



VALUATION MODEL OF NEW START-UP COMPANIES: LITHUANIAN CASE

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Abstract. A large number of economic, financial, social, technological, ecological, environmental and other indicators define the effectiveness of the investment process. According to some of the indicators, the alternative new venture companies are suitable for putting them into investment, according to others, they are not. It becomes difficult to choose the optimal investment in the new venture, as all of them have very poor accounting data or still do not have any. Therefore, there is a lack of valuation methods, which could evaluate start-ups without having any accounting data. The purpose of this article is to propose an evaluation model which could help to choose the optimal new venture to fund. Multi-criteria methods, used in the evaluation process, enable to get objective answers about the effectiveness of the optimal new venture comprehensively by presenting some generalized indicators and considering both quantitative and qualitative data. The start-ups evaluating method proposed by the authors has both theoretical and practical advantages: the extensive analysis can be carried out; the different classification of the evaluation criteria is possible; the weights of the criteria are evaluated (importance, significance), and the possibility to include the new evaluation criteria and their employment in practice are considered. The obtained empirical results comparing two Lithuanian start-ups show that the proposed method could be used for evaluating complex processes of the optimal new venture investments, and could be adapted for various situations.

Keywords: new venture, valuation, valuation model, multi-criteria valuation method, simple additive weighting, venture capital.

JEL Classification: C61, G24, G30.

NAUJAI ĮSTEIGTŲ ĮMONIŲ VERTINIMO METODAI: LIETUVOS ATVEJIS

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Santrauka. Įvairūs ekonominiai, finansiniai, socialiniai, technologiniai, ekologiniai, aplinkos ir kiti veiksniai apibrėžia investicinio proceso veiksmingumą. Remiantis vienais rodikliais investicija į naujai kuriamą įmonę gali būti efektyvi, remiantis kitais – ne. Sudėtinga pasirinkti optimalią investiciją į naują įmonę, nes dažnai tokios įmonės turi mažai apskaitos duomenų arba jų visai neturi. Teorijoje ir praktikoje stokojama vertinimo metodų, kurie leistų įvertinti rizikingo kapitalo investicijas turint mažai finansinės informacijos. Šio straipsnio tikslas – pasiūlyti naujai kuriamų rizikingo kapitalo įmonių vertinimo modelį, kuris leistų investuotojui pasirinkti naujai kuriamą įmonę finansavimui. Daigiakriterinių metodų įtraukimas į vertinimo procesą leidžia objektyviai įvertinti naujai kuriamą įmonę, išsamiai išanalizuoti plataus spektro rodiklius – ir kiekybinius, ir kokybinius. Autorių siūlomas naujai kuriamų rizikingo kapitalo įmonių vertinimo modelis leidžia atlikti visapusišką ikiinvesticinę analizę, įtraukti skirtingas vertinimo kriterijų klasifikacijas; įvertinti kriterijų svorius, svarbą ir reikšmę; suteikia galimybę įtraukti naujus vertinimo kriterijus vertinimo proceso metu. Gauti empiriniai rezultatai, lyginant dvi Lietuvoje steigiamas įmones, rodo, kad siūlomas metodas gali būti taikomas kompleksiskai vertinant sudėtingą rizikos kapitalo investicinį procesą ir gali būti pritaikytas įvairiose situacijose.

Reikšminiai žodžiai: nauja įmonė, vertinimas, vertinimo modelis, daigiakriterinis vertinimo metodas, rizikos kapitalas.

1. Introduction

Nowadays a huge number of new ventures are emerging. The problem is that new entrepreneurs typically have a great idea which could be transformed into business, but do not have any capital, or their budget is very limited. The only way to get financing and experienced advice is from the external sources.

Just before financing, new venture must always be evaluated by investors whether is it worth to invest or not. It is very hard to evaluate the new firm, as most of the models and methods are based on the accounting information, however, new firms usually do not have such information. They also do not have any tangible wealth, therefore it becomes impossible to evaluate them. There is a lack of evaluation models which could take into account other data rather than accounting.

The model, proposed in this article, evaluates new firms from relative investor's perspective and considers both their financial performance and overall attraction. It is based on a multi-criteria decision strategy using the SAW method and its advantages to combine, find relations and evaluate both qualitative and quantitative criteria. Proposed model is based on the main concept of multi-criteria evaluation methods – the integration of the criteria values and weights into a single magnitude.

In this paper the general SAW model framework is adopted to suit specifically new venture firms. The model could be used by any simple individual investor having information available to the public to evaluate the new firm's performance in near future and make the decision on his own. The model was applied to two different Lithuanian new venture capital companies.

The actuality of the research appeals for the reason that there are no appropriate methodologies to evaluate the optimal new start-up company according to individual investor's and owner's of the firm preferences.

