



VILNIAUS GEDIMINO TECHNIKOS UNIVERSITETAS

VERSLO VADYBOS FAKULTETAS

FINANSŲ INŽINERIJOS KATEDRA

Bliuma Kogan

ĮSIPAREIGOJIMŲ PORTFELIO VALDYMAS ĮMONĖS VERTEI SUKURTI

LIABILITY PORTFOLIO MANAGEMENT FOR COMPANY'S VALUE CREATION

Baigiamasis magistro darbas

Verslo vadybos studijų programa, valstybinis kodas 62403S121

Investicijų valdymo specializacija

Vadybos ir administravimo mokslo kryptis

Vilnius, 2009

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Pavadinimas **Įsipareigojimų portfelio valdymas įmonės vertei sukurti**

Autorius **Bliuma Kogan**

Vadovė **dr. Jelena Stankevičienė**

Kalba

☐

lietuvių

☒

užsienio

Anotacija

Baigiamajame magistro darbe nagrinėjamos įsipareigojimų portfelio formavimo įmonės vertei sukurti problemos. Šiame darbe pateikiama įsipareigojimų sąvoka, kuri atspindi įmonės požiūrį į kapitalą ir parodo, kad įmonė prisiima įsipareigojimus kaip vidinius (savininkams) taip ir išorinius (investoriams, kreditoriams). Todėl darbe bus vartojamas įsipareigojimų terminas. Apžvelgiu vadybos teorijos kitimą ir šiuolaikines vystymosi kryptis. Išnagrinėjama įsipareigojimų portfelio anatomija ir jo analitinės galimybės. Didelis dėmesys yra skiriamas susivienijimų portfelio vaidmeniui įmonės vertės kūrimo. Sudaromas įsipareigojimų portfelis besivystančioje įmonėje „X“. Detaliau nagrinėjami portfeliai su priklausomais ir nepriklausomais duomenimis. Ir siūlomos individualaus portfelio parinkimo galimybės, atsižvelgiant į įmonės norą, siekiant norimo mokumo ir rizikos sulavinimo. Nagrinėjami galimų portfelių aibių vaizdo pasikeitimai.

Sudarant įsipareigojimų portfelį remiamasi prielaida, kad tikėtinas įsipareigojimų mokumas yra stochastinis dydis, kuris pilnai nusakomas tikimybių skirstiniu. Laukiamų rezultatų nevienareikšmiškumas skatina nagrinėti visą įsipareigojimų mokumų galimų reikšmių spektrą.

Išnagrinėjus teorinius ir praktinius įsipareigojimų portfelio formavimo aspektus įmonės vertei sukurti, pateikiamos baigiamojo darbo išvados ir siūlymai.

Darbą sudaro 4 dalys: įvadas, nustatyti įsipareigojimų struktūros koncepciją, pagrindiniai įmonės vertinimo rodikliai, portfelis –sprendimų priėmimo priemonė, įmonės „X“ veiklos vertinimas, išvados ir siūlymai, literatūros sąrašas.

Darbo apimtis – 76 p. teksto be priedų, 21 iliustr., 7 lent., 2 shemos 111 bibliografiniai šaltiniai.

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Prasminiai žodžiai: įsipareigojimų portfelis, mokumas, rizika, valdymas vertei sukurti, įmonės vertė.

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Annotation

In the final Master work the problem of liability portfolio formation for company's value creation is analyzed. In this work concept of liabilities is proposed, which reflects the point of view of the company on the capital and shows that the company takes liabilities both internal (owners) and external (investors, creditors). For this reason the liability term will be used in this work. The liability structure is determined and the factors influencing it. The anatomy of liability portfolio and its analytical possibilities are revised. Attention is given for the role of alliance portfolio in company's value creation. The liability portfolio for developing company „X“ is formed. Portfolios with dependable and independable variables are scrutinized. Individual portfolio possibilities are proposed according company's wish reaching desirable solvency and risk proportion. Modifications of possible sets of portfolios views are examined.

Forming liability portfolio presumptions is done that desirable liability solvency is stochastic value which is entirely specified by probability distribution. Ambiguity of expected results stimulates to investigate the whole possible values of liability solvency in a set.

After examining both theoretical and practical aspects of liability portfolio formation for company's value creation conclusions and suggestions are proposed.

Structure: introduction, company's main valuation metrics, portfolio as a tool for decision making, company's "X" performance valuation, conclusions and suggestions, references.

Thesis consists of: 76 p. of text without appendixes, 21 pictures, 7 tables, 2 schemes, 111 bibliographical entries.

3 appendixes are included.

Keywords: liability portfolio, solvency, risk, management for value creation, company's value

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ABBREVIATIONS

EVA – economic value added

VBM – value based management

MFV – managing for value

ROA – return on asset

ROE – return on equity

CFROI – cash flow return on investment

MBI – management by incentives

MBO – management by objectives

MBV – management by value

DCF – discounted cash flow

NPV – net present value

AHP – analytical hierarchy process

IRR – internal rate of return

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INTRODUCTION

Nowadays it is very important to stay competitive in the market. Every company determines the main goals and strategy specifically for their company. Each company chooses its own way to success and evaluates financial performance differently. There are many factors which are included into the performance of the company and can raise the value of the company. Value systems are the motivators that drive the behavior of individuals, organizations and society.

Leaders and managers have to understand the inherent strange attractors within their organizations in order to help steer them safely through unpredictable environments. Managing for value has become the mantra of today's executives as the reality of today's competitive environment force businesses to focus on improving profitability.

Successful firms institute broad based value based management training so that all frontline employees and managers understand the concept of value creation and their role in the process

I will investigate the most favorable conditions for the company in order to create extra value and as a tool for company's value creation I'm choosing portfolio management. Accurate portfolio diversification is a tool for receiving preferred results and increasing company's value.

The company has liabilities both internal and external. Company should take care of both its owners (and shareholders) and external partners (investors, creditors).

As the **problem** of my final master thesis I have chosen management of liability portfolio through which the company creates and increases its value.

Problem investigation in theoretical and practical ways leads to the solution of the core question and can be interpreted as an advice to create bigger value for shareholders and to advice how the resources should be allocated according tolerated risk and preferred profitability.

The goal of a thesis is to find a diversified portfolio managing which company's value will be created.

The main goal of the work is achieved by setting the following **objectives**:

1. To determine the liability conception
2. To analyze the valuation methods and value drivers and their correlation with value.
3. To analyze contribution of alliance portfolio to company's value.
4. To show how decisions are made through portfolio selection.

The following **scientific methods** are applied:

1. Comparison of statements of financial scientists
2. grouping and interpreting secondary data and scientific articles
3. Correlation analysis
4. Graphical data representation
5. Comparative analysis method
6. Portfolio simulation
7. Mathematical and statistical methods

The novelty in this work is:

- the revision of new and modern economical approaches;
- analysis of modern ways to evaluate company's performance and create value;
- new meaning of liability term is used to show the importance of taking into account both internal and external liabilities, as well as
- it is suggested to use advantages of alliance portfolios for company's value creation.

The subject of the work is very actual both in **practical and theoretical sense**.

- this work can be useful as a table-guide for the top managers of the companies, and
- for persons who are going to invest in a company in order to maximize company's value, while choosing the most suitable combination of risk and profitability as well as new ties with partners.
- for theorists investigating the complexity of the organization and its structure, looking for the highest value in structuring company's budget.

The work consists of four parts. The first part is a comparison of secondary data. Here I'm determining the liability structure, investigating change in management styles and stressing management for value. In the second part I am showing the main valuation metrics which let us evaluate performance and profitability of the company. In the third part of the thesis I am investigating how the decisions can be taken through portfolio selection. Data is combined to build up liability portfolio and apply it in the fourth part on the bases of company X. The work is finalized by the last part where conclusions and suggestions are presented.

1. DETERMINING THE CONCEPT OF LIABILITY STRUCTURE

In the first chapter I will speak about the novelty of liability term, the meaning of this term in a broader sense than it is usually used. I will show that the company has liabilities both for external investors as it is usually treated, but also it has internal liabilities which are liabilities for shareholders or owners of the company. I will speak about the evolution of management theory which leads to managing for value.

1.1. The concept of liability structure

A critical question that entrepreneurs often face is whether to finance their ventures through debt or equity or the appropriate combination thereof. Because small ventures are a vital part of our economy and a large percentage of small business failures are attributed to inadequate or inappropriate capital structure, it is important to understand the factors that determine this combination. A better grasp of the variables that influence capital structure as well as liability structure of the company decisions may help in improving future decisions.

In order for debt structure to matter, one or more of the following effects need to be obtained:

- Reduction of taxes
- Reduction of transaction costs
- Provision of better information to the market
- Reduction of agency costs
- Improvement of access to capital markets
- Reduction of distress costs

Modigliani and Miller (1958) were the pioneers in theoretically examining and algebraically demonstrating the effect of capital structure on firm value. Assuming perfect capital markets (Asquith and Mullins, 1986), they concluded to the broadly known theory of „capital structure irrelevance“, which means that the capital structure that a firm chooses does not affect its value. Thereafter, many researchers, including Modigliani and Miller, examined the effects of less restrictive assumptions on the relationship between capital structure and the firm's value. For example, Modigliani and Miller (1963) took taxation under consideration and they proposed that firms should employ as much debt capital as possible in order to achieve the optimal capital structure. Along with corporate taxation, researchers were also interested in analyzing the case of personal taxes imposed on individuals. Miller (1977) discerns three tax rates in the tax legislation of the USA that determine the total value of the

firm. These are the corporate tax rate, the tax rate imposed on the income of the dividends and the tax rate imposed on the income of interest inflows. According to Miller, the value of the firm depends on the relative height of each tax rate, compared with the other two.

As researchers moved on examining deeper the notion of capital structure, several theories emerged (Bennett and Donnelly, 1993), all of which conclude on the existence of an optimal capital structure based on balancing the benefits and costs of debt financing. The main benefit of debt financing is the fact that interest payments are deducted in calculating taxable income, allowing a „tax shield“ for the firms. This „tax shield“ allows a firm to pay lower taxes than they should, when using debt capital instead of using only their own capital. The costs of debt can be viewed mainly from two different aspects. First, there is an increased probability that a firm may not be able to successfully deal with its debt obligations (i.e. interest payments); thus, there is an increased probability of bankruptcy. Second, there are agency costs of the lender's monitoring and controlling the firm's actions. There are additional costs concerning the notion of capital structure of the firm that arise from the fact that managers possess more information about the firm's future prospects than do investors.

The effect of taxation on capital structure has been thoroughly investigated as a determinant of capital structure. Except for the tax aspects there are also some other approaches that attempt to explain the determination of the capital structure. These approaches examine the debt level determination from the perspective of asymmetric information and agency costs, as already mentioned above. Jensen and Meckling (1976) identify the existence of the agency problem that arises due to the conflicts either between managers and shareholders (agency costs of equity) or between shareholders and debt holders (agency costs of debt).

Perfect control is however extremely costly and therefore, shareholders seek to rely on solutions that would not extract large amounts of value from the firm and would also monitor and control managers' operations. A reliable tool can be the use of debt capital, which even adds value to the firm. Leverage will force managers to generate and pay out cash, simply because interest payments are compulsory. Interest payments will reduce the amount of remaining cash flows – the so-called free cash flows – after the investment decisions, at the disposal of the managers. Thus, debt can be viewed as a smart device to reduce the agency costs. In this case, the optimal capital structure will be derived by the balance between the costs of debt against the benefits of debt; the firm will choose this amount of debt, which will minimize its total agency costs.

A number of authors have noted that the negative correlation between profits and leverage is consistent with Donaldson's (1961) „pecking order“ description of how firms make their financing decisions. Donaldson observes that managers prefer to fund new investment with retained earnings

rather than debt, but prefer debt to equity financing. According to this description, firms passively accumulate retained earnings, becoming less levered when they are profitable.

Although it can be stated that more profitable firms have, on average, lower leverage ratios, but, on the other hand, they are more likely to issue debt rather than equity and are more likely to repurchase equity rather than retire debt. In addition to it, profitable companies can ensure that the debt will be returned and investors will not lose their investments, also, it is easier to take a loan or issue debt for such companies mainly because of their past performance evidence.

One more fact can be found is that firms that act to increase their leverage ratios generally have higher operating incomes than those firms that choose to decrease their leverage ratios. Equity issuers generally have much higher stock prices, relative to either their past stock prices or their book values, than straight debt issuers. In terms of these and other variables, convertible bond issuers are more similar to common equity issuers than they are to issuers that raise straight debt. Preferred stock issuers are fundamentally different than other issuers of other securities. Issuers of preferred shares are either in or near financial distress and may need a capital infusion to stay in business. Also, many of these firms have tax loss carry forwards and would thus find debt unattractive from a tax perspective. Perhaps, because of asymmetric information considerations, firms in this situation are reluctant to issue common stock.

Firms with negative cash flows are less likely to take actions that reduce leverage, for example, issue equity or retire debt, if a large portion of their outstanding debt matures after three years. In other words financially distressed firms are less likely to reduce leverage if it transfers wealth to long-term debt holders.

The regression indicate that a low stock price also act as an impediment to a move toward a firm's optimal debt ratio. In particular, firms with low market-to-book ratios tend to issue debt rather than equity. The reason can be that managers do not want to issue low-priced stock.

Liability structure:

1. Preferred and common stocks
2. Long- and short- term bonds
3. Retained earnings
4. Short- and long- term debt (bank loan)
5. Repurchasing debt/ Leasing

If firms are better informed about their prospects than the market, they will select the maturity structure which best fits this information set. Firms who believe that their prospects will deteriorate will

use long-term debt to lock in the current spread, while firms who believe that their prospects will improve will use short-term debt because their credit spreads will be lower in the future.

In order to calculate the average price of the total capital, one first has to determine the price for each type of capital. Capital structure is characterized by proportions of different capital components in the total of company's capital. By increasing the proportion of relatively cheaper sources of capital, the company can lower the total costs of capital. In practice, it is often evident that the "cheapest" source of capital is borrowed financing.

Optimizing capital structure can make a tangible contribution to the lowering of the price of capital and increase the value of the company. One of the main examples of this effect is the possibility in most jurisdictions to include the interest on taken loans in the costs of the company, which means that they are excluded from the taxable income of the company. At the same time, dividends are paid from the net profit; therefore they do not offer the company and its owners such benefits in terms of taxation.

As the resulting statements of this subsection I would like to stress some interesting points. Generally, volatile cash flows are costly because they increase expected tax costs and exacerbate information asymmetries.

- Floating rate debt is generally cheaper than fixed rate debt but may lead to increased volatility;
- If, however, interest rates are positively correlated with cash flows and/or negatively correlated with investment needs, floating rate debt may reduce volatility by acting as a partial natural hedge;
- The debt maturity decision is driven by the desire to mitigate rollover risk and a variety of other factors relating to risk transfer between debt and equity investors;
- The currency mix of debt is driven by the desire to reduce the risk associated with foreign assets, cash flows and earnings as well as various market and regulatory factors such as market depth and relative taxes;
- The choice between public debt and bank debt is affected by relative transaction costs and a variety of factors relating to information asymmetries

1.2. Evolution of management to managing for value

Changes in the organisational environment have caused managers to alter their practices to meet the needs of the times. In the early twentieth century, management by instruction (MBI) was considered to be an appropriate and adequate way to run an organisation. The slower pace of change allowed for management ideas to be developed slowly and then passed on to others. By the 1960's change was accelerating to the point where more flexibility of action was required. Thus, the introduction of management by objectives (MBO) enabled managers to agree on a direction and to choose their own strategy. But as changes in the environment began to intensify (global competition and the impact on technology), MBO was insufficient for managing in an interconnected and fast-paced world. Today, organisations still relying on MBO often discover that their managers fail to meet objectives. Frustration increases when, in spite of their best efforts, managers are unable to determine what went wrong- Often, it is not that the goals were lofty or unrealistic. Instead, many changes occurred that were not and could not have been predicted in advance, creating barriers that prevented managers from reaching objectives. A result of this growing complexity, scholars began to draw upon chaos theory and systems theory in order to better understand organisational behaviour organisations came to be seen as complex and dynamic systems existing in a state of flux and interaction with their environment.

Previous researches have confirmed that the key to understanding the behavior of such systems is to understand the values that each system contains within it. Values systems are the motivators that drive the behavior of individuals, organisations and society.

In simple non-living, human made entities such as machines, bridges or buildings, motion (behaviour) can be understood through forces and simple attractors such as gravity. One can, by using a few mathematical equations, predict with a fair degree of accuracy the behaviour of these entities in a range of environments.

