Factors Affecting the Amount of Time Required to Prepare Investment Decisions in Hungarian Processing Industries

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SUMMARY

The present study addresses factors that influence the amount of time required to prepare investment decisions in Hungarian processing industries based on the findings of a survey conducted among Hungarian manufacturing companies in 2012. The aim of this study is to investigate the amount of time companies spent on preparing high-volume investment decisions and to find out whether equity ratios or company size have any impact on the length of decision preparation. The survey revealed that companies spent several months on making investment-related decisions. The findings also showed that small companies spent less time on pre-investment activities than large companies.

Keywords: capital budgeting; investment decisions; economic decision-preparation process.

Journal of Economic Literature (JEL) codes: M21

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INTRODUCTION

A comprehensive review of the available academic literature shreds light on the dual character of the literature addressing the decision-preparation processes of corporate investments. Although numerous studies have investigated these processes (Barta 1986, Butler et al. 1993, Northcott 1998, Vargha 2011, Fekete and Husti 2005), none of them have addressed the length of investment decision-preparation processes and other issues related to this.

There seems to be a general agreement among economists that investment preparation is an extremely complex and complicated process. Taking into consideration the findings of national and international studies, we established a model illustrating economic decisionpreparation of investments. This model includes only activities related to economic aspects of investment preparation and neglects its technical aspects. Before any decision-preparation activities start, there should be a need for investment. First, a situation analysis is performed and investment variations of economically viable investments are ranked in the final stage of decision-preparation activities. Decisions on whether an investment can be implemented do not belong to decision-preparation processes. Figure 1 illustrates the model of economic preparation of investment decisions elaborated by the author of the present study.

This model clearly shows that the preparation of investment decisions is a complex process which encompasses a relatively great number of activities, so preparation is assumed to take a long time. Numerous scholars share this point of view. For example, Barta (1986) in the introduction to his book *Preparation of Investments Decisions* indicates that decision preparation occurs both in time and space. According to Vargha, there is a one-way relationship between the volume of investment (measured in costs) – stochastically – and the complexity of decisions, planning, preparation, and the required work and time (Vargha 2001). The complex and complicated character of investment preparation processes allows us to assume that it takes weeks or even months to prepare a high standard professional decision on investments of large volumes.

Sheoran in his article published in 2015 also emphasises that the preparation and implementation of sound investment decisions takes weeks or even months because of their nature. He ranks investment decisions among the most critical types of managerial decisions since they produce a favourable or unfavourable impact in the longer run, which affects the subsequence performance of companies (Sheoran 2015).