It is not quite clear what criteria are the most important and should be considered when choosing. Though, it is difficult to find effective methodology that would allow an investor to evaluate a new firm without knowing the accounting information. Particularly in Lithuania, where the concept of funding as external source of finance is not yet complete and the investment culture is not as advanced.

The main goal of the paper is to propose the new venture evaluating model, test it empirically and illustrate how to choose the most suitable company for individual investor to invest.

The main tasks of the research are:

1. To reveal the main funding possibilities for new ventures.
2. To identify the main factors influencing the value of new ventures.

3. To adopt the multi-criteria decision method based on SAW into start-up valuation process.
4. To test the model applicability and to evaluate two Lithuanian newly established companies.

The model is applied using 6 criteria groups dividing them into 22 sub-criteria and creating 2 alternatives to new Lithuanian companies.

2. Previous research

The term "entrepreneur" originated in French economics in the 17th century and indicated someone who shifts economic resources out of an area of lower and into an area of higher productivity and greater yield (Carpenter II 2009). This conventional view suggests the primary function of an entrepreneur in starting new profit-seeking business ventures, especially ones involving financial risk.

The equity is the most important problem to solve for almost all entrepreneurs. More often an entrepreneur has got an interesting idea which should be transformed into business idea. To realize it – he needs money.

The key areas, which confirm an objective financial position of the venture and the entrepreneur's attitude toward the venture's funds, are capital and cash flows. Small ventures with strong capital support are much more likely to succeed than those that are capital deficient (Brzozowska 2008). A satisfactory capital to company's needs gives the venture appropriate flexibility to decide about further growth, investments and market. It also allows the management team to concentrate on running business rather than seek and create various ways to achieve financing.

To have a clear view of new venture, all stages which are involved in the development of new firms shall be described. New venture involves several stages, different from each other, completing finally a venture's life cycle. Not every venture should come over each stage, and the length of certain stages is different in the case of a sector, and a stage of sector's life cycle, strategy and possibilities of its execution in competitive surroundings and management capabilities. In practice there are two main stages of venture development:

- early stage, with seed, start-up, and early stage development phases,
- expansion stage.

The first is the seed stage when a concept has still to be developed and proven. The second is the start-up phase when products or services are developed and initial marketing takes place. The third – early stage development – a firm is producing but often unprofitably. At the stage of expansion a firm achieves a mature level and might go public in a short time. Depending on the stage of development various sources of finance can be involved (Brzozowska 2008). Sources of finance and stages are presented in Figure 1.

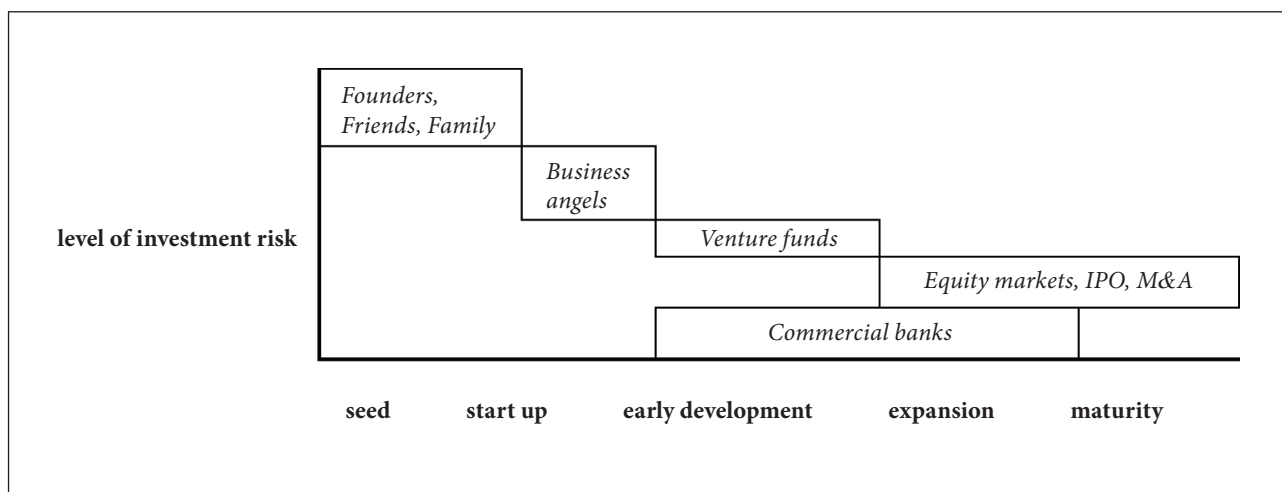


Fig. 1. Development and financing of Entrepreneurial Firm (adapted from Brzozowska 2008)

Young entrepreneurs are defined by their fresh, exciting ideas and passionate drive to succeed. Most, however, lack money – and the experience and connections to turn their concepts into viable businesses. Consequently they need some help from external sources. However, an entrepreneur is not always able to borrow as much as needed because of the imperfect enforceability of borrowing contracts. Consequently the output of the firm will depend on the assets level of the owner (Fernández-Villaverde *et al.* 2003).