Organisations, on the other hand, are no longer treated as mechanistic systems. They are now understood as complex living systems (Dolan et al. 2003). According to chaos theory, such living systems contain strange attractors that enable dynamical systems to emerge. Thus, leaders and managers have to understand the inherent strange attractors within their organisations in order to help steer them safely through unpredictable environments. This is why MBI and MBO are no longer sufficient. We need to manage organisations by using a strange attractor. In this case, the strange attractor is values.

Three sets of factors:

- (1) emotional-developmental factors;
- (2) ethical-social factors; and
- (3) economic-pragmatic factors can be identified as major groups for constructing VBM model.

Managing for value has become the mantra of today's executives as the reality of today's competitive environment force businesses to focus on improving profitability. Firms, both large and small, are implementing value-based measures using measures such as Economic value added (EVA). All too often, however, these initiatives are interpreted merely as an advance in metrics and measurement and not a tool for strategy development. This narrow interpretation and use suggests little fundamental change in the behaviour of the many people responsible for the decisions and actions that create long-term value and has brought only mediocre results to some firms. To improve the implementation of value based management (VBM), firms need to move beyond narrow metrics to the utilization of EVA as a strategic decision tool.

Graphical view of evolution from management to managing by values.

	MBI	MBO	MBV
Preferred situation for application	Routine work or emergencies	Moderately complex, relatively standardized production	Need for creativity to solve complex problems
Image of customers	User/buyer	User/customer	Discriminating customer with high degree of choice
Type of market	Stable	Moderately variable	Unpredictable/ dynamic
Type of organisational structure	Multi-tiered/pyramid	Pyramid with few levels	Networks/ functional alliances/ project teams
Philosophy of control	Top-down control/supervision	Control and stimulation of professional performance	Self-supervision-encouraged
Leadership style	Traditional	Focused on resource allocation	Transformational (legitimizes transformation)
Strategic vision	Short-term	Medium-term	Long-term
Core cultural values	Quantitative production/loyalty/conformity	Measuring results/rationalization/motivation/efficiency	Developing/ participation-continuous learning

Table 1. Primary characteristics of MBI, MBO and MBV [summarized by author]

Value-based management systems focus on wealth and the wealth creation process and promote the generation of value for the shareholders. (Fisher 1995; Lieber 1996; Walbert 1994). A valuation

model for the firm is extended analytically to focus explicitly on profitability, growth, and capital intensity as drivers of the value of the firm. Management systems that focus on driving shareholder value incorporate valuation principles and are designed and implemented in a way that promotes and rewards decisions that add market value to investor-supplied funds (Copeland, Koller, and Murrin 1995; Stem, Stewart, and Chew 1995; Ehrbar 1998; Rappaport 1998; Stewart 1991).

Due to the reason of integrating strategy and value, Value Based Management is the key point to finding better investment opportunities and following strategic movements. Value Based Management used in practice showed that constant decisions cannot be made and strategy development must be a continuous process. (Clackworthy, 2006; Fong et al., 2007). Once the organizational element were explicitly incorporated into Value Based Management, it became clear that a company's ability to manage for value could become a source of competitive advantage in and of itself. (Babbel and merrill, 2005; Ballow et al., 2004; Colvin, 2008; El-Ghazili, 2006; Sheller, 2004). Over the last years Value Based Management has evolved into an all – encompassing discipline, known as Managing for Value (MFV). Whereas Value Based Management implied a set of tools corporate strategists could apply to high – priority issues, Managing for Value connotes something every executive should be doing daily. (Armour and Mankins, 2001).

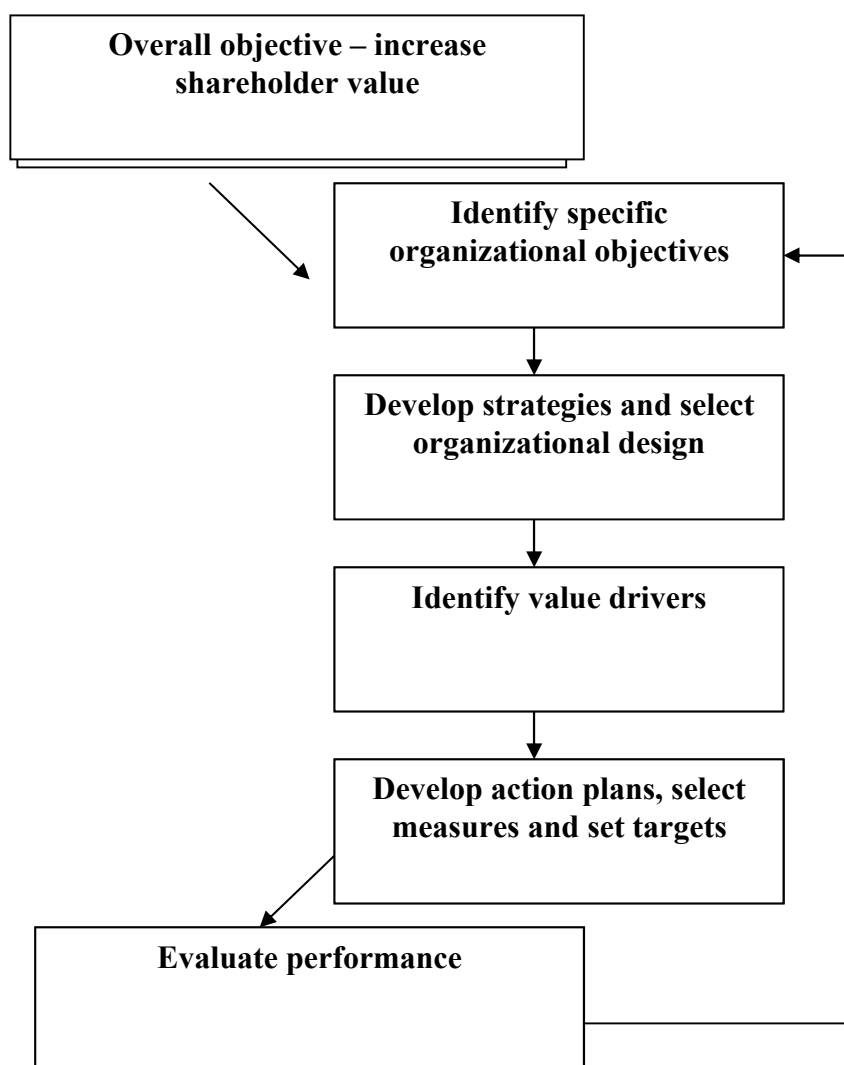
Value Based Management involves transforming behavior in a way that encourages employees to think and act like owners. (Martin and Petty, 2001). Having the goals to reach, tasks to implement and deliver perception of creating shareholders value is one part of management.

The following task is to create the path how it is going to be reached and choose the right methods. Value-based management systems concentrate on actions that generate value for the shareholders in the wealth creation process. (Miller, 2004). Value Based Management has its roots in economics and finance, but it is dependent on a firm's financial accounting and reporting as a starting point in computing the metrics used. When done well, Value Based Management can help to focus on value creation. (Frigo, 2002). Value creation involves much more than merely monitoring firm performance. Value is created only where managers are actively engaged in the process of identifying good investment opportunities and taking steps to capture their value potential. (Martin and Petty, 2001). According this approach before making the investment decision and confirming projects the following questions must be asked:

1. How much it is needed to be invested in the project?
2. How much profit the project will generate?
3. How big the risk is?
4. Is the profit from the project bigger than the risk in it?

Value Based Management systems need valuation models that are expanded to include metrics for both the income statement and balance sheet. (Ray, 2007; Dagiliene, 2007; Gheno, 2007). To be useful, these valuation models need to contain variables that are related explicitly to income statement and balance sheet items. (Miller et al., 2004). The valuation models based on profitability, growth and capital intensity are recommended for evaluating Value Based Management by McKinsey and Company, Inc. ROE, along with return on assets (ROA), is one of the all time favorites and perhaps most widely used overall measure of corporate financial performance. (Wet and Toit, 2007).

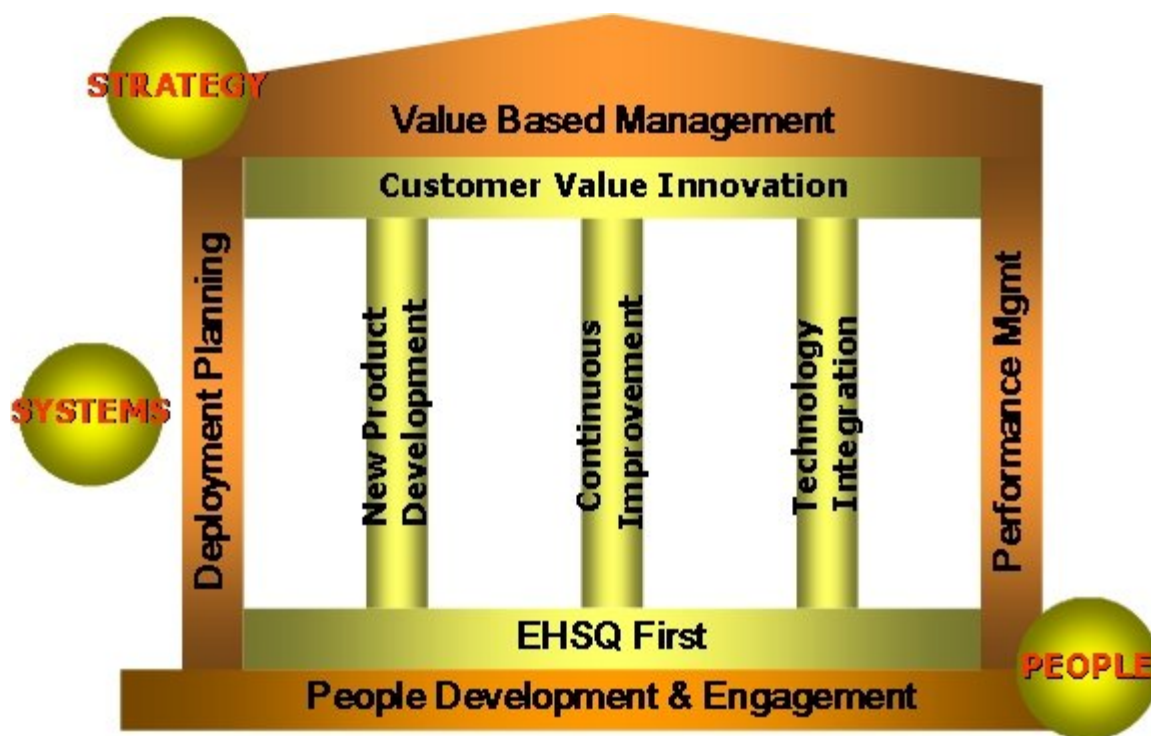
The value –based management accounting framework builds upon prior practices outlined above and its purpose is to create long-term shareholder value. While this framework varies from company to company, there are 6 general steps. The following is reproduced in picture 1 (Value-based management accounting framework).



Picture 1. Value based management accounting framework [adapted from Ittner and Larcker]

When valuing company the following steps must be taken (see Picture 1): (Copeland, 1996; Helfert, 2003). For a company to generate high returns and show leaders performance requires considered strategy and well planned management. (Fingar and Aronica, 2001; Koller and Peacock, 2002; O.Hanlon and Peasnell, 2002; Olsen and Halliwell, 2007). Creating shareholder return requires concrete plans and measured actions. “Using Value Based Management alone can have certain disadvantages by failing to reflect all the pathways to value creation. Integrating Value Based Management with a Balanced Scorecard framework can provide a way to avoid this limitation”. (Frigo, 2002). “Managing for value improves the quality and pace of strategic decision making”. (Armour and Mankins, 2001).

The scorecard framework enhances financial – based strategies by making explicit the specific customer outcomes and performance drivers that enable the financial targets to be achieved. “Without the balance of the scorecard Value Based Management can be based only on cost reduction and increased asset intensity but miss the opportunity to create additional value by a longer term revenue growth strategy”. (Kaplan and Norton, 2002:379).



Picture 2. Value based management [Kaplan and Norton, 2002]

Strategy is a guideline into value creation and VBM cannot be separated from it. (Frigo, 2002; Ray, 2007; Thompson and Louis, 2007; Van Clieaf and Langford, 2005; Verespej, 2007; Peters, 2007;

Litman and Frigo, 2004; Macmillan and Tampoe, 2000). R.Kaplan and D.Norton created a framework that they found effective in practice. “Strategy is not a stand – alone management process; it is one step in a logical continuum that moves an organization from a high – level mission statement to the work performed by frontline and back – office employees”. (Kaplan and Norton, 2002:32).

One of Value Based Management parts is managing for Value. Managing for value requires identifying what drives value in the capital market. Researches (Frigo, 2002; Martin and Petty, 2001; Brown, 2006; Wright and Snell, 2004) and shareholders attach significance to financial statements, especially cash flow report, according to this it is possible to analyze if investments generate positive returns. Managing for value (MFV) goes beyond tracking economic value added (EVA) and cash flow return on investment (CFROI). MFV is a holistic management approach that encompasses redefined goals, redesigned organizational structures and systems, rejuvenated strategic and operational processes and even revamped human resources practices. (Armour and Mankins, 2001).

How the value of a company must be created, leads to long – term shareholder value formation that consists of four parts:

1. Financial perspective;
2. Customer perspective;
3. Internal perspective;
4. Learning and growth perspective.

Values can be categorized by the following groups:

1. Economic-pragmatic values are necessary to maintain and bring together various organisational subsystems. They include values relating to efficiency, performance standards and discipline. These values guide activities such as planning, quality assurance and accounting.
2. The way people behave in groups is guided by the ethical-social values that the members share. Ethical values emerge from beliefs held about how people should conduct themselves in public, at work and in relationships. They are associated with social values such as honesty, respect, congruence, and loyalty. A person's ethical values will influence how they behave when living personal economic pragmatic values and their emotional-developmental values.
3. Emotional developmental values are essential to create new opportunities for action. They are related to trust, freedom and happiness. Examples of such values are creativity/ideation, life/self-actualization, self-assertion/directedness and adaptability/flexibility.

Summing up the first chapter, in this work, the term liabilities is seen in a broader sense than just obligation to credit institution. It is obvious that there is no one common theory for liability structure creation for all the companies, because a very important factor in liability structure creation is company's characteristics which every company has its own. The characteristics of the company such as size, asset structure, profitability, tolerable risk, growth and shareholder rights have the biggest influence on the liability structure. Value-based management systems focus on wealth and the wealth creation process and promote the generation of value for the shareholders. Value Based Management involves transforming behavior in a way that encourages employees to think and act like owners.

2. COMPANY'S MAIN VALUATION METRICS

In the second chapter I will discuss the main methods and approaches which can be used to evaluate company's performance. All the time both theorists and practitioners are trying to find a newer and more precise method to value the company, so in this chapter the most recent and popular approaches are offered.

2.1. Economical value added

The analysis of the evolution of business valuation methods showed that in new economy signification of financial and production factors are being diminished in the process of the determination of business value. Under conditions of market competition intangible assets factors, such as intellectual property (patents, copyrights, trademarks, software etc.), intellectual assets (costumer-related, contract-related, human capital-related, marketing-related etc.) and structural capital (strategy, processes, systems, culture, potential, innovation etc.) are increasingly being important. (Vytautas Boguslauskas, Lina Vaskeliene, 2008)

Cash flow analysis is one of the most important pieces of financial information for a firm. Before approving a loan banks analyze the cash flow of firms to decide whether the companies have the ability to repay a loan. As well, the cash flow analysis before an investment project is crucial in order to decide whether the project should be undertaken or not. Simply, the cash flow is the difference between the amount of Litas that enter the firm and the amount of Litas that exit the firm.

However, a strong piece of information to consider is the firm's cash flows over time. This way we will have a more detailed image of the project and see not only if the project is profitable, but also when it becomes profitable, how much of the initial cost is recovered every year, etc.

A paramount objective of management should be the creation of value for the firm. Thus it is strategically important to manage firm's resources with an objective to increase firm's market value (Hawawini and Viallet 2002; Eccles and Pyburn 1992). From an EVA perspective, the ultimate success of a firm is not measured only by its capacity to grow its sales, produce profits, or generate cash from its operations, but whether the firm's activities are creating value for its owners (Ehrbar 1998).

According to economic theory, a firm is creating a value if the net present value of all its investments is positive. Quit simply, EVA is a measure that enables managers to see whether they are earning an appropriate return on the capital under their control. It is a measure of profit less the cost of

capital employed and is the one measure that properly accounts for all the complex trade-offs, often between the income statement and balance sheet, in creating value (Pettit, 2000).