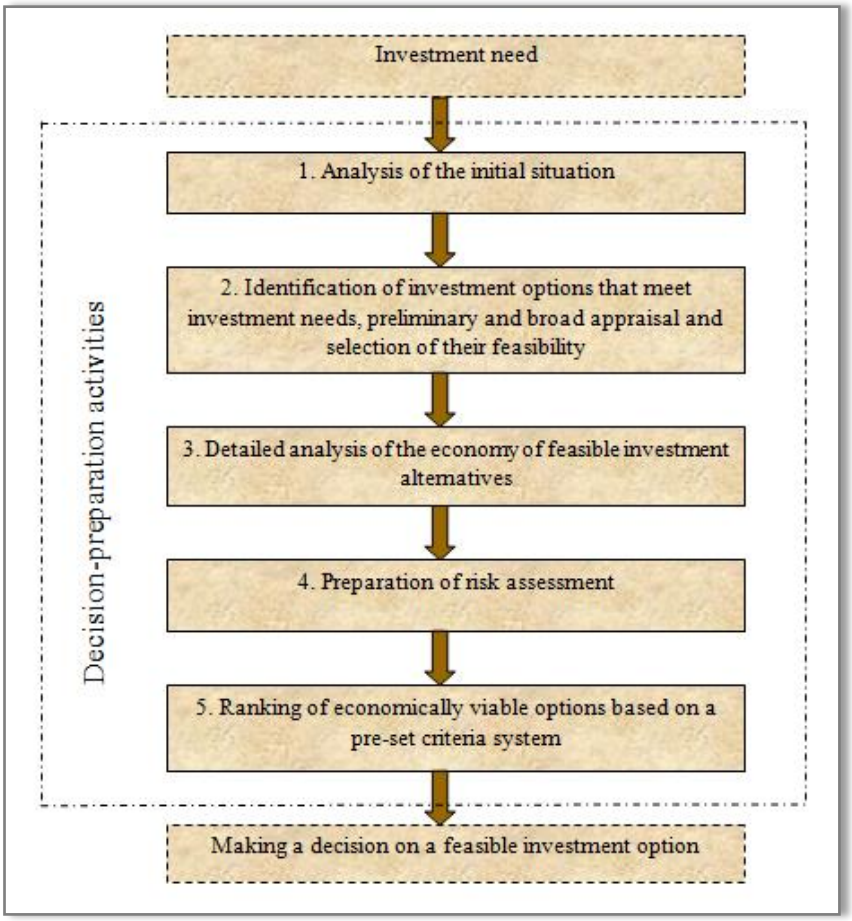

Figure 1 Model of economic preparation of investment decisions
Source: own elaboration

Since most activities related to economic decision-preparation processes are built on each other and cannot be performed in parallel, the amount of time required for preparing investment decisions also increases. While investment decisions are being prepared, it may be appropriate to take into consideration alternatives and options, which increases the amount of information required to make decisions. Consequently, information gathering, processing and selection may take a long time, which also results in an increase in the time spent on preparing investment decisions.

In companies owned by foreigners, experts and specialists working for parent companies are often involved in decision-preparation processes. (This is confirmed by the questionnaire-based survey conducted by me. In the sample 14 out of 18 companies with a majority of foreign ownership involved employee(s) of parent companies in decision preparation processes). This, in turn, is likely to increase the time spent on decision preparation.

Contrary to large companies, smaller-sized companies lack a pool of competent and well-qualified experts and are more likely to simplify the entire preparation process. There are two ways of doing this: (1) omit one or more stages of the whole process or (2) do not perform activities in as much detail as their larger counterparts. The findings of a research study conducted in New Zealand confirm this assumption and suggest that New Zealand businesses tend to extremely simplify investment economic calculations. Vos & Vos (2000) carried out research into investment decisions of small New Zealand companies. They mailed 3446 companies five-page questionnaires and received 238 responses. The managers of 41% of the responding companies ‘always’ and 26% of them ‘only’ rely on their intuitions when they have to decide whether or not to invest in a project. In the sample 42% of the managers use an intuitive method to calculate interest rates. The simplification of particular activities in decision preparations has raised an interesting question: namely, whether the preparation of investment decisions in small businesses takes a shorter time than in large enterprises. Less time required to prepare investment decisions could also be explained by a lower capital investment and the less complex nature of projects than in the case of larger companies.

The present study attempts to find answers to the question of whether company size, ownership structure (majority foreign or national ownership), number of participants involved in decision-making processes and their professional education or degrees (economists, engineers, etc.) have any impact on the amount of time required to make an investment decision.

RESEARCH METHODOLOGY

Within the framework of a research study encompassing a broad field, we investigated the preparation of investment decisions and time constraints. A questionnaire was conducted among processing companies operating in Hungary. The companies were selected from the Cég-Kód-Tár (Company Code Register) database of the fourth quarter of 2010. The selection criterion for sampling was the annual net sales revenues. The processing companies operating in Hungary were classified into four groups to comply with Section 3 (1-6), Act XXXIV of 2004 on Small and Medium-sized Enterprises:

1. Group 1: companies with revenues under HUF 600 million (micro enterprises);
2. Group 2: companies with revenues between HUF 601 million and 3 billion3,000 million (small-sized enterprises);
3. Group 3: companies with revenues between HUF 3 billion and 15 billion (medium-sized enterprises);
4. Group 4: companies with revenues over HUF 15 billion (large enterprises).

Considering that the abovementioned law sets out the limits in euros, euro was converted into forints in calculations. At the time when the analyses were performed, the exchange rate between HUF and EUR was at 300 HUF/EUR. That was the reason why the net revenue limits referred to in the Act were multiplied by 300 and limits indicated in the grouping were obtained.