In academic literature, there are two types of capital determined: debt financing (money for the interest) and equity financing (invested capital in exchange of part ownership). Source of debt financing covers commercial banks, commercial finance companies, leasing companies, state and local Government Lending Programs, trade credit and Consortiums. Meanwhile sources of equity capital cover: private investors, institutional venture capital firms, mergers and acquisitions, strategic investor and corporate venture capitalists and overseas investors (Snieška, Venckuvienė 2010).

Moreover, some different sources (Klein 2010; Mace *et al.* 2010; Snieška, Venckuvienė 2010) suggest several funding options for the start-ups, all of them are explained more in detail in Table 1.

Academic studies of the interaction between firms and their sources of capital always focus on a single source of capital. Separate streams of literature have emerged in bank finance, lease finance, venture capital finance, private individual investor finance, supplier finance, etc. In theoretical work, the need to focus on one (or in exceptional cases, two) external capital source is directly attributable to theoretical tractability. In empirical work, the focus on one or two capital sources is largely attributable to data availability, since datasets are typically derived from investors, particularly in the case of non-publicly traded businesses (Cosh *et al.* 2009).

Talking about the case of Lithuania, here small and medium sized enterprises account for 99.4% of total active companies (Snieška, Venckuvienė 2010). However, Lithuanian business is pretty conservative and venture capital market is not necessary for applying of innovation. And companies with foreign capital in all sectors in Lithuania focus more on the new innovative products and services market possibilities than Lithuanian companies do.

Early stage business in Lithuania could be financed from several sources. Here several financing sources will be briefly presented available for early stage business in the context of Lithuania. There are also two ways to get capital financed: debt and equity financing. As a result, very similar system of aforementioned institutions operating abroad is in Lithuania as well. Those sources of financing might be Internal source of financing, Bootstrapping, State support, State guarantee institution INVEGA, National support programme, Local municipalities, Bank loans, EU Structural funds, Microcredits and Private investors (Business Angels). All of them were described in Table 1 above.

To sum up, there are some peculiarities of venture capital market in Lithuania (Snieška, Venckuvienė 2010):

1. Venture capital market in Lithuania is emerging.
2. A huge role is played by EU initiatives in fostering venture capital market.
3. The privatisation processes which started after independence was regained, spurred first venture capital activities in Lithuania.
4. No register of venture capital activities exists, this cause the lack of information for business about the possibilities of venture capital.
5. Most investments by venture capital funds were made in medium and large companies with long history of performance.

Table 1. Sources of financing (Compounded from sources: Ivanov, Xie 2010; Klein 2010; Mace *et al.* 2010; Snieška, Venckuviėnė 2010; Crowd Funding 2011; Crowd Source Capital 2011; What is a Business Incubator? 2011; Business Incubators 2011; Invega 2011)

| | |
|--|---|
| <i>Self-funding or Internal source of financing</i> | Initial capital sources are savings, credit cards, home-equity loans and other. At the early stage families, friends or founder generally funds the entrepreneurial firms. |
| <i>Bootstrapping</i> | It refers to “non-traditional funding of a company using series of interim techniques and sources to move from one company stage to another”. From the point view of entrepreneur, it is a creative way to allocate financial resources for interim period. |
| <i>Microfinance</i> | An emerging phenomenon that opens access to capital for individuals previously shut out from financial services. The most common micro-financing instrument is micro-credit, which is the issuance of small, unsecured loans to individuals or groups for the purpose of starting or expanding businesses. |
| <i>Networking</i> | Young entrepreneurs who want to deal with their lack of experience and contacts can join numerous business organisations and get their ideas in front of potential capital sources. People can meet there <i>business angels</i> , <i>venture capitalists</i> , attorneys, accountants, and marketing experts. Almost every country has such organisation or venture capital association. Venture capital investments, Business angels and venture capital investors will be discussed separately and more widely later in this thesis. |
| <i>Commercial banks</i> | Usually an entrepreneur cannot get loans from the bank or other financial institutions when he has just an idea, because he cannot prove his credit worthiness. Only later, in other stages of development of the firm, the bank suggests various loans and investment funds for new entrepreneurs. |
| <i>Crowd-funding (sometimes called crowd-financing)</i> | An approach to raise the capital required for a new project or enterprise by appealing to large numbers of ordinary people for small donations. It describes collective cooperation, attention and trust by people. |
| <i>Business incubators</i> | Projects which are designed to help new businesses develop and successfully launch, helping them to survive and grow during the start-up period when they are most vulnerable. The goal of business incubators is to produce healthy knowledge-based firms that create jobs and wealth, strengthen the economy, commercialize new technologies and refresh communities. |
| <i>State support</i> | State support for the ventures can be twofold: direct and indirect (refers to various public services like consultancy, establishment of business incubators and Science and technology parks etc.). |
| <i>State guarantee institution INVEGA (in Lithuania)</i> | The company was established to promote the financing of new business as well as its development in Lithuania. The company issues guarantees for micro-credit as well as for loans to small and medium sized enterprises. INVEGA provides guarantee part of SMEs’ loan (up to 80%) for banks and compensates up to 50% of interest on guaranteed loan. |
| <i>Local municipalities</i> | Almost all municipalities have programmes for developing favourable environment for SMEs. The programmes vary across the municipalities, but forms of support can cover for example, compensation of interest rates as well as compensation of asset and facilities leasing, education programmes for entrepreneurs and many other. |
| <i>EU Structural funds</i> | The main priorities of EU structural support for the period 2007–2013 are three: 1) productive human resources for knowledge society; 2) competitive economy; 3) life quality and cohesion. |