The EVA metric is not only a measure of financial performance but should serve as the centerpiece of a strategy development and implementation process. Putting value based management into practice, however, has been found to be more complicated than some of its proponents suggest, Haspeslagh, Nada and Boulos (2001) found a number of characteristics associated with the successful implementation of value based management (VBM). Successful VBM companies keep the technical accounting aspects of EVA simple, making very few changes to their accounting practices. They invest time and effort in identifying and assessing the operational factors, or value drivers, that have the greatest influence on the creation of economic profit. These firms integrate their entire system into a single process including the continual monitoring and alignment of compensation to performance. And, perhaps equally important, successful firms institute broad based VBM training so that all frontline employees and managers understand the concept of value creation and their role in the process.

Advantages of Economic Value Added:

- *Measuring Profits the way shareholders count them:* Peter Drucker has put the matter in a Harvard Business Review article as, "Until a business returns a profit that is greater than its cost of capital, it operates at a loss. Never mind that it pays taxes as if it had a genuine profit. The enterprise still returns less to the economy than it devours in resources...Until then it does not create wealth; it destroys it." EVA corrects this error by explicitly recognizing that when managers employ capital they must pay for it, just as if it were a wage.
- *Management System:* EVA can give companies a better focus on how they are performing, its true value comes in using it as the foundation for a comprehensive financial management system that encompasses all the policies, procedures, methods and measures that guide operations and strategy. The EVA system covers the full range of managerial decisions, including strategic planning, allocating capital, pricing acquisitions or divestitures, setting annual goals-even day-to-day operating decisions. In all cases, the goal of increasing EVA is paramount and thus removes a lot of confusion
- *Financial measure line managers understand:* EVA has the advantage of being conceptually simple and easy to explain to non-financial managers, since it starts with familiar operating profits and simply deducts a charge for the capital invested in the company as a whole, in a business unit, or even in a single plant, office or assembly line

- *Ending the confusion of multiple goals:* Most companies use a numbing array of measures to express financial goals and objectives. Strategic plans often are based on growth in revenues or market share. Companies may evaluate individual products or lines of business on the basis of gross margins or cash flow. Business units may be evaluated in terms of return on assets or against a budgeted profit level. Finance departments usually analyze capital investments in terms of net present value, but weigh prospective acquisitions against the likely contribution to earnings growth. EVA is the only financial management system that provides a common language for employees across all operating and staff functions and allows all management decisions to be modeled, monitored, communicated and compensated in a single and consistent way - always in terms of the value added to shareholder investment.

Key Benefits of EVA	
From the Management point of view:	From a Motivation point of view:
1. Improvements in capital efficiency and operating profitability. 2. Greater focus on optimal capital structure. 3. Improved strategic and scenario planning. 4. More robust acquisition analysis tools.	1. Longer-term focus. 2. Greater alignment in shareholders and employees interests. 3. In a recent survey (Gallup employees), about 80 per cent of companies employees felt that EVA/PLVR (Performance-linked Variable Remuneration) was the initiative that made the most difference.

Table 2. Key benefits of economical value added [summarized by author]

Limitations on EVA

A major limitation is its over-reliance on historical, financial measures such as profit margin, asset turnover, cost of money, and level of capital invested in the firm. Recent research has shown that these lagging, financially oriented measures are not necessary indicative of future performance. In many industries, in a range of business sectors, leading drivers have shown to more important in predicting future EVA than current EVA, but they are not directly included in most EVA systems (Ittner, Larcker and Rajan, 1997; Epstein and Manzoni 1998; Banker, Potter, Srinivasan 2000). These leading drivers are often non-financial in nature and encompass such factors as product innovation, customer satisfaction and loyalty, employee productivity, product quality, brand equity, etc. (Lynch and Cross 1995). The importance on focusing on these value drivers is twofold. Not only do they focus

the activities of frontline employees on value creation, but also they tend to push the management team to develop its strategies with much greater clarity. The question becomes how to integrate financial and non-financial drivers (leading and lagging indicators) into the planning and valuation process.

Pitfalls of EVA

Wrong periodizing: in case on a single project the normal depreciation schedules cause the ROI and consequently EVA to be small at the beginning of a project and big at the end of the project. ROI is low at the beginning of the project as the capital base is high while at the latter stages the ROI shoots up because of the low capital base.

Distortions caused by Inflation and Capital Structure: EVA is affected by the accounting policies. Thus in long run a higher EVA will be reported if for example R&D costs are charged to the income statements and are not capitalized. Similarly inflation brings about distortion in the value of assets and affects EVA.

Paradox of EVA: We know that:

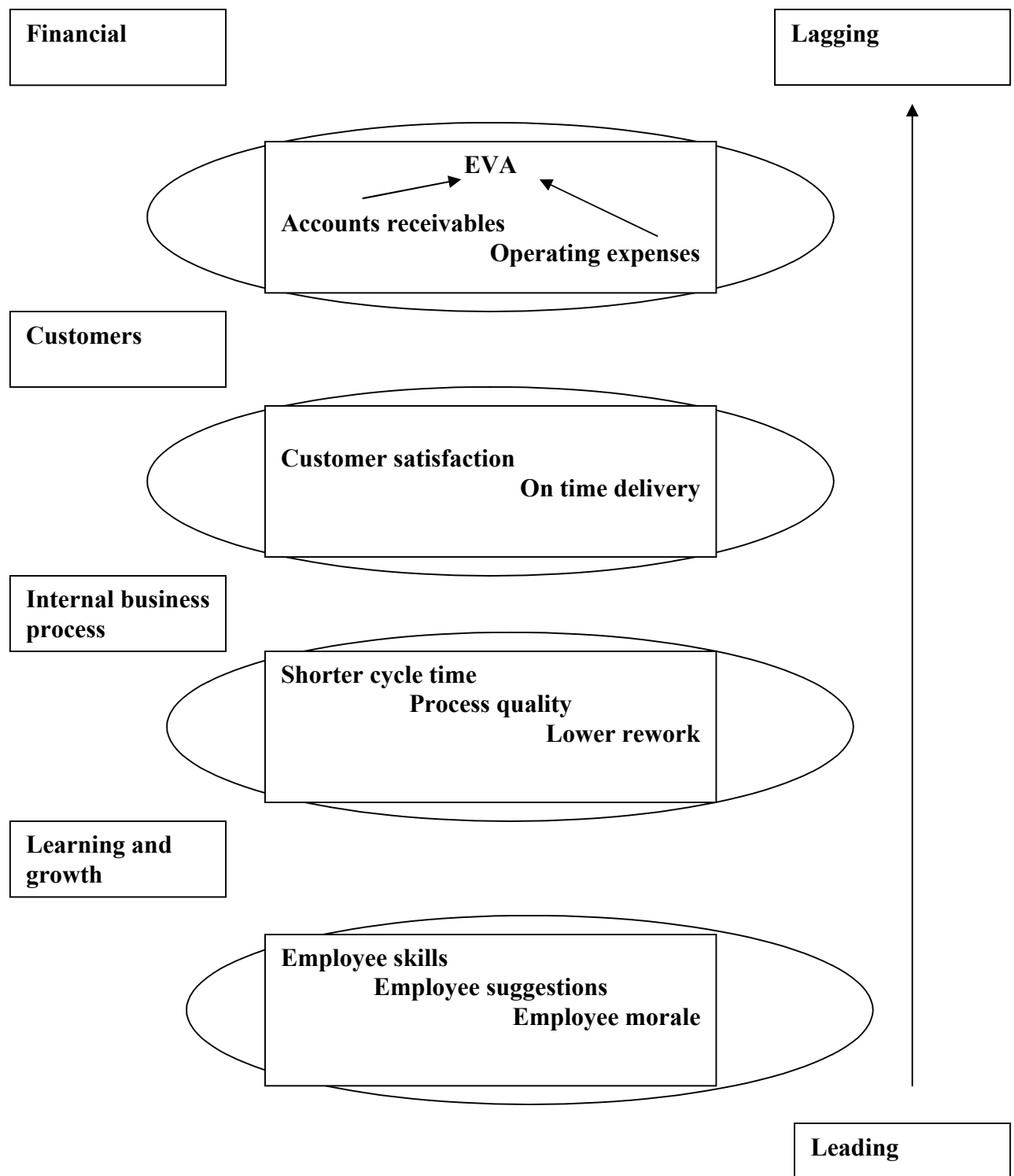
$$\text{Market Value of Equity} = \text{Book Value of Equity} + \text{PV of all future EVA} \quad (1)$$

Thus the EVA valuation has two components book value and future EVA and by increasing the book value of equity we actually reduce the future EVA because of the capital costs and vice versa.

The balanced scorecard

The balanced scorecard (BSC) is a performance management tool that has been used to foster a more integrated perspective of the organization and the value process. Developed by Kaplan and Norton (1992), it is based on the concept that managers must manage and evaluate their business from at least four major perspectives:

- customers,
- internal business process,
- innovation and learning, and
- financial.



Picture 3. Performance indicators in a causal chain [summarized by author]

These four perspectives encourage management to develop an integrated strategy around the following four questions:

1. How do customers view the firm?

(The customer perspective is measured in part by indicators of customer satisfaction, on-time delivery, share of key accounts' purchases, ranking by key accounts.)

2. What business processes must the firm improve and exceed at?

(The internal business perspective is measured in part by indicators such as cycle time, unit cost, yield, and quality).

3. Can the firm continue to learn and innovate?

(The innovation and learning perspective is measured in part by indicators such as percent of sales from new products, development time for the next generation of products, quantity and quality of employee suggestions, and employee skill development.)

4. How does the firm appear to its shareholders?

(The financial perspective is measured in part by such indicators as cash flow, return on equity, market share).

The scorecard takes a balanced look at the organization because it focuses on:

1. leading and lagging drivers of performance
2. financial and non financial measurements, and
3. quantitative as well as qualitative measures of performance.

All too often, firms invest in decision support tools as the balanced scorecard and the EVA, but do not use them effectively, mainly because managers have difficulty in relating them directly to ongoing operations.

Picture 3 organizes performance indicators in a causal chain. This strategic map shows that indicators can be thought of as a continuum. Customer satisfaction is a leading indicator of EVA, but it may also be a lagging indicator of on-time delivery. In other words, better on-time delivery improves customer satisfaction, which leads to higher sales and the speedier collection of receivables, which in turn lead to higher EVA. While on-time delivery is a leading indicator of customer satisfaction, it may also be lagging indicator of production cycle time and the quality of both the manufacturing process and the product themselves. Process and product quality, rework rates, and cycle times are, in turn, lagging indicators of employee skills and morale. The balanced scorecard focuses management attention on these causal relationships leading to higher EVA.

The key to integrating these two systems is quantifying the relative importance of the firm's leading and lagging indicators and meshing them into one comprehensive performance index. We propose employing the multi-criteria decision-making technique known as the analytical hierarchy process (AHP) as the tool to facilitate this linkage, to develop an integrated performance index, and to

monitor its implementation. AHP has been increasingly used to link qualitative and quantitative measures in an integrated framework (Liberatore et al 1997, Pineno 2000). It has been applied to business problems and is particularly useful for allocating resources, planning, analyzing the impact of policy and resolving conflicts (Saaty 1996).

2.2. Analyses of Discounted cash flow method

There have been many surveys of capital budgeting techniques over the past three decades (e.g., Graham and Harvey, 2001; Kim, 1986; Klammer, 1991; Pike, 1996; Ryan and Ryan, 2002; Schall, 1978). Although there has been wide acceptance of discounted cash flow (DCF) methods, very little is known about the underlying reasons for practice variations in the use of capital budgeting techniques. In particular, the extant literature reflects two shortcomings. First, although it has been long recognized that DCF methods are not always appropriate (Haka, 1987; Myers, 1984), few studies have examined the circumstances in which the use of DCF methods may or may not be beneficial.

Second, existing surveys have mostly focused on quantitative financial measures (Ittner and Larcker, 2001). While both normative literature (Kaplan, 1986; Myers, 1984; Shank and Govindarajan, 1992) and case/field studies (Carr and Tomkins, 1996; Miller and O'Leary, 1997) suggest the importance of non-financial considerations, studies based on cross-sectional surveys have generally ignored non-financial measures. This is surprising, given calls for integrating non-financial measures into management accounting systems during the 1990s (Kaplan and Norton 1992; Vaivio 1999).

However, in an evaluation of the capital budgeting literature, Mukherjee (1987) noted that “much of the past effort has been spent on the ‘what’ and not enough on the ‘why’ of capital budgeting practices.” One exception is the finding that larger firms tend to make more extensive use of DCF techniques than smaller firms (e.g., Pike, 1996; Graham and Harvey, 2001; Schall, 1978).

Researchers have long recognized that DCF techniques are not unconditionally appropriate (e.g., Haka, 1987; Kaplan, 1986; Myers, 1984). Specifically, the usefulness of DCF methods depends on a firm's ability to estimate DCF parameters including:

- a project's future cash flow;
- the risk-adjusted discount rate;
- the project's impact on cash flows generated from other assets; and
- the project's impact on future investment opportunities (Myers 1984).

The ability of managers to estimate these parameters is likely to vary depending on the environment in which firms operate (Haka, 1987; Myers, 1984). Firms in stable environments with a limited number of products, simple cross-sectional relationships, and few growth opportunities are likely to find DCF techniques more useful because of their ability to estimate the parameters. Alternatively, firms in complex and risky environments may find DCF methods less useful, as a result of their difficulty in estimating the parameters. However, this type of reasoning has seldom been incorporated into studies to explain the variation in DCF usage.

For example, Myers (1984), in discussing the inability of DCF analysis to capture the benefits of future growth and flexibility, concludes that rational managers would simply bring these considerations into project evaluation, in addition to DCF analysis, as strategic factors dressed in non-financial clothes. Both Klammer (1993) and Shank and Govindarajan (1992) suggest that strategic cost management be integrated into capital budgeting using methods such as value chain analysis, cost-driver analysis, and competitive-advantage analysis. Additionally, case study evidence, although limited, offers support for the use of non-financial considerations in capital budgeting.

Miller and O'Leary (1997) describe how Caterpillar redesigned its capital budgeting mechanisms to include substantial non-financial considerations because of the inability of DCF analysis to incorporate the benefits and costs of integrating diverse assets. However, as pointed out by Ittner and Larcker (2001), the case study evidence is less than conclusive due to the use of ambiguous measures and the lack of statistical tests.

While the above literature review suggests the importance of both DCF analysis and non-financial considerations, there are reasons to believe that each approach plays a different role in capital budgeting. According to finance theory, DCF analysis will lead to optimal investment decisions as long as a firm is able to estimate DCF parameters accurately (Haka, 1987; Myers, 1984). Non-financial considerations are recommended as an alternative when the firm cannot adequately implement DCF analysis (Carr and Tomkins, 1996; Kaplan, 1986; Klammer, 1993; Myers, 1984; and Shank and Govindarajan, 1992).

When managers have substantial confidence in DCF analysis, then it would have less of a need for non-financial measures. In contrast, non-financial measures are likely to become increasingly important in situations where managers lack confidence in DCF analysis (Carr and Tomkins, 1996; Kaplan, 1986; Myers, 1984).

Product standardization measures the product dimension of company technology (Brownell and Merchant, 1990). Companies vary from low (one-of-a-kind) to high (commodities) standardization.

High standardization implies an optimal input/output relationship that is either known or can be learned through experience (Brownell and Merchant, 1990).

In such an environment, investment projects are likely to have features that management would be able to quantify accurately within the DCF framework. If DCF analysis can be implemented with confidence, consideration of non-financial factors will be less important. However, low standardization suggests product uniqueness, a complex manufacturing process, and reliance on research and development. In this type of capital budgeting environment, management is more than likely to find it difficult to estimate DCF parameters.

Firm strategy is defined according to the Defender versus Prospector typology of Miles and Snow (1978). This typology has been frequently used in management accounting research (Chong and Chong, 1997; Haka, 1987; Simons, 1990).² A Defender operates in relatively stable product markets, has a narrow product range, engages in little research and market development, and competes primarily through cost leadership, quality, and service.

Previous researches have shown that Defender firms tend to use more objective financial measures (e.g., Govindarajan and Gupta, 1985; Simons, 1990). By the same logic, these firms are likely to find DCF analysis suitable as a result of their ability to estimate DCF parameters, and, thus, there is less need to consider non-financial measures. In comparison, a Prospector competes primarily through new products and markets, which requires intensive and continuous efforts to search for new products and market opportunities. When making decisions in a Prospector firm, financial considerations have been found not to be as important as non-financial factors such as maintaining product leadership and seeking future opportunities (Govindarajan and Gupta, 1985; Simons, 1990). Consequently, it is expected that the Prospector will find DCF analysis less beneficial and will emphasize non-financial measures in capital budgeting.