In order to eliminate the limitations of a simple random sampling method (the sample completeness and reliability can be improved by increasing the sample size), stratified ***random sampling was used. Within the groups classified by net sales revenues, companies were assigned to one stratum complying with the size of the stratum. Simple random sampling was applied within each stratum. Consequently, the sample composition reflects the composition of the population by stratum.***

The survey was conducted in summer of 2012. All companies received the questionnaires either by standard post (500 companies) or electronically (1000 companies) with a link participants had to click on in order to download the questionnaire. Altogether 76 companies completed questionnaires that could be evaluated, which amounts to a response rate of 5.1%. This rate seems low but surveys conducted on similar topics show a similar rate of responses. For example, in 2002 Brounen, Jong and Koedijk surveyed companies in four European countries (Great Britain, the Netherlands, Germany and France) with a response rate of 5% (Brounen et al., 2004). In our sample there were managers who refused to complete the questionnaire when they received it and informed us of this on the phone. They explained their decisions by two reasons: (1) any information on corporate investments constitutes a business secret and (2) the company has not made any major investments in the past 5-6 years.

The data in the completed questionnaires were summarised in Excel spreadsheet software and the software package WinSTAT was used for performing statistical analyses. Simple descriptive statistical methods (partition coefficient, group mean, etc.) and comparative statistical analyses (correlation coefficient, Chi-squared indicator, discriminant analysis, variance analysis) were performed.

FACTORS INFLUENCING THE LENGTH OF TIME NEEDED TO PREPARE INVESTMENT DECISIONS

The results of the questionnaire survey indicated that it generally took national processing companies several months to prepare investment decisions: 1-2 months for 29% of the respondents, 3-6 months for one quarter of companies, and one fifth of respondents claimed that the amount of time spent on decision preparation greatly varied. (Figure 2 shows the responses to the question.)

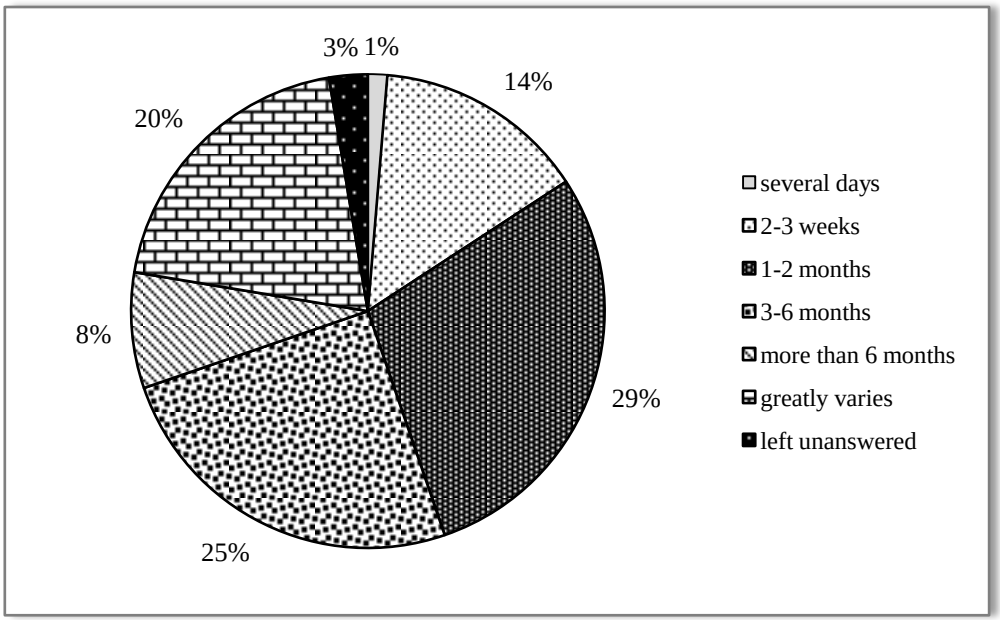

Figure 2 Length of the decision-preparation process in processing companies
Source: own elaboration

The present study also investigated the factors influencing the amount of time spent on decision preparation. Simple and comparative statistical methods were used for analysing the relationships between the length of decision preparation processes and company size, ownership structure, number of participants in decision-making processes and their professional qualifications.