Determining the economic valuation of a company is one of the most challenging and important discussions an entrepreneur can have with investors. Research that provides operational guidance on such economic valuation, is, however, lacking and little work is available on the valuation of venture capital investments. Furthermore, some venture capitalists maintain that: “the truth about valuing a start-up is that it’s often a guess” (Ge *et al.* 2005). Certainly, both academic researchers and venture capitalists are increasingly recognizing the importance of both sound theoretical and practical contributions to this emerging research area.

How to evaluate accurately a firm is traditionally a financial economics topic and most extant valuation methods are based on accounting information. According to financial economics theory, the economic value of any investment is the sum of the

present value of its future cash flows. Such an economic valuation depends on the ability of the enterprise to generate future cash flows and investors’ assessments of, and attitudes towards, the risk of these future cash flows. As Venture Capitalists typically finance growth, the main problem is capturing the economic value of the growth opportunities being financed. This usually involves specifying and estimating future growth rates in some underlying value driving variable such as free cash flows. DCF (discounted cash flow) valuation methods for Venture Capital investments involve estimating future cash flows, their growth rates, and a horizon terminal value representing the enterprise’s value at the Venture Capitalists exit (Goldenberg, D. H., Goldenberg, M. D. 2009).

The corporate finance literature reports four valuation methods most commonly used in start-up valuation: dis-

counted cash flow, earnings multiple, net asset, and venture capital method. However, as it is discussed below, none of these approaches is fully satisfactory for new entrepreneurial firms.

A fundamental assumption underlying these financial valuation methods is that there is an efficient capital market for the ownership of the firm. This assumption may be workable for the public capital market, as legal rules are in place, which regulate public firms to release all material information to the market and private information is not as common. Traded in a competitive market, the ownership of these firms is also highly liquid. The venture capital market is doubtfully an inefficient market and quite different in several aspects from the public capital market (Ge *et al.* 2005):

1. Venture capitalists invest in private and new ventures. New ventures have a short operating history, and as a result accounting information is limited, making the new venture's future cash flows difficult to calculate.
2. The law does not require that private firms report any financial or management information. Such information is difficult to collect and to verify. Therefore, the information asymmetry between entrepreneur and potential investors is typically high.
3. Due to regulation the tradability of shareholdings in these firms is low. Thus, there is not a ready market for these new entrepreneurial firms.
4. Most of the assets of these entrepreneurial firms are intangible and highly firm specific.

In order to evaluate a new company, usually the accounting data should be taken, but when the company is new it is impossible to evaluate, as accounting data is not available yet. Then other factors should be taken into consideration. Thus, savvy venture capitalists should take these key factors into consideration when evaluating a new venture. It was founded empirically (Ge *et al.* 2005) that venture capitalists typically value a new venture higher if: (1) the new venture is in an industry with higher product differentiation and faster growth; (2) the founder(s) has top management experience and start-up experiences before founding the current venture; (3) the new venture was founded by a team of founders rather than a solo founder and, major management functions are covered by a complete management team; and (4) the new venture has external partners.

Therefore, an integrative framework from strategic management theories was developed to investigate how factors identified in the research literature that are important to firm-level performance may affect the economic valuation of a new venture when the new venture seeks equity financing from venture capitalists. That integrative framework suggests that firm resources, external ties, and market opportunities jointly influence firm-level profitability, which can serve as the fundamental basis for the

economic valuation of a new venture. Recently, scholars have drawn on network literature to highlight the importance of external resources available to the firm through its networks. The strategic network perspective avers that the embeddedness of firms in networks of external relationships with other organizations holds significant implications for firm performance (Zaheer, Bell 2005).