Three common criticisms of DCF

- The first major criticism of DCF is that it is often a black box with variables that are easily manipulated to produce an answer that suits the analyst's needs. There are many examples of analysts who have tailored assumptions about the discount rate, capital expenditures or terminal value growth rates to back into the desired outcome. Or, as often happens, the models become so complex that it is impossible to ascertain what is actually driving the cash flows and value.
- The second criticism is that the value is highly sensitive to changes in the discount rate, which depends on seemingly arbitrary assumptions of the market risk premium and the stock's beta.

- The third criticism is that the terminal value often drives the majority of the DCF value and that it is highly sensitive to small changes in underlying assumptions.

2.3. The option approach

A recent trend addressing capital budgeting decisions under uncertainty applies option pricing theory to investments on real assets—commonly referred to as real options. Under the real options framework, any corporate decision to invest or divest in real assets is viewed as an option. Firms have the right but not the obligation to invest, similar in nature to a financial call or put option on a traded security. Utilizing an options framework, the firm's flexibility to revise investment strategies as events unfold becomes quantifiable. In fact, the ability of the real options framework to quantify this flexibility makes it a very appealing choice when evaluating certain investment scenarios (Trigeorgis, 1993; Kemna, 1993; Miller & Park, 2002; Copeland & Antikarov, 2001). In a recent survey by Graham and Harvey (2001) of 4400 firms ranging in size and business practice as to the popularity of several capital budgeting methods, 27% had adopted a real options approach.

Santos (1991) views investment in IT as an exchange option and uses Margrabe's financial option framework (Margrabe, 1978). Kumar (1996) demonstrates that the relationship between IT costs and benefits may lead to either increasing or decreasing option values with increasing risk. McGrath (1997) describes how the relationship between boundary conditions and uncertainty influences the value of IT positioning investments. Panayi and Trigeorgis (1998) value IT investment projects in infrastructure development utilizing a growth options framework. Benaroch and Kauffman (1999, 2000) use a traditional call option framework to evaluate the deployment of IT point-of-scale debit services. Taudes (1998) develops a general valuation model of IT software growth options using the concept of sequential exchange options. Taudes, Feurstein, and Mild (2000) discuss the practical advantages of using option pricing techniques for the selection of software platforms.

The options approach deviates from the conventional DCF approach in that it views future investment opportunities as rights without obligations to take some action in the future (Dixit and Pindyck 1995). The asymmetry in the options expands the NPV to include a premium beyond the conventional NPV calculation. Thus, properly accounting for the value of flexibility could increase the total value of the project and the probability of justification.

A number of researchers have addressed the option value of flexibility in manufacturing. Kulatilaka (1988) analysed the value of flexibility using a stochastic dynamic programming model.

Triantis and Hodder (1990) developed a model for valuing a flexible production system with an option to switch its product mix over time. Pruett and Park (1992) studied the resolution of uncertainties in flexible manufacturing investments in a stepwise fashion and applied their method in an investment scenario, which possesses process flexibility. Kumar (1995) proposed a method of valuing expansion flexibility based on options theory. Karsak (1996) presented an approach for valuing expansion flexibility and product flexibility in FMSs using exchange options.

In this paper, sequential exchange options are used to value expansion flexibility in investment justification. Industrial firms typically undertake phased investments in an FMS that enables the use of results obtained from earlier phases to resolve the uncertainties in the forthcoming stages. In valuing the expansion flexibility, an initial investment is considered as being analogous to purchasing an option to exchange one risky asset (subsequent investment) for another risky asset (return accruing from the subsequent investment) within a time period from the initial investment. This option will be exercised only if future circumstances are beneficial; otherwise the risk is limited to the initial investment, which corresponds to the option price. Although providing a new perspective for valuing flexibility using options theory, neither Kumar (1995) nor Karsak (1996) considered the fact that there is an opportunity cost of delaying expansion of the FMS. While keeping the option to expand alive has certain benefits, a valuation without considering the loss of market share to competing manufacturing firms if the expansion were delayed would be incomplete and might yield erroneous results.

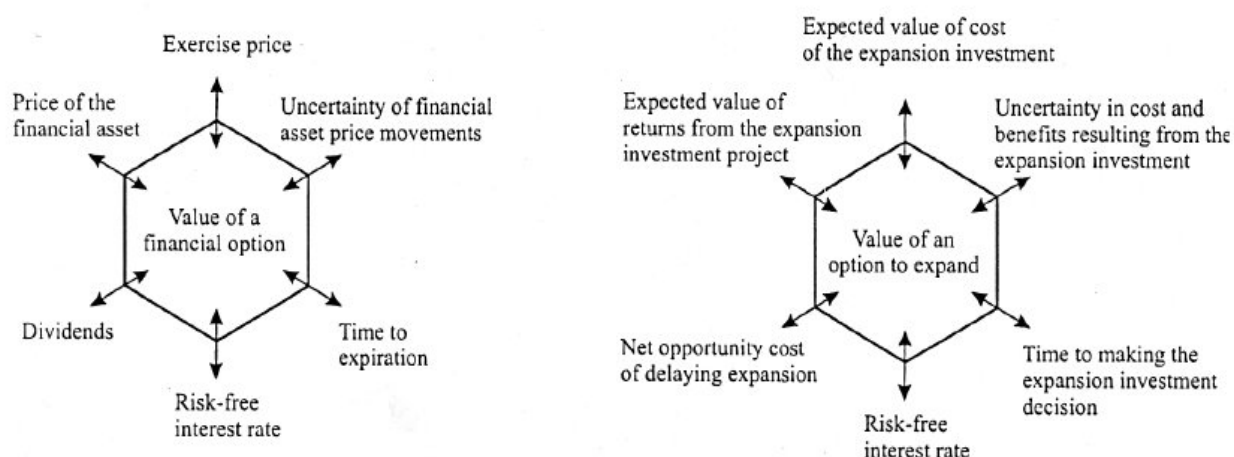
A substantial part of the market value of companies operating in volatile and unpredictable industries such as electronics, telecommunications and biotechnology can be attributed to the real options that they possess (Dixit and Pindyck, 1995). Real options preclude the traditional passive analysis of investments and imply active management approach with an ability to respond to changing conditions. In other words, real options approach enables manufacturing firms with the required insight to assess opportunities and to act on them before they become obvious to other firms in the market.

McDonald and Siegel (1985) developed a formula for valuing a European exchange option on such dividend-paying assets. In general, option-pricing techniques require the source of uncertainty to be a traded commodity such as oil, silver or gold, which is not likely to be met when the underlying asset is not traded in limited supply for investment purposes. In this case, the expected percentage rate of change (growth rate) of the underlying asset is less than the equilibrium total expected rate of return required in the market by investors from an equivalent-risk traded financial asset (McDonald and Siegel, 1985). The resulting shortfall between the risk-adjusted return on a similar financial asset and the actual growth rate of the underlying asset can be considered in analogy to a constant dividend yield

that can represent any proportional cash flow payout on an operating investment project (Trigeorgis, 1996).

A picture offered by Karsak and O' Zogul (2002).

E. E. Karsak and C. O. Özogul



Picture 5. A comparison of a financial option and an option to expand modeled using sequential exchange options.

[E.Karsak and C.Ozogul]

For a real options analysis, four techniques may be used to estimate volatility: the twin security argument (Trigeorgis, 1993), implied volatility (Hull, 2000), modified scenario analysis (Miller & Park, 2004), and Monte Carlo simulation (Copeland & Antikarov, 2001; Herath & Park, 2002).

- Under the twin security approach, for projects where an appropriate twin security can be identified in the market (such as the futures market for natural resource projects or the firm's stock price), the historical return distribution of the twin security can be used as a proxy for the real asset volatility. This argument pre-supposes that if the project itself were publicly traded, then it too would vary in a similar fashion to the twin security.
- If the firm has traded financial options, then the implied volatility of the financial option can be used to gauge project volatility. Conceptually, the implied volatility represents the uncertainty that investors have placed on the future value of the firm.
- The modified scenario analysis utilizes project present value estimates and properties of geometric Brownian motion to determine volatility.
- The Monte Carlo simulation approach simulates the volatility by determining the return distribution for the project's value between two time periods. The standard deviation of this return distribution then represents the volatility of the project.

While option valuation techniques appear as an invaluable resource in incorporating the active management concept, a comprehensive option valuation framework entails the proper consideration of the impact of the opportunity cost of delaying investment in today's competitive marketplace. The opportunity cost of delaying investment may be analysed as analogous to dividend-like effects in financial options.

DCF techniques, which were originally developed for valuing stocks and fixed-income investments, fall short of taking into account the flexibility to respond to changing market conditions since they assume that firms hold investments passively. An important distinction between the real options approach and DCF analysis is that the real options approach embodies the value of flexibility. In real life, firms possess the flexibility to revise their decisions in response to unforeseen events that affect the value of a project through time. Hence DCF techniques could substantially understate the value of a project incorporating flexibility options. In other words, proper consideration of the value of flexibility could increase the total value of a project, and thus the probability of justification.

The real options approach deviates from DCF techniques as it captures the mechanics of flexibility. Expansion flexibility in a phased manufacturing investment can be valued by viewing an initial investment as being analogous to purchasing an option to exchange one risky asset for another risky asset within a time period from the initial investment.

2.4. Net present value method

The methods of evaluating the opportunity of an investment project are the NPV method and the IRR method. If the NPV of the project is greater than zero or the IRR is greater than some minimum predetermined rate, the project is profitable, thus it should be undertaken. In most cases these two methods will yield the same conclusion regarding the profitability of a project, and when not, the NPV method is more accurate.

Both the NPV and the IRR of a project depend on the cash flows associated with the project, which in turn depend on many factors: the initial investment(s) required by the project, the revenues to be expected and their evolution in time, the discount interest rate, which in turn depends on the required return on the project, the inflation component and the uncertainty component, etc.

Many times the variables that underlie the project's cash flows or the interest rate for discount purposes are not known with certainty, so firms estimate them and use the best guessed values to

perform the necessary project analysis. Any change in one of these variables compared to the estimated value can affect the NPV of the project or whether the IRR is greater than the cost of capital.

It is therefore necessary to assess the degree of the forecasting risk for these variables and to what extent they might affect the profitability of the project, as well as to identify the variables that are most critical to the success or failure of the project.

Sensitivity analysis investigates what happens to the NPV and IRR of the project when one or more variables change. The idea is that we freeze all the variables except the one(s) analyzed and check how sensitive the NPV and/or the IRR are to changes in that variable. We don't have specific examples to show you (you can do many scenarios in Excel). However, look back into our cash flow series and familiarize yourself with tools of the cash flow trade.

Comparison of NPV and real option

Evaluating investment scenarios impacted by uncertainty, delay in project benefits, and irreversible expenditures is not a trivial task. Numerous capital budgeting techniques exist to aid in identifying today's value associated with these projects; namely, payback period, discounted cash flow approaches to include net present value (NPV) and internal rate of return, and real options. For certain investment scenarios NPV may work best, whereas in other cases the real options framework may prove superior. The NPV approach works best for decisions involving a moderately straightforward business structure, well-defined projects, and a steady environment allowing for dependable forecasts.

The real options approach should be utilized for business decisions dependent upon the value of additional information, timing, and uncertainty. In fact, NPV may be viewed as a special case of the real options framework. Let V_t denote the present value of project benefits at time t and I denote the present value of investment costs. Under both NPV and real options the firm will be advised to invest if $V_t > I$, and not invest if $V_t < I$. Consider the following project payoff (or equivalently real option payoff):

$$\max(V_t - I, 0) \quad (2)$$

If $t = 0$ or today, then the option payoff in Equation (2) is nothing more than the standard NPV decision rule. Implicitly, the NPV approach assumes management exercises their option today (i.e., $t = 0$) and views the decision as go–no go today even if the capital outlay is not required today. The benefit of the real options framework is valuing Equation (2) when $t > 0$. What the real options framework identifies as a premium above and beyond NPV is the firm's option to walk away from the investment obligation if $V_t < I$ at the actual time of the required capital outlay.

Thus, in general terms, the real options approach identifies the project's value factoring in uncertainty and management's flexibility to walk away from the investment obligation.

Taking into consideration the information discussed above the biggest benefit of considering real options in the capital budgeting process is that they help decision makers reach optimal investment decisions. In this regard, real options complement or extend, not replace, traditional DCF decision models. Some embedded real options may lead to completely different investment decisions compared to those based solely on a traditional DCF analysis. Put another way, a less attractive investment proposal may be worth significantly more once we recognize its hidden treasures—investment flexibility based on the existence of *real options*. In principle, because they can help optimize the capital budgeting process, real options should always be considered when making long-term investment decisions.

Not long ago, DCF models were new to many managers who typically relied more on simple decision models, such as payback or accounting rate of return (ARR), for making capital budgeting decisions. Today, NPV has become a common financial management tool. Because of their role as management advisors, management accountants now need to become knowledgeable about what real options are and how they can extend DCF models in a meaningful way. Real options have a flipside, too. The major cost of incorporating real options is that the decision process can quickly become quite complex. The more factors we consider the more complex the analysis becomes.

When we attempt to incorporate more factors into the capital budgeting valuation framework, the more “noise” we introduce, making the results of our analysis potentially less accurate.

Second, incorporating real options into the analysis typically requires an array of probability estimates, one for each possible event, outcome, or scenario.

Third, a typical capital investment project may have many embedded real options simultaneously, and it may be impractical to consider all of them. Nevertheless, real-life decisions are inherently complex; these complexities do not go away simply because we choose to ignore them in the decision models we use. Put another way, complexity of the situation only makes real options analysis a bit less reliable.

Nonetheless, real options analysis will become one of the common tools managers and accounting professionals use to evaluate long-term investment projects.

2.5. A Gardening Metaphor: Options as Tomatoes

Managing a portfolio of strategic options is like growing a garden of tomatoes in an unpredictable climate. Walk into the garden on a given day in August, and you will find that some tomatoes are ripe and perfect. Any gardener would know to pick and eat those immediately. Other tomatoes are rotten; no gardener would ever bother to pick them. “Hiese” cases at the extremes-now and never-are easy decisions for the gardener to make. In between are tomatoes with varying prospects. Some are edible and could be picked now but would benefit from more time on the vine. The experienced gardener picks them early only if squirrels or other competitors are likely to get them. Other tomatoes are not yet edible, and there's no point in picking them now, even if the squirrels do get them. However, they are sufficiently far along, and there is enough time left in the season, that many will ripen unharmed and eventually be picked. Still others look less promising and may not ripen before the season ends. But with more sun or water, fewer weeds, or just good luck, even some of these tomatoes may make it. Finally, there are small green tomatoes and late blossoms that have little likelihood of growing and ripening before the season ends. There is no value in picking them, and they might just as well be left on the vine.

Most experienced gardeners are able to classify the tomatoes in their gardens at any given time. Beyond that, however, good gardeners also understand how the garden changes over time. Early in the season, none of the fruit falls into the “now” or “never” categories. By the last day, all of it falls into one or the other because time has run out.

The interesting question is. What can the gardener do during the season, while things are changing week to week? A purely passive gardener visits the garden on the last day of the season, picks the ripe tomatoes, and goes home. The weekend gardener visits frequently and picks ripe fruit before it rots or the squirrels get it. Active gardeners do much more. Not only do they watch the garden but, based on what they see, they also cultivate it: watering, fertilizing, and weeding, trying to get more of those in between tomatoes to grow and ripen before time runs out. Of course, the weather is always a question, and not all the tomatoes will make it. Still, we'd expect the active gardener to enjoy a higher yield in most years than the passive gardener. In option terminology, active gardeners are doing more than merely making exercise decisions (pick or don't pick). They are monitoring the options and looking for ways to influence the underlying variables that determine option value and, ultimately, outcomes.

Option pricing can help us become more effective, active gardeners in several ways. It allows us to estimate the value of the entire year's crop (or even the value of a single tomato) before the season

actually ends. It also helps us assess each tomato's prospects as the season progresses and tells us along the way which to pick and which to leave on the vine. Finally, it can suggest what to do to help those in-between tomatoes ripen before the season ends.

Summing up the second chapter, the options approach deviates from the conventional DCF approach in that it views future investment opportunities as rights without obligations to take some action in the future. The asymmetry in the options expands the NPV to include a premium beyond the conventional NPV calculation. Thus, properly accounting for the value of flexibility could increase the total value of the project and the probability of justification. An important distinction between the real options approach and DCF analysis is that the real options approach embodies the value of flexibility. In real life, firms possess the flexibility to revise their decisions in response to unforeseen events that affect the value of a project through time.

