capital budgeting methods they can easier recognise the insufficiencies of the applied decision-preparation process and the errors of the applied methods, which will hopefully help them to assist the leaders' work with even higher professionalism. The results of my research can be of help to the supporting experts and professional organisations in defining those areas

of the management (i.e. lack of risk-management processes, usage of static indicators instead of the dynamic ones, etc.) where supporting the company executives would really be needed.

The dissertation also lights upon the fact that a significant part of smaller enterprises simplifies the decision-preparation process: a part of them does not make investment economic efficiency calculations; another part of them makes its decisions relying only on static indicators, and do not apply any risk-analysis or risk management. This draws the attention to the fact that *the leaders and experts of the smaller companies should be trained on business studies.*

The dissertation contains findings for university lecturers, too, which might help them to define the focal points of their teaching material. The subject of my dissertation closely relates to the educational activity of the Institute of Business Studies, thus the results of the research can be adopted into the subject of Business Resource Economics.

9. EXPERIENCES AND BOUNDS OF THE RESEARCH, AND THE POSSIBLE DIRECTIONS OF FURTHER RESEARCHES

9.1. Experiences and bounds of the research

During my research, I *have started with secondary research which I followed with primary research,* gaining a number of useful experiences. It became clear to me that as simple secondary research seemed at the first sight, as complicated it was. In case of some topics (i.e. types of investments, static and dynamic capital budgeting methods) a large literature basis was available, where systematising and synthesising the learnings meant a big challenge. In case of other topics (i.e. evaluation methods of investments with non-measurable profit) due to the rather poor literature available, the challenge was to find the relevant knowledge.

I extended the research to other topics as well (i.e. the length of the decision-preparation, arranging discussions, etc.), *regarding which I found no empirical studies either in Hungarian, or in English.* In these cases, I faced difficulties when drawing my hypotheses.

It was definitely a positive experience that during the interviews (used as a bridging solution) the interviewed company managers were always very helpful, and answered the questions willingly. *At the same time, it was a negative experience that only 76 of the sent-out 1,500 questionnaires were sent back completely filled-in.* To my opinion, this can be explained by two reasons: one is that the crisis started in late 2008 had its first impact in some of the processing industrial sectors; the other is that investment-related questions are considered as a quite 'sensitive' topic by the company managers. These questions are simply not welcomed, furthermore investment-related information is considered to be confidential at several companies.

The relatively low number of completed questionnaires made the statistical analyses more difficult. It would have been useful to analyse the distribution of the answers by the different sectors of the processing industry, but there were sectors from where no completed questionnaire arrived back (i.e. textile-industry, cloth-trade, leather industry, etc.). Further to this, the ratio of those manufacturing sectors was also high, from where only one or two completed questionnaires arrived back (i.e. wood industry, furniture manufacturers, electronic industry, etc.). This way, I had no possibility to extend my researches to the characteristics and features of the different sectors.

It is also a 'result' of the few completed questionnaires that the conditions of utilization and implementation of comparative statistical analyses (i.e. Chi-squared test, variant analysis) – apart from a few exceptions – were not fulfilled. Because of this, certain examinations couldn't have been carried out, but even at those questions where they were, I still tried to be cautious when presenting the results, I often did not dare to include them in theses.

I wanted to discover the process and methodology of corporate investment-preparation as detailed as possible but this would have raised the risk that even less corporate expert would have spent time on completing the questionnaire of relatively many questions.

Therefore, when preparing the questionnaire, I had to consider the importance of each question, so I did not include the analyses of several of them (i.e. what amount enterprises spend on investments; what sources they use for the execution of projects; do they make any past-evaluation of the success of investment actions – if yes, how; why certain companies do

not use capital budgeting methods, and how they decide whether to execute a project or not, etc.). Making a kind of 'compromise with myself', in my questionnaire, I included questions focusing on becoming acquainted with corporate practice, and excluded those explaining the reasons behind the facts.

In case of each question, it would have been worth to compare the results of my analyses with the results of other researchers. This way it would have been possible to discover the similarities between the practice of domestic and foreign companies. This comparison was possible in case of most questions related to capital budgeting methods, but in case of questions concerning the process of decision-preparation – finding no previous research – I was unable to make the same comparison.

Looking back at my research work, I can admit that I gained a lot of useful – both positive and negative – experience, that I will probably utilize in my future research.

9.2. Possible directions of further researches

My research work does not end with this dissertation. *The questionnaire survey gave some results that are defining the possible directions of further researches.* My future aim is to make a research on the questions and surprising results occurred during the analyses that is of scientific standard and can be used in practice.

It is definitely remarkable that 11% of the respondent manufacturing companies never, while 22% **only very rarely make target-oriented risk analyses**. *I think it would be worth to discover the reasons behind this surprising result.*

34% of the respondents never make any investment economic efficiency calculations at all. This rate can be considered rather high both alone and compared to foreign companies. *In the future, I would like to examine its reasons, what methods the companies use to evaluate the economic efficiency of investments and what the base of investment decisions is.*

I would suggest further examination of the question that – inspire of the recommendations of literature – why *a large part of the examined companies are using payback period* that does not consider the time factor both for evaluating the investments and for ranking the projects previously considered profitable.

In terms of professional considerations, it is very interesting that from the methods considering the time factor, the less expressive profitability index is being applied for the evaluation of investment projects and for the ranking of profitable investments. This differs from the practice of other countries, where – except from two-three countries, i.e. New-Zealand, Egypt and Jordan – based on the learnings of the empiric surveys, the company leaders prefer the dynamic methods: net present value or the internal rate of return. *The exploration of the reasons of this contradiction requires further researches, too.*

One of the theses of my dissertation is that **during the evaluation of the economic efficiency of investments with non-measurable profit, at the majority of the domestic manufacturing companies the experts are not gaining the knowledge by using the methods recommended by the literature.** *I suggest further researches to explore the calculation methods applied for the evaluation of the investments with non- or hardly measurable profit.*

At 36% of the respondent companies no risk management processes are being used during the preparation of investment decisions. *In my further researches, I would like to explore the reasons of this as well.*

The received 76 completed questionnaires were not enough to examine the characteristics and nature of the different sectors of manufacturing industry, thus *it would worth to repeat the*

questionnaire survey involving more companies. Beside this, I would like to extend my researches to other sectors of the national economy, e.g. agriculture, trade, services, etc.

When creating the questionnaire, I tried to make it short, thus a number of questions were left out which could have explained the characteristics and methodology of the decision-preparation processes. *In the future, it would worth to explore the reasons of the specific characteristics of business practice.*

Some foreign researchers are trying to explore those financially non-expressable factors which are being taken into consideration during the evaluation of the economic efficiency of investments. My researches have not covered this topic so far, but in the future I would like to extend them to this direction, as well.

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