3. Theoretical framework of the study

An integrative strategic management framework and indicators from venture capital firm definition will be used in the proposed model. Literature depicts that work has been explored on various aspects of quality evaluation and performance appraisal in various service sectors. However, it should be noted that service quality differs from product quality. Product quality can be estimated by some quantitative attributes which can be measured and the extent of quality of the product can be estimated. While in case of evaluating quality of a service sector as a whole or evaluating quality of an individual, most of the attributes become qualitative (Datta *et al.* 2009). When valuing new firms in emerging industries, investors are likely to turn their attention to secondary sources of information to help identify qualitative differences across firms (Sanders, Boivie 2003). In this case, new companies have both quantitative and qualitative criteria. So in order to create a model, six main criteria groups are analysed. As these criteria are multi-dimensional and work in different directions, there is a need to apply methods which can connect all criteria to one descriptive measure. Multi-criteria evaluation methods are exactly these measures which can analyse those criteria (Ginevičius 2007). Multi-criteria decision making (MCDM) is applied to preferable decisions among available classified alternatives by multiple attributes. So MCDM is one of the most widely used decision methodology in project selection problems (Simanauskas, Šidlauskas 2006). The MCDM is a method that follows the analysis of several unrelated criteria, simultaneously. In this method economic, environmental, social and technological factors are considered for the selection of the project and for making the choice sustainable (Bakshi, Sarkar 2011; Tamošiūnienė *et al.* 2007).

Multi-criteria analysis is capable of dealing with the multiple dimensions of evaluation problems. Multi-criteria decision-making methods intuition is closely related to the way humans have always been making decisions. Consequently, despite the diversity of multi-criteria decision-making methods approaches, methods and techniques, the basic ideas of multi-criteria decision-making methods are very simple: a finite or infinite set of actions (alternatives, solutions, courses of action...), at least two criteria, and, obviously, at least one decision-maker. Given these

basic elements, multi-criteria decision-making methods are an activity which helps making decisions mainly in terms of choosing, ranking or sorting the actions (Turkis *et al.* 2009).

Each of the available quantitative methods of multi-criteria evaluation has some unusual features and individual logic reflecting the specific characteristics of the alternatives compared. Using several multi-criteria methods simultaneously allows us to identify some stable alternatives rated similarly by various techniques. However, numerous calculations have also shown different ranks of a certain number of alternatives, though the variations are slight (Ustinovichius *et al.* 2007). In this paper, SAW method will be used to create the valuation model.

SAW (Simple Additive Weighting) is the oldest, typical, one of the simplest, most widely known and practically used method (Ginevicius *et al.* 2008; Ginevicius, Podvezko 2008b; Podvezko 2011). The method was summarized by MacCrimmon. The criterion of the method S_j clearly demonstrates the main concept of multi-criteria evaluation methods – the integration of the criteria values and weights into a single magnitude (Ginevičius, Podvezko 2009). This is also reflected in its name.

The sum S_j of the weighted normalized values of all the criteria is calculated for the j -th object:

$$S_j = \sum_{i=1}^m \omega_i \tilde{r}_{ij} . \quad (1)$$

Where ω_i is weight of the i -th criterion \tilde{r}_{ij} is normalized i -th criterion's value for j -th object; $i = 1, \dots, m$; $j = 1, \dots, n$; m is the number of the criteria used, n – is the number of the objects (alternatives) compared (Ginevičius, Podvezko 2006; Andriušaitienė *et al.* 2008; Ginevicius 2008).

The largest value of the criterion S_j corresponds to the best alternative (Ginevičius, Podvezko 2008a). The alternatives compared should be ranked in the decreasing order of the calculated values of the criterion S_j .

Adopting the SAW method in the new venture evaluation process some steps should be made:

1. Weights are given for each criterion as the importance of attribute.
2. A value (score) is given for each alternative by criteria assessment.
3. When there is already normalized matrix, every member of that matrix is multiplied by its weight and summed with other members of the alternative (line).
4. The alternative with the highest score is chosen.

Model consists of three stages and some stages consist of some steps. First stage is for choosing criterion, second uses SAW to weight the evaluative criteria and the last, third stage gives the optimal newly established firm to fund for investor.

4. Application of valuation model to Lithuanian new start-up companies

All criteria were defined and grouped in smaller groups of sub-criteria. This was made in order to have a more specific and detailed valuation of criteria. Moreover, this structure will help to create a better valuation model as firstly experts will evaluate all sub-criteria. After that all sub-criteria will be combined into criteria groups with global weights and those criteria groups will be used in the model to choose the most optimal start-up company to invest in.

When the criteria are given, the criteria weights can be determined. They can be calculated by various methods. In any case, the expert estimates are considered. This process is very subjective, so it depends on various conditions, such as qualification of experts, number of criteria and giving weights (Ginevičius 2006). This estimation of criteria weights was made by six various experts. Three experts were chosen from different companies' top management and three top employees were chosen from Lithuanian banks. The results of their evaluation are shown in Table 2.