3. PORTFOLIO AS A TOOL FOR DECISION MAKING

In the third chapter, I will discuss the anatomy of portfolio and its analytical possibilities. I will show the main ideas and principles of portfolio formation of the initiator of the theory –Markowitz. I will investigate what impacts have alliance portfolios. Advantages of constructing alliance portfolios will be presented and some drawbacks will be revised. Portfolio is the chosen methodological instrument for given problem solving.

Portfolio could help the company to optimize the combination of liabilities and choose the most cost-effective and risk minimizing combination of indicators of liabilities. This problem is extremely important for the company as it gives basis for future evolvement of the enterprise. If you have correctly calculated capital of your firm, it would be easier to win the share in the market and create appropriate image.

Portfolio is a set of various kinds of assets belonging to any of institutions or individual, which principles of formation are redirected to the employment of various kinds of assets and collection proportions seeking for the utility by the owner of portfolio. Financial portfolio – is the collection of financial assets. The content of portfolio is considered to be of great variety. Besides assets portfolio, liabilities portfolio is possible or it can include both.

It is usual to say that, if the portfolio consists of $A_1, A_2, \dots, A_n$ assets, we assume that the structure of portfolio is $w_1, w_2, \dots, w_n$ ($w_i > 0, w_1 + w_2 + \dots + w_n = 1$) and its value $v = w_1 a_1 + w_2 a_2 + \dots + w_n a_n$, when a_i is the value of asset i .

Following the literature, we define a *portfolio* (which can also be termed an “egocentric network”) as a firm’s set of direct ties (Das & Teng, 2000). From a theoretical view, portfolios are important because firms form ties in the context of building portfolios, making the logic of portfolio building central to understanding tie formation. Portfolios are also theoretically important because they have aggregate properties (such as tie diversity and mix of tie strengths) that affect performance (Uzzi, 1997) but are not meaningful for single ties. Portfolios are also engines of network evolution. That is, networks do not evolve by themselves. Rather, firms adjust their portfolios, thereby changing the networks in which they operate.

The Markowitz model is based on several assumptions regarding investor behavior:

1. Investors consider each investment alternative as being represented by a probability distribution of expected returns over some holding period.

2. Investors maximize one-period expected utility, and their utility curves demonstrate diminishing marginal utility of wealth.
3. Investors estimate the risk of the portfolio on the basis of the variability of expected returns.
4. Investors base decisions solely on expected return and risk, so their utility curves are a function of expected return and the expected variance (or standard deviation) of returns only.
5. For a given risk level, investors prefer higher returns to lower returns. Similarly, for a given level of expected return, investors prefer less risk to more risk.

Under these assumptions, a single liability or portfolio of liability is considered to be efficient if no other liability or portfolio of liability offers higher expected return with the same (or lower) risk, or lower risk with the same (or higher) expected return.

Growing company is developing business through projects that must bring higher returns than it has invested. The wealth of a firm's shareholders is highest if the firm accepts every project that has a positive net present value. Due to limitations, alternative and selection approach usually it is not possible to take all the projects or company is following investment program in order not to undertake all projects and prevent business. This type of practice is called capital rationing that leads to choosing a method for selecting number of projects according company's resources which will end up in highest possible returns or net present value. According Meredith and Mantel (2006), project selection involves assessing individual projects as well as groups of projects and then determining which ones to implement so that the objectives of the organization can be achieved. The key is to maximize the value of a portfolio but also to ensure that the portfolio is balanced appropriately, there is the right number of projects in the portfolio and the portfolio is strategically aligned. (Rad and Levin, 2006:28).

All investment portfolios are selected for a particular time period because of market changes and investors goals. The primary costs are known at the beginning of portfolio selection. (Rutkauskas and Martinkute, 2007).

It is essential to turn to geometric model of portfolio (geometric picture). In case of traditional portfolio, expectation (averages) of investment profit as random quantity is set on ordinate axes while their standard deviations are set on the abscissa ones. That is an obvious geometric illustration of the main portfolio analysis results. Geometric evidence wouldn't disappear if we used rectilinear functions instead of expectations or standard deviations, f. e. we shifted them along the abscissa and/or ordinate axes.

To understand the solution of arisen problems more easily it is essential to concentrate on the geometry surface of those problems reflecting their criteria of decisions in order to find better solution. It is usual to fix the average meaning of portfolio profitability on the ordinate axis, while the instability

(risk) measure of the same profitability i.e., average standard deviation – on the abscissa. Thus, the average and deviation of the same probability distribution are set on separate co-ordinates. Having chosen the set of assets while knowing the meanings of their profitability and standard deviation, and assuming that each of assets could take the part altering from 0 to 1, we'll achieve the set of possible portfolios. This is the way to identify the whole complex of available portfolios or the set of investor's choices.

Mathematical random variables and characteristics of their weighted sums influence such form of available portfolios. Line YB is called efficiency line and is the part of convex curve AB. Those lines are considered to be of reasonable meaning while analyzing separate characteristics of portfolio. Efficiency line - the highest profit average line of available portfolios possessing the proper level of risks.

In the portfolio theory it expresses the equal reasonable combination of profit and risk for the investor.

It is obvious that such logic of portfolio optimisation justifies in case the portfolio involves only risky investments. In this case, its decision belongs to the efficiency line and simultaneously in the network of indifference map.

3.1. How do alliance portfolios contribute to firm performance?

More recently, scholars have begun to recognize the role of partners' resources in value creation. Nevertheless, they have tended to neglect the appropriation hazards that partners impose. This study bridges these gaps in the literature by juxtaposing value creation and appropriation mechanisms and taking into account the resources and competitive positions of partners in the alliance portfolio.

Traditionally, alliances had been considered *ad hoc* arrangements serving specific needs, but more recently, firms have begun to engage extensively in multiple simultaneous alliances. Not only has the number of alliances increased, but their scope has also been extended. An alliance portfolio refers to a firm's collection of direct alliances with partners. Considering the potential advantages of alliances, such as cost sharing, risk reduction, and flexibility (Kogut and Kulatilaka, 1993; Ohmae, 1989; Powell *et al.*, 1996), scholars often assume that alliance portfolios enhance corporate performance. Surprisingly, this assumption received only limited support in early research. The limited evidence on the contribution of alliance portfolios to firm performance can be ascribed to empirical challenges inherent in measuring such a complex phenomenon (Gulati, 1998). Recent research has

made some progress toward overcoming these challenges by shifting from studying dyadic alliances to studying network structures, the nature of ties, and the attributes of partners (Baum, *et al.*, 2000; Rothaermel, 2001; Stuart, 2000; Stuart, *et al.*, 1999). The latter stream suggests that “large firms and those that possess leading-edge technological resources are posited to be the most valuable associates” (Stuart, 2000: 791).

For example, studies on the alliance function for managing portfolios (Kale, Dyer, & Singh, 2002) and the agency hazards of portfolios (Reuer & Ragozzino, 2006) have used the portfolio as their unit of analysis. Others have noted that portfolios are a central direction of future research (Gulati, 2007).

Research has indicated attributes of high-performing portfolios. Portfolios with a mix of strong ties (which enable rich and efficient exchange), and weak ties (which enable greater flexibility and exploration) are likely to be high performing (Uzzi, 1997; Rowley et al., 2000). Portfolios with prominent, resource-rich, and experienced partners improve the likelihood that firms will gain the benefits of ties (Rothaermel, 2001; Stuart, Hoang, & Hybels, 1999). Portfolios that are centrally embedded within their broader industry network (Powell, Koput, & Smith-Doerr, 1996) and with many, diverse partners (Baum et al., 2000) also provide information, flexibility, and resource benefits that are likely to enhance firm performance. But although a clear description of high-performing portfolios exists, it is unclear how firms actually form these portfolios. Instead, the literature offers a descriptive account of which ties form as networks evolve using *resource dependence* and *social embeddedness* theories (Gulati, 1995; Gulati & Gargiulo, 1999). That is, networks begin with the formation of ties between interdependent firms (Powell et al., 1996) and then evolve through the accumulation of ties between increasingly embedded firms (Gulati & Gargiulo, 1999). The result is a deterministic evolution shaped by initial resources and early ties (Gulati & Gargiulo, 1999). This deterministic account describes how “average” firms form their portfolios, but it does not clarify how firms form high-performing portfolios unless they begin as well-endowed firms with superior resources and social embeddedness. It is a “rich-getricher” view that leaves unclear how less well endowed firms might also form high-performing portfolios.

Another possibility is that firms can engage in *strategic action*. Emirbayer and Goodwin (1994) noted that network theory overemphasizes the degree to which network structure constrains human agency. Rather, individuals can maneuver within networks and be inventive and reflective in their network actions (Hallen, 2008; Santos & Eisenhardt, in press), and so improve their portfolios.

Yet although agency and strategic action may be helpful in understanding how firms build high performing portfolios, research has not yet clarified what those strategies are.

3.2. Value creation in alliance portfolios

Value creation mechanisms enhance the focal firm's ability to generate value from its relationships with partners as they pursue shared objectives and extend their range of value chain activities.

These mechanisms produce relational rents that cannot be generated independently by individual participants in alliances (Dyer and Singh, 1998). In turn, value appropriation mechanisms generate private benefits and determine the relative share of relational rents that the firm can appropriate (Gulati and Wang, 2003; Hamel, 1991; Khanna *et al.*, 1998). Value creation and appropriation mechanisms jointly account for the performance effects of the alliance portfolio.

When a firm becomes embedded in a network of alliances, a distinction can be made between the internal resources that it owns or controls (Barney, 1991), and the network resources that are owned by its partners yet can be potentially accessed through its ties to these partners (Gulati, 1999; Lavie, 2006). Network resources encompass tangible and intangible assets, including partners' human resources, financial assets, marketing and R&D investments, and reputation. A firm can leverage these resources through three value-creation mechanisms.

First, network resources directly extend and enrich the firm's value-creation opportunities. Alliance partners provide immediate access to complementary assets that support the commercialization of the firm's products or enhance its service offerings (Mowery, *et al.*, 1998; Pisano, 1990; Rothaermel, 2001). Thus, network resources contribute directly to firm performance by supplementing the firm's resources with resources that may be otherwise unavailable internally and by making available a wider range of strategic opportunities.

Second, the firm can generate synergies by combining network resources with its internal resources (Dyer and Singh, 1998). Besides the increase in the range of available resource combinations, the firm may create value by combining network resources of distinct partners.

Third, network resources contribute indirectly by enhancing the value of the firm's internal resources or by providing it with opportunities to internalize external resources (Lavie, 2006) through imitation, learning, or acquisition. In sum, alliances with well-endowed partners that can endorse the firm and provide various resources will contribute to value creation, and thus enhance the firm's performance.

Several research strands indicate the attributes of high-performing portfolios. One strand focuses on the *performance of the individual ties* that comprise portfolios. This research shows that ties are more effective when the partners are prominent and more experienced with ties and have central

network positions (Ahuja, 2000; Baum et al., 2000; Gulati & Higgins, 2003; Podolny & Stuart, 1995; Stuart, 2000). These partner characteristics improve the likelihood that benefits of ties, such as access to superior resources, will be realized. Research also shows that the relationship between the partners can influence a tie's effectiveness. When partners have greater trust (Sivades & Dwyer, 2000), cooperation (Lorange & Roos, 1993), communication (Larson, 1992; Sivades & Dwyer, 2000), and coordination (Mohr & Spekman, 1994; Sivades & Dwyer, 2000), they are better able to work together, and so achieve the benefits of ties.

Research also suggests that *properties of portfolios*, such as the number and diversity of ties, can positively influence performance (Baum et al, 2000; Dyer & Nobeoka, 2000; Lavie, 2007; Powell et al., 1996). Many, diverse ties are valuable because they create multiple sources of information and access to numerous types of resources. For example, Baum et al. (2000) found that biotech ventures with portfolios containing many ties to diverse partners were more likely to survive. Relationships among partners can also influence performance.

For example, Lavie (2007) found that ties with partners that compete with each other improve focal firm performance by enhancing bargaining power vis-a`-vis these partners. Research also suggests limits on strong ties. That is, portfolios with balanced tie strength are high-performing, with strong ties enabling rich and efficient exchanges and weak ties offering flexibility and new information (Rowley et al., 2000). For example, Uzzi (1997) found that garment manufacturers who had both strong ties that enabled mutual adjustment and rich information and weak ties that kept the firms linked to market changes were more successful.

Finally, network research also has implications for the attributes of high-performing portfolios. A key finding is that, as firms develop more central network positions, they accrue resource and information benefits that enhance their ability to identify and gain the best partners. The implication is that portfolios that put firms in central network positions perform well (Rowley et al., 2000). In keeping with this theoretical logic, Powell et al. (1996) found that firms that became more central within the biotechnology industry (and thus had portfolios with higher network centrality than those of other firms) achieved greater growth. Bae and Gargiulo (2004) extended this finding to show that firms with central portfolios are particularly able to achieve the benefits of ties to prominent partners because centrality provides superior information and tie flexibility and thus lessen power asymmetry.

3.3. Drawback side of alliance portfolios

Alliance research has focused almost exclusively on value-creation while overlooking value appropriation. A firm whose alliance portfolio comprises powerful partners may be unable to appropriate the gains from its alliance portfolio (Bae and Gargiulo, 2004). The paradox is that prominent partners that stand to make a significant contribution to joint value creation may also restrict appropriation by the focal firm, and consequently undermine its performance.

The appropriation capacity of the firm depends on its relative bargaining power vis-à-vis partners in its alliance portfolio. The relative bargaining power of partners can reduce the firm's share of common benefits relative to its share in joint investments (Khanna *et al.*, 1998). Bargaining power derives from two dimensions of interdependence: the stakes of the parties involved in the relationship and the availability of alternatives (Bacharach and Lawler, 1984).

First, relative bargaining power derives from partners' stake in the alliance portfolio. To the extent that the outcomes of alliances are more critical to the performance of the firm than to the performance of its partners, the partners enjoy a strong bargaining position. The firm's weaker bargaining position increases its stake and it becomes more dependent on its alliances and their outcomes.

Thus, assuming that the relative bargaining position of partners is manifested in their profit margins (Porter, 1985), high-margin partners can leverage their flexibility to negotiate favorable terms with the firm and attenuate its appropriation capacity.

These negative performance implications depend not only on the extent to which partners enjoy superior bargaining positions but also on their motivation to increase their relative share of relational rents. Their motivation derives from the level of bilateral competition in the alliance portfolio, that is, the extent to which partners can be considered competitors of the firm. Bilateral competition encourages partners to increase their residual claims for relational rents instead of focusing on collaborative rent generation. Nevertheless, studies that have analyzed the implications of bilateral competition report mixed findings (Balakrishnan and Koza, 1993; Koh and Venkatraman, 1991; Park and Kim, 1997; Park and Russo, 1996). This perplexity can be resolved by acknowledging that bilateral competition provides the motivation, but not the capacity for disproportional rent appropriation. Hence, even when partners in the alliance portfolio have incentives to compete away the firm's rents, they may lack the capacity to do so. If, however, they enjoy a strong relative bargaining power by virtue of their relative profitability or available alternatives, bilateral competition may impel them to leverage their bargaining positions and attenuate the firm's appropriation capacity.

Multilateral competition leads partners to compete for the firm's business, resources, and attention, enabling the firm to arbitrate among partners and control the flow of assets and information in its alliance portfolio. It allows the firm discretion in allocating resources to competing alliances and in choosing partners for pursuing particular initiatives. Additionally, multilateral competition reduces the likelihood that partners will behave opportunistically. Prior research has shown that opportunistic behavior by partners negatively affects alliance performance (Parkhe, 1993).

The firm's favorable position in an alliance portfolio rich in competing partners does not warrant that it will leverage this competitive situation. The firm's tendency to leverage multilateral competition depends in part on its relative bargaining power.

First, to the extent that partners are more profitable than the firm, they are less dependent on their joint alliances with that firm (Yan and Gray, 1994). Relative profitability provides partners with favorable bargaining positions, yet when the firm allies with multiple partners in the same industry; it increases its partners' dependence on their alliances with the firm. Thus, multilateral competition attenuates the negative performance implications imposed by these partners.

Second, multilateral competition influences the value of alternative alliances. By definition, the relative availability of alternative alliances to a partner is negatively related to the number of other partners in the firm's alliance portfolio. However, when these other partners operate in industries different from that of the partner in question, the firm's capacity to leverage its multiple alliances in negotiations with that partner is limited. The substitution among partners, which derives from multilateral competition, can compensate for the limited number of alternative alliances available to the firm relative to its partners. In sum, multilateral competition can restrict the decline in performance attributed to the relative bargaining power of partners in the firm's alliance portfolio.