As for the company size, micro-enterprises spent little time, generally 1-2 months or only 2-3 weeks, on preparing investment decisions. It took small and medium-sized companies 1-2 or 3-6 months to make investment decisions. Since the four large companies responding provided four different answers, no meaningful conclusions can be made regarding the amount of time they require to prepare investment decisions. Table 1 illustrates the distribution of responses to this question. (When the results were evaluated, we took into account the fact that a relatively high proportion of companies invested a greatly varied amount of time in preparing investment decisions).

Table 1
The time required to prepare investment decisions by company size

Duration of decision-preparation activities	Company category by sales revenue				Employee number		
	Micro-companies	Small companies	Medium-sized companies	Large companies	0-49 employees	50-249 employees	250 or over employees
Several days	0%	3%	0%	0%	3%	0%	0%
2-3 weeks	25%	10%	6%	25%	20%	9%	17%
1-2 months	38%	34%	19%	0%	23%	34%	33%
3-6 months	8%	31%	38%	25%	13%	41%	17%
More than 6 months	8%	3%	13%	25%	13%	0%	17%
Greatly varies	21%	17%	25%	25%	27%	16%	17%

Source: own elaboration

In order to identify the relationship between company size and the time required to prepare investment decisions, discriminative analyses and a Chi-squared test were performed. The discriminative analysis provided 10.96%, which means that the company size – being an independent variable of under 11% – provides an explanation to the group the company belongs to based on the length of the decision preparation process. This proportion is very low. In the case of the Chi-squared indicator, the significance level well exceeds the expected 5% value, which suggests that there is no relationship between the size of companies and the time required to

prepare decisions. The Cramer's V indicator amounted to 0.263.

The number of workers employed by companies was also taken into consideration in the conducted analyses. Companies employing less than 50 employees invested the least time, generally 2-3 weeks or 1-2 months in decision preparation. Companies having 50-249 people spent 1-2 months or 3-6 months on preparing investment decisions. It took companies with 250 or more employees 1-2 months to prepare investment decisions (see Table 1). The significance level of the Chi-squared test accounted to 0%, which means that there exists a relationship between the number of employees and the time required to prepare decisions. The Cramer's V indicator also proved the assumption about the existence of a relationship between the two variables. The Chi-squared test of 0. 495 indicates a moderately strong relationship between them.

As for the responses related to the proportion of ownership, the results show that the greatest proportion of companies (35%) with majority national ownership invested 1-2 months in decision-preparation processes. Almost half of the companies (47%) with majority foreign ownership spent 3-6 months on decision preparation. It is worth noting that none of the companies with majority foreign ownership spent 2-3 weeks on decision preparation whereas 22% of nationally-owned companies invested 2-3 weeks in preparing investment decisions (see Table 2). The responses indicate that it takes processing companies with majority foreign ownership more time to prepare investment decisions than nationally-owned companies. The significance level of 0% of the Chi-squared test indicates the existence of a relationship, which was proved by Cramer's V indicator. Its value of 0.767means that the relationship between the ownership structure and the time required to prepare investment decisions is fairly strong.

Table 2
The time required to prepare investment decisions by the proportion of ownership, number of involved people and professional qualifications

Duration of decision-preparation activities	Proportion of ownership		Number of people involved in preparing investment decisions			Professional qualification of people involved in preparing investment decisions		
	With national majority	With foreign majority	1-3 employees	4-5 employees	More than 6 employees	Mostly engineers	Mostly economists	Mostly other qualification
Several days	2%	0%	0%	0%	5%	2%	0%	0%
2-3 weeks	22%	0%	23%	12%	5%	14%	25%	10%
1-2 months	35%	24%	30%	28%	32%	26%	38%	30%
3-6 months	22%	47%	13%	40%	26%	26%	13%	30%
More than 6 months	8%	12%	3%	8%	16%	7%	13%	10%
Greatly varies	12%	18%	30%	12%	16%	26%	13%	20%