Table 2. Estimation of criteria weights

| No. | Criteria | Codes | 1 | 2 | 3 | 4 | 5 | 6 | Total | Weights |
|-----|---|-------|----|---|---|---|----|---|-------|---------|
| 1 | The founder of new business venture has previous top management experiences | SC11 | 0 | 0 | 6 | 6 | 10 | 8 | 30 | 0.0500 |
| 2 | The founder of new venture has previous start-up experiences | SC12 | 1 | 0 | 5 | 2 | 10 | 8 | 26 | 0.0433 |
| 3 | New venture's founder has relevant industry experience before founding the business venture | SC13 | 1 | 0 | 5 | 6 | 10 | 8 | 30 | 0.0500 |
| 4 | New business ventures are founded by a team rather than by one founder | SC14 | 0 | 0 | 5 | 4 | 0 | 5 | 14 | 0.0233 |
| 5 | New business ventures are with a functionally complete management team | SC15 | 10 | 1 | 4 | 2 | 10 | 9 | 36 | 0.0600 |

Continued Table 2

| No. | Criteria | Codes | 1 | 2 | 3 | 4 | 5 | 6 | Total | Weights |
|-----|--|-------|-----|-----|-----|-----|-----|-----|-------|---------|
| 6 | The owner of the company is male or female | SC16 | 0 | 0 | 3 | 2 | 0 | 1 | 6 | 0.0100 |
| 7 | There is larger size of the new venture “ego network” | SC21 | 10 | 14 | 5 | 3 | 10 | 5 | 47 | 0.0783 |
| 8 | The new venture has external partners | SC22 | 5 | 0 | 7 | 7 | 10 | 7 | 36 | 0.0600 |
| 9 | There is higher product differentiation in an industry | SC31 | 15 | 18 | 2 | 5 | 1 | 3 | 44 | 0.0733 |
| 10 | There is higher demand growth rate of an industry | SC32 | 15 | 18 | 5 | 3 | 1 | 5 | 47 | 0.0783 |
| 11 | Investment period: Medium 5 to 7 years | SC41 | 5 | 0 | 3 | 6 | 0 | 1 | 15 | 0.0250 |
| 12 | Investment period: Long term up to 12 years | SC42 | 2 | 0 | 3 | 1 | 0 | 5 | 11 | 0.0183 |
| 13 | Equity linked investment | SC51 | 3 | 0 | 4 | 6 | 0 | 3 | 16 | 0.0267 |
| 14 | Debt or mixed forms of financing | SC52 | 5 | 0 | 5 | 3 | 5 | 1 | 19 | 0.0317 |
| 15 | Innovative / Entrepreneurial firms | SC61 | 5 | 1 | 5 | 7 | 10 | 5 | 33 | 0.0550 |
| 16 | Risky | SC62 | 5 | 0 | 6 | 8 | 3 | 1 | 23 | 0.0383 |
| 17 | Promising / perspective venture | SC63 | 5 | 10 | 5 | 6 | 10 | 5 | 41 | 0.0683 |
| 18 | Young company | SC64 | 0 | 0 | 5 | 3 | 0 | 1 | 9 | 0.0150 |
| 19 | Growth-oriented venture | SC65 | 10 | 14 | 4 | 5 | 10 | 5 | 48 | 0.0800 |
| 20 | Private company | SC66 | 0 | 1 | 4 | 6 | 0 | 1 | 12 | 0.0200 |
| 21 | Unquoted in stock market | SC67 | 0 | 5 | 2 | 2 | 0 | 6 | 15 | 0.0250 |
| 22 | Future profit, future wealth, future cash flows | SC68 | 3 | 18 | 7 | 7 | 0 | 7 | 42 | 0.0700 |
| | Total | | 100 | 100 | 100 | 100 | 100 | 100 | 600 | 1.0000 |

The method’s simple added weighting may use ‘classical’ normalization (Ginevicius, Podvezko 2008b). The values of the criterion S_j of the method range from 0 to 1 (not taking the ultimate values) for all the alternatives considered, while the sum of the criterion values is equal to unity allowing for graphical (geometrical) interpretation of the method.

For further calculations it is needed to calculate the global weight of each criterion. This is useful not only for the calculations but also in order to see the most important criteria on the

whole. The global weights are calculated very simply. For example, Owner’s profile will be calculated getting simple arithmetic average from sub-criteria of Owner’s profile. All other global weights of each criteria group will be got in the same way. The results of each global criterion are given in Table 3 below. These results will be used in the valuation model in order to find out which one of the companies is more optimal to invest. The most important criteria are Market Opportunities and External Ties. The least important is Investment Period.