Summing up the third chapter, prominent partners that can endorse the firm and endow valuable resources may enhance its market performance. On the other hand, powerful partners may leverage their bargaining power to impair the firm's capacity to appropriate rents from its alliances.

Some network resources of partners in the alliance portfolio enhance the focal firm's market performance. Whereas ties to prominent partners with abundant marketing and financial resources enhance market performance, technology and human network resources fall short of creating value, probably since software firms already specialize in the development of intellectual property based on their proprietary technology and human assets. Thus, the relational rents that can be derived from network resources depend on their degree of complementarities from the perspective of the focal firm (Dyer and Singh, 1998).

The firm's dependence on its partners may lead to declining market performance. By simultaneously accounting for the interdependencies in alliances and the contributions of network resources, dominant partners can facilitate joint value creation while adversely affecting firm performance as a result of excessive appropriation of that value. Hence, partners that possess the most valuable resources are not necessarily the finest associates (Stuart, 2000) as they may appropriate the lion's share of rents.

When partners compete with the focal firm in the same industry they are likely to leverage their bargaining position, which restricts the benefits that the firm can extract from its alliance portfolio. In turn, multilateral competition attenuates some of the negative effects of partners' bargaining power. Although the tension among the firm's partners may rise and perhaps even limit their commitments to alliances in the presence of competitors in the alliance portfolio, the firm can leverage the competition among its partners and restrict their ability to exploit their relative bargaining position in bilateral engagements.

4. COMPANY'S X PERFORMANCE VALUATION

From a practical point of view, portfolios are also critical. For example, Reuer and Ragozzino (2006) noted a study in which the average “large” firm had over 30 ties accounting for 6–15 percent of firm value. So although a single tie can be useful, a firm’s portfolio of ties is likely to be more crucial to the firm’s performance, thus placing portfolios at the heart of strategic interest. My aim is to explore how firms originate “high-performing portfolios”—portfolios that are likely to improve firm performance on a general level and I will take an example of one company. On this example I will show how the company can gain from the alliance portfolios and fort the liability portfolio which will lead to company’s value creation.

In order to solve this works problem of most optimal capital structure and formation of liability portfolio for maximization of company’s value, which is described in above chapters, a certain process for optimizing company’s capital structure can be developed. The beginning stages of this process are:

- Analysis of the company’s borrowed capital and equity;
- Evaluation of the main factors, which influence capital structure.

After the initial stages of the process have been completed, one has the available information to attempt to optimize capital structure, using different criteria:

- Minimizing the cost of capital;
- Minimizing the level of financial risks;
- Maximizing the profitability of capital.

Firms are very sophisticated when it comes to deciding on debt structure. More than half of the firms have specific targets for fixed/floating mix, short-term/long-term debt, average maturity, duration, and the fraction of borrowing done from the banking sector.

At the first stage the objective of the financial manager is to determine the existing tendencies of the development of capital structure, as well as its volume, and their influence on the financial stability of the company. Efficiency of the existing financing arrangements can also be considered at this stage. This stage can conditionally be split into three parts – one more concerned with qualitative characteristics and the two other ones concerned with quantifying the results of the analysis.

The first (qualitative) stage involves comparing the dynamics of the total capital and its ingredients compared to the dynamics of production and sales, assessing the proportion of the borrowed and equity and the history of this proportion. Borrowed capital is further split into long-term and short-term

financial obligations, overdue financial obligations are discovered (if they exist) and the causes for the inabilities of a company to meet financial commitments are analyzed.

The second (more quantitative) stage of the analysis uses the system of coefficients of financial stability of a company to assess the capital structure. This stage utilizes well known financial indicators, such as different liquidity ratios (Myers, S. C. *The Search for Optimal Capital Structure / Financial Strategy Adding Stakeholder Value*. Ed. Rutterford J.: John Wiley and Sons, 1998).

4.1. Company “X”

The company “X” operates in wireless gaming industry. This industry is comprised of several types of often interdependent firms, including wireless carriers, handset makers, game platform providers, brand owners, game publishers and game developers.

For example, handset makers and carriers are interdependent because their products (phones and wireless services) are complements. Game publishers are interdependent with carriers because carriers need content such as games to promote use of their networks, while game publishers need carriers to reach consumers. Given this interdependence, portfolios are common and important in this industry. Second, the newness of the wireless gaming industry made it easier to track portfolio formation.

4.2. Industry overview. Comparison with industry’s leader

Using the industry reports, case studies and an extensive database created by the major industry journal, *Wireless Gaming review*, to add quantitative measures of performance and tie strength I will analyse the data, comparing the company “X” to the leader of the wireless gaming industry. The main idea of this chapter is to show that high-performing alliance portfolios give a value for the company. I will compare the strategy the leader of the sector has chosen to the strategy of investigated company “X” and will find out the weak points in the company’s strategy. Using the analysis I will clearly define the pitfalls of company’s strategy, diminishing which and managing the liability portfolio more efficiently will lead to company’s value creation.

Publishers create their own gaming content, aggregate gaming content from developers, incorporate brands, and coordinate with platforms, handset makers, and carriers. Thus, portfolios are

crucial for publishers. As a publisher informant said, “You’re nobody until one of the big guys loves you.” Here the informant takes into account an established carrier or handset maker.

To begin with, a tie is a dyadic relationship of strategic significance to the partners that may or may not be based on a written contract (Gulati, 1995). In light of extant theory (see theoretical background), I assessed portfolio performance with multiple measures: number of direct ties (e.g., Baum et al., 2000), tie diversity (e.g., Baum et al., 2000), and mix of tie strengths (e.g., Uzzi, 1997); network attributes of portfolios: direct, eigenvector, and local centralities (Gulati, 1998; Powell et al., 1996); and tie characteristics: partner prominence (Stuart et al., 1999), partner importance (Gulati & Higgins, 2003), and tie strength. Starclick –the leader of wireless gaming industry which I have chosen to compare it to company “X”, had the highest number of attributes associated with high-performing portfolios, including the most ties with diverse, prominent partners and the highest network centrality, and company “X” had the fewest of these attributes.

I estimated revenue as the number of “hit” games; market penetration, as the number of games and handsets per game; and profitability, as the percentage of hit games. Second, I have analysed quantitative rankings by partners and industry experts of the top ten publishers in the industry. Starclick had the highest firm performance; it was ranked first by all informants, from the rapport, who gave rankings, was lauded in the media (e.g., as the “star of wireless gaming”), had the highest percentage of hit games, and had the best post study performance (an IPO, followed by acquisition for about \$700 million) and company “X” exited. The central argument from resource dependence theory is that firms with high interdependence (i.e., mutual and extensive need for the other’s resources) are likely to form ties to reduce the uncertainty associated with resource dependence (Pfeffer & Salancik, 1978). Underlying this argument is the assumption that the focal construct, interdependence, is an exogenously determined property of dyadic relationships (Casciaro & Piskorski, 2005).

These data indicate that some firms began their portfolios as this account suggests—that is, via a series of single ties with interdependent firms. But firms with high-performing portfolios did not follow this path. Rather, they advocated unique industry architectures to motivate multiple types of potential partners to form ties with them. Following Jacobides, Augier, and Knudsen (2006), we defined an industry architecture as a division of labor within an industry that specifies the roles of different types of firms within the industry and their interdependencies. Architecture was, then, the “blueprint” for the interaction patterns with which the partners strengthened their initial ties, shared the risk of pioneering a new market, and improved their products and prominence.

Topmobile's –one of the wireless gaming industry players and the rival of company "X" vision placed publishers and carriers at the core of the industry and gave their own firm a unique and exclusive gatekeeper role between carriers and other publishers.

Starclick advocated a different vision, which I describe next. Starclick executives began their portfolio by talking with several firms. Some established firms, such as AT&T, were willing to meet with the Starclick executives because they were curious about wireless gaming. A carrier executive noted, "Those guys [Starclick] came to us before some of us even knew about mobile gaming!" Soon, Starclick executives began to promote their own vision of the industry architecture, terming it a "market ecosystem."

Although both partners had considered doing game publishing themselves, they found Starclick's vision of industry architecture appealing because it enabled them to focus on their own businesses. For example, the CEO of an entrepreneurial rival complained: "Starclick gets anything they want at the carrier. It's unfair to the rest of us." An executive at Starclick's carrier partner agreed that Starclick did receive better treatment: "They were the people who were actually around and who suffered through things early on. So it doesn't bother me that they have better terms than others."

These initial strong ties made it difficult to dislodge Starclick. In fact, Starclick remained the number 1 publisher on this carrier and platform provider throughout the study.

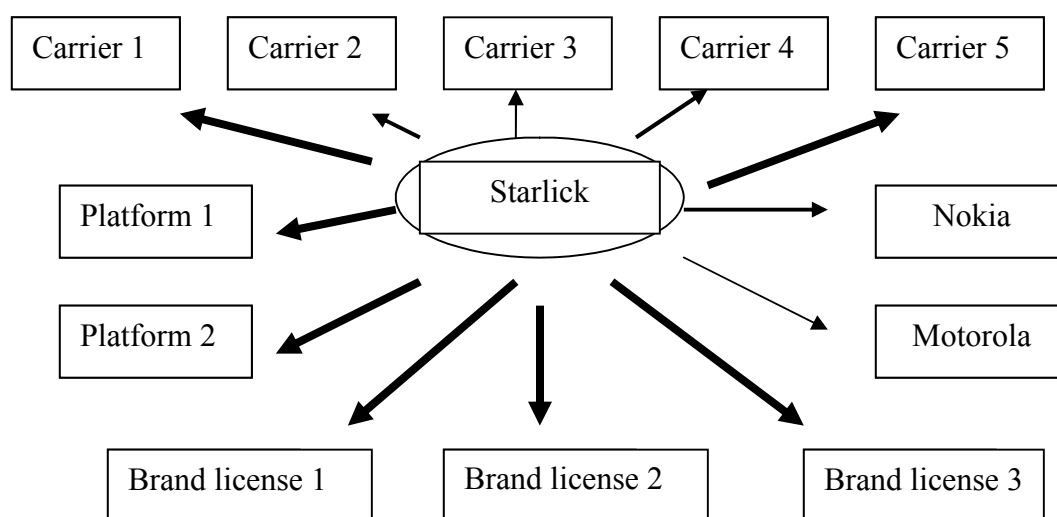
A third consequence of close collaboration was that the partners became prominent. This occurred because their structured interactions enabled them to create a superior wireless gaming experience in which consumers could very easily select, load, pay for, and play high-quality video games on their phones. The partners described this superior gaming experience as the result of the firms' strong dependence on each other. As an analyst wrote, "Although others were trying, they [Starclick and the two partners] were really the ones that combined the ability to execute with lots of games."

An analyst commented, "When [a carrier] launched, Starclick titles were more than 70 percent of the deck." In contrast, Cellcruise and company "X" began by seeking ties with carriers, the firm type on which publishers were considered to be most dependent. Thus, they followed the deterministic account of tie formation and assumed a simplistic, buyer-supplier interdependence (Pfeffer & Salancik, 1978). The case of company "X" illustrates. When "X" began, the plan was to perfect their games while adding ties to major carriers. But other publishers were also creating excellent games, and many publishers had the same dyadic view of interdependence. So "X" had little (if anything) unique to offer potential partners. Company "X" was rebuffed by two of the five major carriers. One had joined Topmobile in its vision of the industry architecture, and the other had restricted its ties to established

video game publishers. Company “X” formed ties with the remaining three but had difficulty gaining the attention of these busy partners. One carrier executive explained its and Company “X” tie in these words: “If you’re new and you want to work with us, you have to do your own promotion.”

To illustrate the model of each company and the tie portfolio, graphical scheme is used.

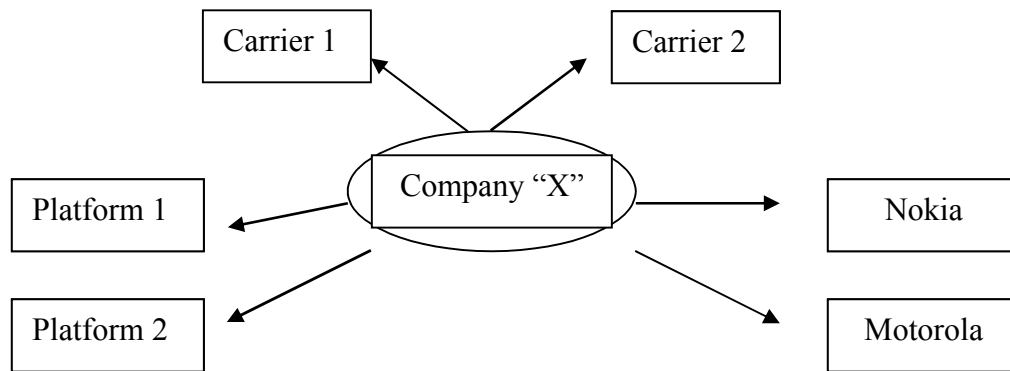
The scheme shows the contacts of Starlick and the strength of tie is displayed by the width of the arrow. Strength is classified here as strong, moderate and weak. Starlick has very strong tie connection in its portfolio.



Scheme 1. Starlick tie portfolio [created by author]

So the tie connection is different with different carriers and suppliers as well as partners, the strongest relation is expressed by the fat line of the arrow. The width of the arrow plays a special role on the scheme. Starlick has chosen a strategy of diversifying relationship with partners.

Let’s see on the tie portfolio of the company “X”. The scheme 2 shows the graphical structure of tie portfolio of company “X”.



Scheme 2. Company “X” tie portfolio [created by author].

Tie connection in company “X” has the same level with all the carriers and suppliers, as it did not succeed to form close relationship with either of these companies. Moreover, it does not have a big choice of carriers, so the relations play even more crucial role in this company and give less diversification for risk managing.

The main idea here is the importance of architectural strategy of the company.

The architectural strategy of Starlick was effective for several reasons. First, it clarified the industry architecture for potential partners, many of whom were unsure of how and when to approach the nascent wireless gaming market. By passionately advocating a clear vision to multiple types of firms, a focal firm could mobilize less prescient potential partners to act in concert and could distribute the risks of pioneering a new market.

Second, the architectural strategy structured collaboration after tie formation, as firms were motivated to act interdependently to realize the vision. As a result of this patterned collaboration, the partners were more likely to strengthen their ties and impede their rivals from forming strong ties with their partners.

They were also more likely to achieve the advocated vision, including creating better-integrated products. This, in turn, made the partners perform better and achieve prominence within the industry. In contrast, Company “X” followed the well-known path of seeking ties with the firms on which they were likely to be the most dependent. They assumed a simple view of dyadic, exogenous interdependence and undertook serial formation of single ties. But this was ineffective.

Proposal 1:

Compared to firms that pursue a series of single ties, firms that advocate and execute unique industry architectures (i.e., firm roles and interdependencies) are more likely to:

- (a) form portfolios with high-performing attributes and*
- (b) achieve high firm performance.*

Using the rapport and the comments of respondents I have observed that some firms expand their portfolios as this deterministic account suggests—that is, they use existing ties as stepping-stones to new ties. But the firms with high-performing portfolios studied here also deviated from this account by sometimes taking “long jumps” to new regions of the industry network. They deviated from the “path-dependent” trajectory of existing ties to address unabridged structural holes between firms unconnected to themselves or to each other. They then cycled between potential partners to form ties based on the prospect of a tie between themselves and the other potential partners. Once ties were formed, the focal firms selectively strengthened some ties by further mediating between their partners, making the ties more resistant to competition and enhancing financial performance.

Starclick used a coordinating strategy to expand their portfolios beyond their initial foundational ties (Proposal 1). But Mobilate, one of the industry players, executives realized that they could enhance their firm’s value as a partner by offering a “unique embeddedness” in which they would join different types of firms—firms that wanted to be coordinated but had not yet figured out how to coordinate, given their lack of contacts, limited time, or disparate business cultures and languages that made communication difficult. Mobilate identified brand owners and carriers as types of firms for which a coordinating strategy might work because these types of firms had not partnered in the past. So Mobilate simultaneously contacted carriers and brand owners, letting them know that Mobilate had had a discussion with the other party, although there was no actual tie with any firm.

After forming these ties, Mobilate executives continued going back and forth between the partners to further coordination and strengthen the ties. For example, when Mobilate completed their first game with a well-known brand partner, they worked with a key carrier partner to promote the game. When the game had gained sufficient sales, Mobilate went back to the brand owner to negotiate for more branded games and joint advertising. Mobilate repeated this “virtuous cycle” of strengthening ties by going back and forth between carriers and brand owners. The CEO said, “The negotiations with the brand owner and the carrier co-evolve. You talk to both. Whenever you see a match, you strike the deal.”