Source: own elaboration

As for the distribution of responses related to the number of people involved in preparing investment decisions, it appears that companies where less than three people were involved in preparing investment decisions spent 2-3 weeks or 1-2 months on this process. (However, the proportion of those where the duration of the preparation process greatly varied is also high.) Companies where more than four people participated in preparing investment decisions invested 1-2 months or even 3-6 months in decision preparation. (Table 2 also illustrates the distribution of answers to this question). One of the possible reasons for this may be that decision-preparation teams consisting of fewer people have fewer 'discussion forums' and debates throughout the investment preparation process. In the case of the Chi-squared indicator, the significance level amounted to 20%, which significantly exceeds the reference value of 5%. This suggests that there is no relationship between the number of people involved in preparing investment decisions and the required time to prepare investment decisions. However, the Cramer's V indicator accounted to 0.344, which indicates a moderate relationship. The obtained results show some contradictions and it is therefore not possible to state definitely that there is a relationship between the two variables.

Finally, the distribution of answers to the question by professions was analysed. The results showed that decision-preparation teams made up of employees with engineering degrees and 'mostly other qualifications' required 1-2 months or 3-6 months to prepare investment decisions, whereas teams consisting of mostly employees with degrees in economics spent only 2-3 weeks or 1-2

months on preparing investment decisions (see the distribution of responses in Table 2). The Chi-squared test was also carried out. The significance level turned out to be very high, which indicated that there was no relationship between the two variables. The Cramer's V indicator accounted to 0. 279, which showed a weak relationship. Hence, presumably the low qualification of decision makers has no effect on the time required to prepare decisions.

CONCLUSIONS

The entire process of economic preparation of investment decisions (apart from some stages) has not been investigated extensively and adequately yet. Although numerous studies have dealt with the preparation of investment decisions from behavioural and decision-making aspects, no study has so far examined the economic preparation process of investment decisions. (Presumably this has not happened yet). There are some studies in business management literature dealing with main steps of investment activities, but they fail to detail the activities and the processes implemented in practice. From the considerations above we assume that it takes several months to prepare investment decisions in corporate practices, which are affected by a number of factors such as company size, ownership structure and number and qualification of people involved in preparing investment decisions. In order to justify our assumptions we used the results of a questionnaire survey conducted previously.

Sometimes company managers have to make important decisions about investments that will determine the future of their companies. Investment decisions determine how much room for manoeuvre corporate management will have in the coming years or even decades. This is why it is extremely important to choose appropriate methods that enable them to prepare investment decisions thoroughly and duly.

The findings of the performed analyses confirm our assumption that companies spend several months on preparing investment decisions: the majority of the investigated processing companies invest 1-2 months or even 3-6 months in preparing investment decisions. The present study also investigated the factors affecting decision-preparation processes. The results of international empirical research studies indicate that small-sized companies simplify decision-preparation processes. Taking into consideration this fact, we assumed that small-sized companies operating in Hungary would spend little time on preparing investment decisions. The performed statistical analyses show that medium-sized and large companies invest more time in preparing investment decisions than micro- and small-sized companies. Consequently, the results proved our assumptions.

Companies owned by foreigners involve experts working for parent companies in decision-preparation processes, which increases the amount of time spent on preparing investment decisions The study also addressed this issue. Both the distribution of the responses and the performed statistical analyses suggest that companies owned by Hungarians spent less time on preparing investment decisions than companies owned by foreigners.

The more employees are involved in preparing investment decisions, the more 'discussion forums' are likely to be held in the investment preparation process, which would increase the amount of time required for preparing investment decisions. This study used statistical analyses to investigate this issue. The preformed statistical analyses showed contradictory results. (The Chi-squared test indicated no relationship, whereas the Cramer's V indicator showed moderately strong relationship between the two variables). It is therefore not possible to state that the more employees are involved in preparing investment decisions, the more time is required to prepare investment decisions. The professional qualification of employees involved in decision preparation is not likely to influence the time required to prepare investment decisions.

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