Table 3. Global weights of each criterion

| Global Criteria | Codes | Sub-Criteria | Codes | Total | Weights | Global weights |
|-----------------|-------|---|-------|-------|---------|----------------|
| Owner’s profile | C1 | | | | | 0.0394 |
| | | The founder of new business venture has previous top management experiences | SC11 | 30 | 0.0500 | |
| | | The founder of new venture has previous start-up experiences | SC12 | 26 | 0.0433 | |
| | | New venture’s founder has relevant industry experience before founding the business venture | SC13 | 30 | 0.0500 | |
| | | New business ventures are founded by a team rather than by one founder | SC14 | 14 | 0.0233 | |
| | | New business ventures are with a functionally complete management team | SC15 | 36 | 0.0600 | |
| | | The owner of the company is male or female | SC16 | 6 | 0.0100 | |
| External ties | C2 | | | | | 0.0692 |
| | | There is larger size of the new venture “ego network” | SC21 | 47 | 0.0783 | |

Continued Table 3

| Global Criteria | Codes | Sub-Criteria | Codes | Total | Weights | Global weights |
|-----------------------------|-------|--|-------|-------|---------|----------------|
| | | The new venture has external partners | SC22 | 36 | 0.0600 | |
| Market Opportunities | C3 | | | | | 0.0758 |
| | | There is higher product differentiation in an industry | SC31 | 44 | 0.0733 | |
| | | There is higher demand growth rate of an industry | SC32 | 47 | 0.0783 | |
| Investment period | C4 | | | | | 0.0217 |
| | | Medium 5 to 7 years | SC41 | 15 | 0.0250 | |
| | | Long term up to 12 years | SC42 | 11 | 0.0183 | |
| Financing model | C5 | | | | | 0.0292 |
| | | Equity linked investment | SC51 | 16 | 0.0267 | |
| | | Debt or mixed forms of financing | SC52 | 19 | 0.0317 | |
| Portfolio Company's profile | C6 | | | | | 0.0465 |
| | | Innovative / Entrepreneurial firms | SC61 | 33 | 0.0550 | |
| | | Risky | SC62 | 23 | 0.0383 | |
| | | Promising / perspective venture | SC63 | 41 | 0.0683 | |
| | | Young company | SC64 | 9 | 0.0150 | |
| | | Growth-oriented venture | SC65 | 48 | 0.0800 | |
| | | Private company | SC66 | 12 | 0.0200 | |
| | | Unquoted in stock market | SC67 | 15 | 0.0250 | |
| | | Future profit, future wealth, future cash flows | SC68 | 42 | 0.0700 | |
| | | Total | | 600 | 1.0000 | |

Selecting optimal newly established firm to fund for investor is based on the evaluation of two companies by scores. These two different companies are from different sectors. The first company is in innovative product sector with unique product in the industry oriented to local and foreign markets, while another is in services sector with restaurants and oriented to only local market. Moreover, both companies have good relations with external partners. Further, Company 2 has already started to get profit, whereas Company 1 has just been established and has no profit.

Having the descriptions of the companies, it is possible to evaluate criteria of companies by scores. In other words, criteria matrix should be normalised. As input data for calculation is the criteria and their values of importance, the matrix should be normalised according to these conditions by evaluating the values of criteria in the interval from 1 to 5, where:

1. Negative value of criteria (decreasing value of criteria).
2. Insufficient value of criteria (remaining the same).
3. Medium value of criteria (medium increasing).
4. Sufficient value of criteria (sufficient increasing).
5. High value of criteria (high increasing).

It is difficult to normalise the values of criteria. Experience shows that the major problem is encountered

when the part of the criteria has a negative value. The normalisation is possible when all the criteria, all values are positive (Podvezko 2011).

The numbers of normalised values of alternatives are presented in Table 4. Also, codes of global criteria are mentioned.

The calculation of aggregated values was made from the numbers using the formula (1). The usage of the formula is very simple. The value of criterion of one company is multiplied by global weight of that criterion. After all, values are summed and the aggregated value is got. The results can be seen in Table 5.

Based on the data presented, a few conclusions can be drawn. First of all it is assumed to use the alternative 1 for the valuation model of optimal newly established company. This alternative is chosen because its aggregated value 1.1515 is higher than the second value 0.8710.

The main factors of the chosen alternative are the higher product differentiation in an industry, the higher demand growth rate of an industry; it is innovative, entrepreneurial, very risky, promising and perspective venture. Also, this company is very young and growth-oriented. These factors are the most important during crisis period as many companies do not get enough profits, so to be different and unique is good.