In contrast, Cellcruise and Company “X” either did not quickly expand their portfolios (e.g. Company “X”) or used existing ties as stepping-stones to new ones (Cellcruise) as the well-known embeddedness argument suggests (Gulati, 1995). Cellcruise executives began their portfolio by using founder and investor ties to form carrier ties. They began with carriers because carriers (with their

control of customers) were widely seen as the most crucial dependence for publishers. In line with the descriptive account of deterministic evolution (Gulati & Gargiulo, 1999), Cellcruise planned to gain carrier ties first, and then use them as stepping-stones to other partner types, such as handset producers and brand owners.

Firm	Classification by partner type	Actions	Portfolio consequences	Financial consequences
“X”	None	Focused on initial carrier ties.	Little improvement to portfolio	Limited financial success
Starlick	Brand and carriers	Approached major carriers and brands with prospect of ties. Formed and strengthened some of them. Repeated the same with brands and headset	Added more and diverse ties, strengthened tie selectivity. Increased centrality and prominence	Gained revenue with joint game development, joint promotion and other joint activities
Topmobile	Brand and carriers	Briefly attempted to carrier ties, but quickly copied Stralick coordination logics	Added more and diverse ties, strengthened tie selectivity. Increased centrality and prominence	Gained revenue with joint promotions, and joint game development

Table 3. Coordinating diverse partner relations [created by author]

Table 3 outlines the sampled firms’ varying approaches to coordinating their partners. Starclick used a coordinating strategy by proactively cycling between potential partners, offering the prospect of mutually beneficial ties. This strategy proactively defined embeddedness in terms of prospects for ties. A coordinating strategy is effective for several reasons.

First, a firm is able to lower uncertainty about its quality as a partner by proactively defining its own embeddedness, on the basis of the prospect (not the reality) of ties.

Second, the focal firm solves the “action problem” that often faces unconnected firms. As Obstfeld (2005) noted, actors often fail to connect because they have limited time, do not know each other, or have very different business cultures and languages; these conditions constitute an action problem. Coordinating strategy enables the focal firm to solve this action problem for its potential partners by saving their time and translating their cultures and languages for each other (for instance, mediating between carriers and entertainment brand owners). This process enhances tie formation.

Third, it enables firms to make long jumps to rapidly expand their portfolios to new regions of a network. Since they are not limited to the path-dependent trajectory of existing ties, firms can create tie diversity and extend to new network regions more quickly than if they just stepped from one tie to the next. Finally, this strategy is effective because firms can strengthen pairs of ties by cycling between their partners, creating positive feedback that makes these ties stronger and more difficult for rivals to dislodge.

The path dependence of this approach also constrains firms to incremental tie formation in local regions of their industry network. Finally, prior ties may offer less value to potential partners than rivals that are forming ties between multiple partners at the same time may attain, either by coordinating between unconnected firms (Proposal 2) or advocating unique industry architecture (Proposal 1). Finally, as Company “X” shows, delay is especially damaging because it becomes difficult to add new partners when potential partners already have sufficient ties and unabridged structural holes are less abundant.

Proposal 2:

Compared to firms that only use existing ties as stepping-stones to new ties, firms that form ties with two disconnected firms by using the prospect of a tie with the other firm and cycle between them are more likely to:

- (a) form portfolios with high-performing attributes and*
- (b) achieve higher firm performance.*

Weak ties are advantageous in the search for new information, and strong ties are suited to parties’ working closely together. Several firms approached this trade-off by favoring a small number of strong ties, allowing them to work more effectively with their partners. So they picked particular marketing and technical standards partners that fitted either their own strengths or their beliefs about the likely resolution of industry uncertainties. They often knew the risk of choosing the wrong partners but believed in the necessity of strong ties to compete effectively.

Firms with high-performing portfolios avoided these bets. Rather, they simultaneously formed multiple ties to cover alternative resolutions of uncertainty. But since managing many ties is demanding (Hansen, 1999), these firms also used an unusual approach to tie execution. They shifted their attention back and forth via what we term “sequential attention”—that is, they worked closely with those partners that were active at a given time, while simultaneously communicating frequently with other partners to signal ongoing commitment. By using sequential attention, firms managed to create a higher number of strong ties by creating the illusion of constant attention to their partners.

This information enabled Starclick to adjust its portfolio by adding brand ties in winning genres such as simple board games and by pruning ties in less popular ones such as sports. This more appropriate set of brand ties made Starclick a more valuable partner. For example, when its carrier partners realized that Starclick had unique information about what was selling (and what was not), they moved to strengthen their ties with Starclick by loading more Starclick games onto their phones, doing more joint marketing, and giving Starclick games better “deck placement,” which is key to game sales on phones. A carrier executive said, “Starclick is our number one publisher. They know the market very well.” Of course, a few prominent firms wanted exclusivity, but they tolerated Starclick’s polygamy because of the firm’s superior information.

Although both Topmobile and Starclick advocated unique industry architectures (Proposal 1) and cycled between potential partners with the prospect of ties (Proposal 2), Topmobile’s focusing on a few strong ties to address industry uncertainties was its pivotal portfolio error in its rivalry with Starclick. “Action-packed games take up a lot of memory and don’t give a satisfying consumer experience on a small screen.” Rather, since consumers were playing wireless games in short bursts (for instance, while waiting at the airport), they liked simple games. These games were also well-suited to the small phone screen. Publishers like Starclick with ties in multiple genres learned this information early.

Firm	Ties by genres	Actions	Portfolio consequences	Financial consequences
“X”	None	Pursue several game genres, but publish unbranded games	Had no brand ties. This contributed to their problems in gaining and strengthening ties.	No hit games. Revenue and reputation suffer

Starlick	Sports, action movie, video game, board game	Add multiple game genre ties to gain information on consumer preferences. Use sequential attention to manage resource demands with brand owners. Shift attention to popular genres.	Based on this information, add/strengthen ties in popular genres. Became more central and prominent	Became publisher with most games on carrier's top ten list
Topmobile	Action, video, sports	Focus on action games by adding action movie brands because they sold well in video game industry	During industry takeoff, missed most popular genres. Could not strengthen carrier ties in this period. Went after brand ties in more genres	Revenue suffered, but recovered with some hit games

Table 4. Probing strategy [created by author]

Tables 4 describe each sampled firm's use of a probing strategy for coping with uncertainty in game genres and platforms, respectively. Overall, Starclick and Mobilate simultaneously formed ties with multiple partners to probe these key industry uncertainties. Sequential attention, which enables firms to maintain many strong ties, was key to this approach. A probing strategy is effective because it puts firms into central network positions, where information is abundant. This superior information enables the firms to adjust their portfolios quickly and accurately as industry uncertainties resolve. These firms become well positioned to exploit the revenue surges that often accompany uncertainty resolution. With these informed portfolio adjustments, firms become more valuable partners, which, in turn, makes it easier for them to strengthen their existing ties and add desirable new partners. These firms are then more likely to become financially successful, prominent, and central.

In contrast, Topmobile, and Company “X” formed a few strong ties around genre and technical standards uncertainties. They assumed a fixed trade-off between the number and depth of ties in which tie depth is static (Hansen, 1999). They did not employ sequential attention and were too optimistic about their ability to anticipate the future. These executives were, unfortunately, surprised by the actual resolution of industry uncertainties. They had the wrong partners when the uncertainties clarified and the market took off. Of course, they might have guessed right, but correctly predicting the resolution of industry uncertainties is difficult (Brown & Eisenhardt, 1997).

Proposal 3:

Compared to firms that form fewer ties around key industry uncertainties, firms that form multiple ties around key industry uncertainties and manage them with sequential attention are more likely to:

- (a) form portfolios with high-performing attributes and*
- (b) achieve higher firm performance.*

A key insight is that executives in firms with high-performing portfolios visualize their portfolios in the context of an entire network, not as a series of single ties.

In contrast, executives in firms with low-performing portfolios have a simplistic view in which they are constrained by given dyadic interdependencies (e.g., buyer-supplier), existing social relationships, and a myopic understanding of the industry that emphasizes local ties.

A second insight regarding high-performing portfolios is the crucial logic of simultaneous multiple ties. Adding multiple ties at once amplifies the value of a firm for its potential partners beyond what the firm brings alone. So the focal firm is better able to attract partners, motivate them to form ties, and so gain an advantage over rivals that rely solely on their own resources. Adding multiple ties at once also enables the partners to create operating synergies once ties are formed.

Firms can, thus, synchronize and reinforce their tie execution by co-creating well-integrated industry architectures (Proposal 1), intricately synchronizing joint activities such as new products (Proposal 2), and combining information sources to better 268 *Academy of Management Journal* April understand industry uncertainties (Proposal 3).

In contrast, firms that serially add single ties offer less value for potential partners than rivals who also bring other partners and orchestrate operating synergies among multiple firms. A third insight is that the well-known deterministic account of network evolution in the literature (Gulati & Garguilo, 1999) implies mediocre portfolios. That is, firms that originate their portfolios by following a path-dependent trajectory of single ties based on dyadic interdependence and social embeddedness, stepping

from one tie to the next, often originate weak portfolios. Although this approach may be successful for firms with superior resources and embeddedness (the rich, who get richer), it is at its core a description of average firms building mediocre portfolios.

In contrast, our theoretical framework suggests that firms that engage in strategic actions based on making multiple simultaneous ties within a holistic industry understanding are more likely to create superior portfolios. Our contribution is to highlight agency and strategy—that is, effective portfolio strategies and related strategic actions in originating portfolios. Broadly, we emphasize that portfolios and networks are not simply exogenous creations of path-dependent trajectories. Rather, they are endogenously crafted by actors who choose to form ties with each other. Overall, portfolio success goes to those with more comprehensive views of their industry and more complete repertoires of strategies.

Firm	Market emergence (1999-2001)	Market transition (uncertainty period and take-off-2002)	Market growth
“X”	Formed a series of weak ties with 3 major carriers. Formed only Java platform tie and had unbranded strategy	Continued to focus on creating games and improving carrier ties, modestly successful with smallest carrier. Lost a major carrier tie	Added Qualcomm tie after platform standard clarified
Starlick	Advocated industry architecture to form base of strong initial ties with a major carrier and platform provider, Qualcomm. Elaborated portfolio with coordinating tie between carrier and brand. Formed Java tie and brand ties in	Developed games with brand owners in multiple game genres, used sequential attention. Major success of gaming system during take-off. Used carrier tie to gain ties with 2 major handset makers	Elaborated portfolio with coordinating ties between carriers and brands, handset makers and brands. Continued sequential attention. Prune ties to less popular brand genres; add ties to more popular brand genres. Became N.1 ranked publisher.

	multiple genres, used sequential attention to manage platform and brand ties.		
Topmobile	Advocated industry architecture to be the gatekeeper to a major carrier, forming strong initial tie with this carrier and ties with several publishers. Elaborated portfolio with coordinating tie between carrier and brand. Formed only Java and action movie ties.	Elaborated portfolio with coordinating ties between carriers and brands. Developed games with action movie brand owners. Used carrier tie to gain tie with one major handset maker.	Major success of gaming system during take-off. Added Qualcomm and BREW carrier ties after platform standard clarified. Could not strengthen. Add ties to popular brand genres after game genre clarified.

Table 5. Portfolio timeline analysis [created by author].

Table 5 summarizes the histories of formation of portfolios and creating company's value during the period of market emergence, uncertainty period, take-off and market's growth.

A key strategy initiating this process is the architectural approach to potential partners. Firms form the foundation of their portfolios by advocating industry architectures that define a unique interdependence that is advantageous to the focal firms and their potential partners. This strategy is effective because it clarifies roles for potential partners and mobilizes their action. They are likely to lead to strong ties with partners while impeding rivals from gaining ties with these same partners.

The key counterintuitive point is that firms seeking high-performing portfolios need not initially form ties with the "best" partners. Rather, strong collaborations around unique industry architectures can transform initially ordinary partners into highly central, prominent, and valuable partners. Overall, advocating unique industry architecture is not only a portfolio strategy. It is also a competitive strategy, especially in highly networked industries.

A coordinating strategy is also effective because it enables firms to take long jumps to other regions of their industry. Taking long jumps adds to their centrality and importance throughout the industry. In contrast, firms that form only local ties based on existing relationships may originate an overly cohesive portfolio and have fewer potential partners. Although these partners may be the best ones, they also may not be. Further, relying on referrals from existing ties is particularly problematic when a firm is attempting to form ties with the competitors of those current partners. Since ties to partners that are rivals add to a firm's bargaining power (Lavie, 2007), relying on referrals from existing partners to form ties with their competitors is unlikely to work.

A key insight is how firms actively manage tie strength with multiple partners (sequential attention) to enable more ties with strong-tie advantages. They shift their attention among ties, working closely with those partners that are currently active, while simultaneously communicating frequently with other partners to signal ongoing commitment. By using sequential attention, firms are likely to create numerous strong ties by creating the illusion of constant attention to their partners. We propose sequential attention as an effective way to mitigate the well-known trade-off between the number and depth of ties (Hansen, 1999).

In contrast, it is argued that executives can proactively create a vision of interdependence (industry architecture) that is unique and advantageous to multiple types of firms. Thus, interdependence can be multilateral and socially constructed, not just fixed and dyadic (Casciaro & Piskorski, 2005). This social construction is particularly advantageous in networked industries with complicated interdependencies and nascent industries that lack an agreed-upon architecture. Finally, since interdependencies structure the blueprint of interaction for executing ties, a firm's vision of interdependence is central to its strategy for winning in an industry.

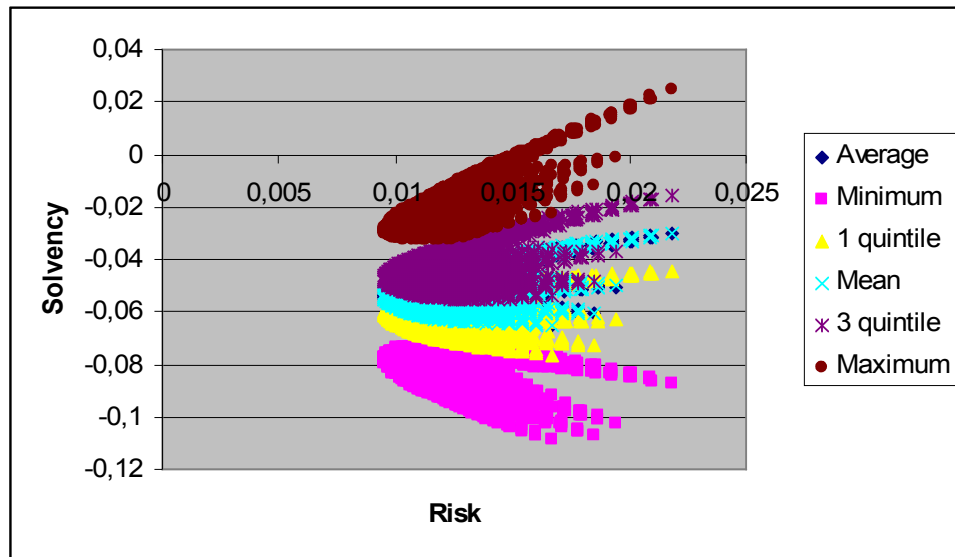
4.3. Company's "X" liability portfolio creation

After the investigation how alliance portfolios help create company's value. Let's also form the liability portfolio which will be based on the strategy of alliance portfolio formation and management and will lead company to value maximization.

The main outlines of company's strategies are analysed and compared to other industry players.

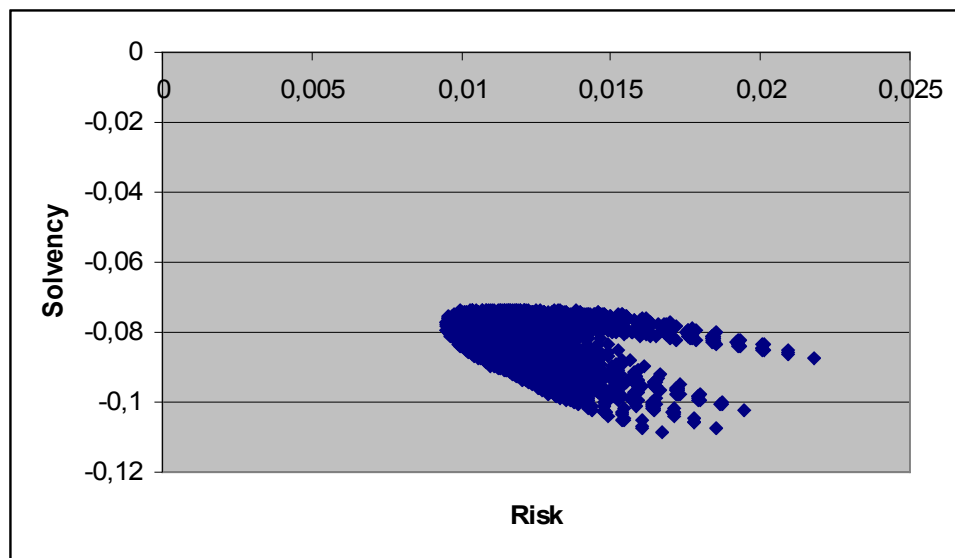
After analysis part, this part will present graphical liability portfolios.