Table 4. Normalised values of Companies

| Global Criteria | Codes | Company 1 | Company 2 |
|--------------------------------|-------|-----------|-----------|
| Owner's profile | C1 | 3 | 5 |
| External ties | C2 | 4 | 4 |
| Market Opportunities | C3 | 5 | 2 |
| Investment period | C4 | 4 | 3 |
| Financing model | C5 | 2 | 3 |
| Portfolio of Company's profile | C6 | 5 | 2 |

Table 5. Calculating the values of companies using SAW method

| Global Criteria | Codes | Company 1 | Company 2 | Weights | Value of Company 1 | Value of Company 2 |
|--------------------------------|-------|-----------|-----------|---------|--------------------|--------------------|
| Owner's profile | C1 | 3 | 5 | 0.0394 | 0.1183 | 0.1972 |
| External ties | C2 | 4 | 4 | 0.0692 | 0.2767 | 0.2767 |
| Market Opportunities | C3 | 5 | 2 | 0.0758 | 0.3792 | 0.1517 |
| Investment period | C4 | 4 | 3 | 0.0217 | 0.0867 | 0.0650 |
| Financing model | C5 | 2 | 3 | 0.0292 | 0.0583 | 0.0875 |
| Portfolio of Company's profile | C6 | 5 | 2 | 0.0465 | 0.2323 | 0.0929 |
| Aggregated value | | | | | 1.1515 | 0.8710 |

For the analysis 6 criteria and 22 sub-criteria were chosen and 2 alternatives created. They consist of various dimensions and change in various directions. This means that the situation is getting better when some of their values are growing, on the other hand, when the values of some other criteria are decreasing, the situation is worsening. Quantitative evaluation of these complex phenomena was successfully performed by multi-criteria evaluation method. It was applied when the values and weights of all the criteria were calculated. The overall conclusion from evaluation of those two alternatives shows not very wide dispersion, so it can be assumed that the criteria and criteria weights are chosen correctly and the aggregated value sum of 1.15 shows that alternative 1 is better to choose for a decision considering the investment idea in some new companies.

5. Discussion

This study provides an evaluation criterion and evaluation framework for determining the optimal new ventures to invest for different investors with different goals. In order to evaluate a new company in this way, a new valuation model was proposed using the multi-criteria valuation method – simple additive weighting. The model suggests that venture capital investors should not only focus on traditional financial criteria but also on their given conditions and parameters of the company. According to the received results the model works properly and helps for venture capitalists to choose the best optimal company to fund. For

Lithuanian venture capital market in case of implementation, the proposed model might be of practical utility. Such kind of evaluation has never been made as all the previous researchers were concentrating on evaluating companies through the accounting data perspective. Thus, it is hard to compare this study with the previous research. The received results of the research could be improved further by analysing more criteria in the description of Portfolio of Company's profile which could give more accurate results. Moreover, it might be recommended to use more combinations of other methods of multi-criteria evaluation to normalise the criteria used and to pool the alternatives of various companies. The results from the implementation with more multi-criteria methods might show stronger and more effective results from different perspectives.

6. Conclusions

Before financing, new venture must always be evaluated by investors whether it is worth to invest or not. It is very hard to evaluate the new firm, as most of the methods in literature are made according to the accounting information, however, new firms usually do not have such information. They also do not have any tangible wealth.

As there is a lack of valuation models for new venture firms, the valuation model for new ventures was proposed in this paper. In order to create such a model, the multi-criteria valuation method simple additive weighting (SAW) was used. In comparison with other models, this SAW model is effec-

tive, as different criteria can be chosen by different investor according to his personal preferences. This method was used by simulating the possible alternative target values and taking economic situation in Lithuania for two companies into consideration. The survival of company can be successful only with an accurate view and prediction of the future.

For model creation in analysis 6 criteria and 22 sub-criteria were chosen and 2 alternatives created. They consist of various dimensions and change in various directions. Quantitative evaluation of these complex phenomena was successfully performed by multi-criteria evaluation method. It was applied when the values and weights of all the criteria were calculated. Simple additive weighting method has worked properly and proved that it was the right method to apply in the model. The results of this method helped to choose the most optimal company to invest in. It can be concluded that the created model can be extensively applied for evaluating and selecting most optimal newly established company. The overall conclusion from evaluation of those two alternatives shows not very wide dispersion, so it can be assumed that the criteria and criteria weights are chosen correctly and the aggregated value sum of 1.1515 shows that alternative 1 is best to choose for a decision considering the investment idea in some new companies.

This study provides an evaluation criterion and evaluation framework for determining the optimal new ventures to invest for different investors with different goals. The model suggests that venture capital investors should not only focus on traditional financial criteria but also on their given conditions and parameters of the company. For Lithuanian venture capital market in case of implementation, the proposed model might be of practical utility. The proved evaluation model can evaluate the optimal new venture firm for individual investor.

Finally, results which were got could be improved further by analysing more criteria in the description of Portfolio of Company's profile which could give more accurate results. It might be recommended to use more combinations of other methods of multi-criteria evaluation to normalise the criteria used and to pool the alternatives of various companies. The results from the implementation with more multi-criteria methods might show stronger and more effective results from different perspectives.

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