Possibility sets of the developing company "X" liability portfolio analogues.



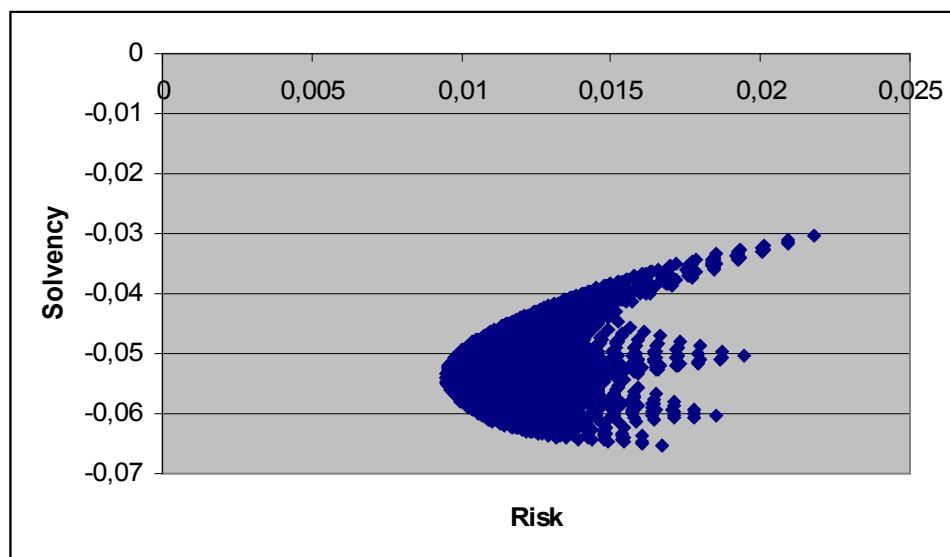
Picture 6. Average standard deviation graphical analogue of developing company “X” liability portfolio for 0,005; 0,25; 0,5; 0,75 and 0,995 levels of quintiles.

Summing up the information which the manager of the company sees from the first picture is that here is the whole set of all quintile-standard deviation portfolios set, which let to examine all the possible values in the portfolio. Also the reliability dimension is added to the results. In the picture different colors are well seen, they show minimum, average, maximum solvency and risk portfolios. The company is especially interested in the 1 and 3 quintile-standard deviation.



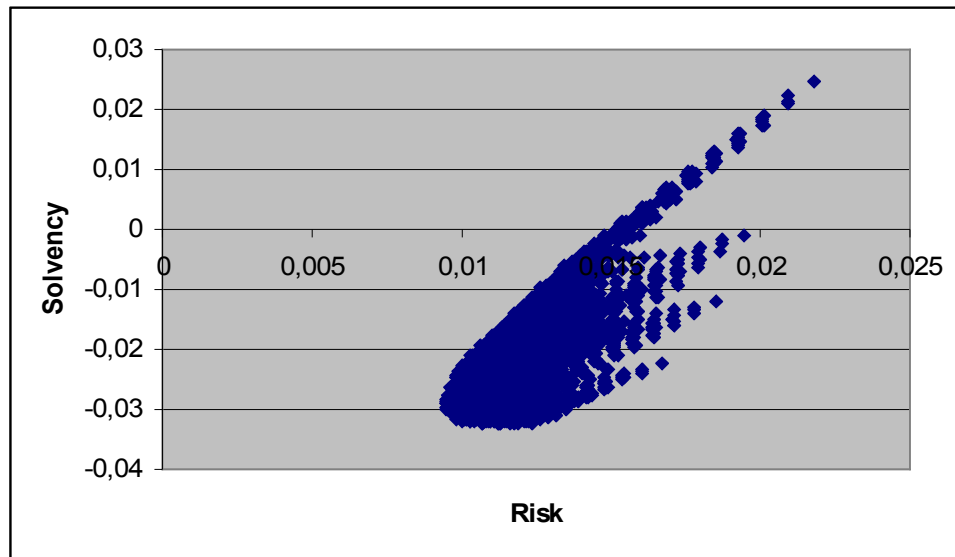
Picture 7. Liability portfolio of developing company “X” graphical analogue of standard deviation 0,005 level of quintiles (minimum).

The result of the second picture is that we can see the portfolio of minimum solvency –standard deviation with reliability level of which is 95%. So there is a high probability that the company will pay more than the minimum data presented. The result is that however, the minimum picture is most favorable for company, but there is the possibility of 95% that the company will pay more than minimum for the use of each liability source.



Picture 8. Liability portfolio of developing company “X” graphical analogue of standard deviation average

The third picture shows the average (in this case it coincides with mean) portfolio which reveals the solvency possibility set for a specified period of time and is informative just in one defined situation, so the company show have been predicted the situation, but in reality, we still need more data to take a decision for this reason it is nor enough just to investigate this picture.



Picture 9. Liability portfolio of developing company “X” graphical analogue of standard deviation 0,995 level of quintiles (maximum).

This picture is the worst situation for the company, as it shows the maximum which should be paid, but also the probability that the payment will grow higher is just 5%. So there is 95% assurance that the company will not have higher payments. These indicators are very important when the company calculates its budget and it can predict the future cash outflow.

In order to receive the full view from analyses done by portfolio it is recommended to evaluate all the possible situations and probabilities and not to stop just on the one view.

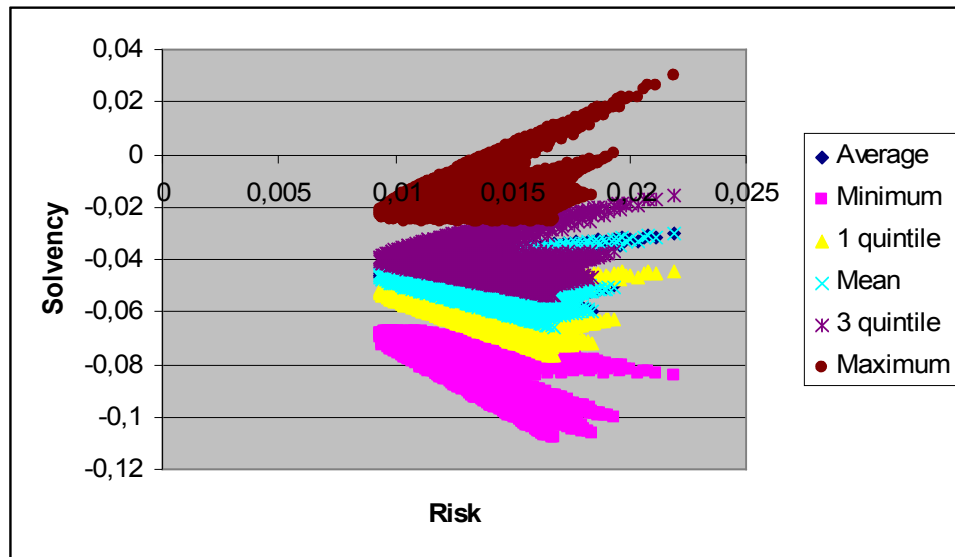
The attention in all the four pictures should be mainly paid on the efficient lines of the portfolios. As it is stated in the theory that the efficiency line could be realised as the whole complex of maximum expected profit (averages) acquired for concrete standard deviation of portfolio set, in our case it is solvency.

After we have the results with independable variables, we can see what happens if the company takes the sources of liabilities which are dependable on each other.

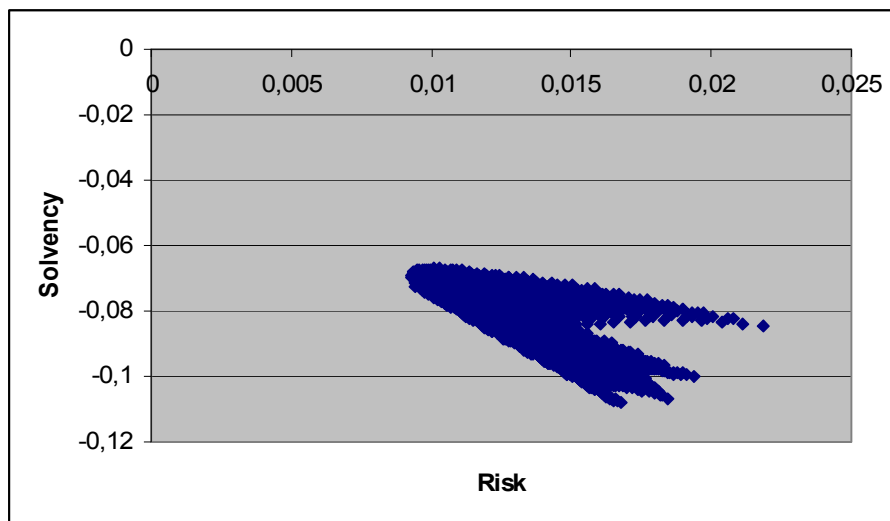
In order to stimulate such a situation, I am using the program, which gives the possibility according correlation analyses to tie the data and make it dependable. The results of the program will be the same data which was as input, but it will become dependable.

Constructing the portfolio with dependable variables

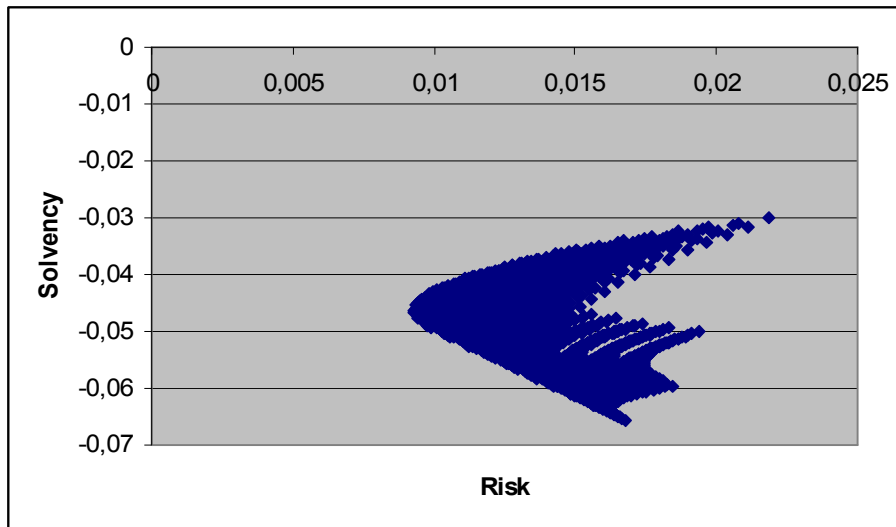
Below we will see the same portfolio views but in the situation of dependable variables.



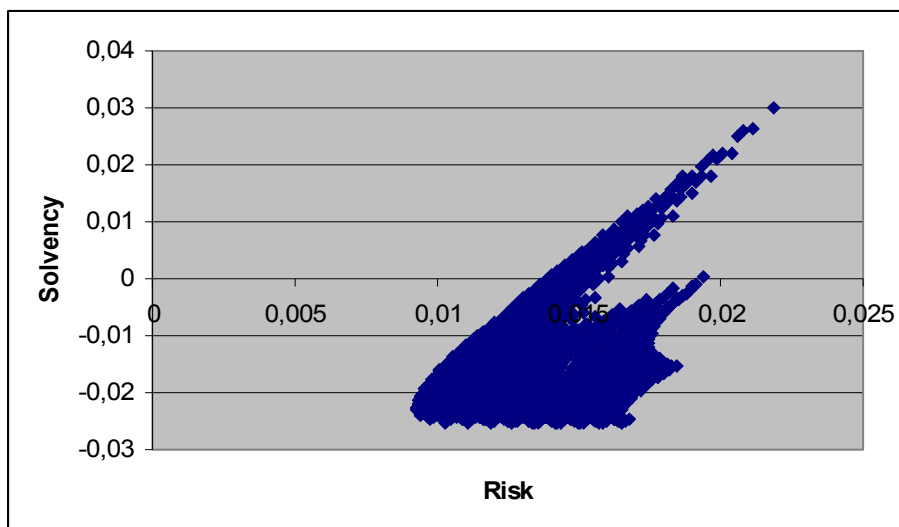
Picture 10. Average standard deviation graphical analogue of developing company “X” liability portfolio for 0,005; 0,25; 0,5; 0,75 and 0,995 levels of quintiles.



Picture 11. Liability portfolio of developing company “X” graphical analogue of standard deviation 0,005 level of quintiles (minimum)



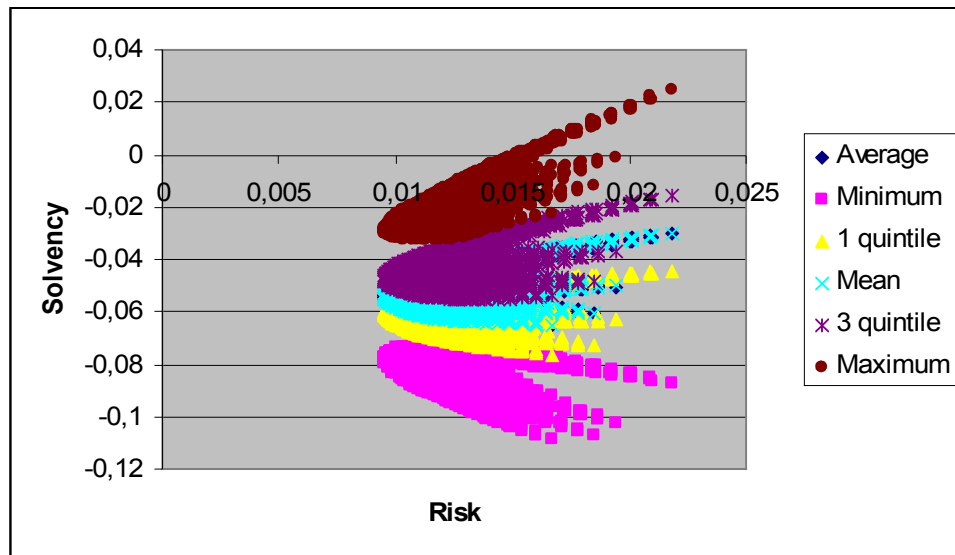
Picture 12. Liability portfolio of developing company “X” graphical analogue of standard deviation average



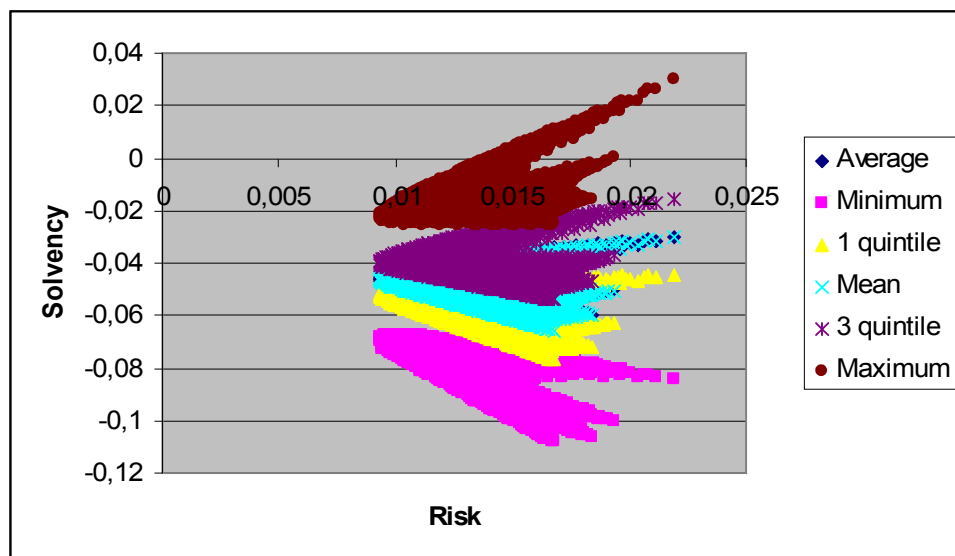
Picture 13. Liability portfolio of developing company “X” graphical analogue of standard deviation 0,995 level of quintiles (maximum)

In order to understand the exact difference of what happens when the sources are independable and when they are dependable we can compare the results.

Comparison of portfolios with dependable and independable input data.

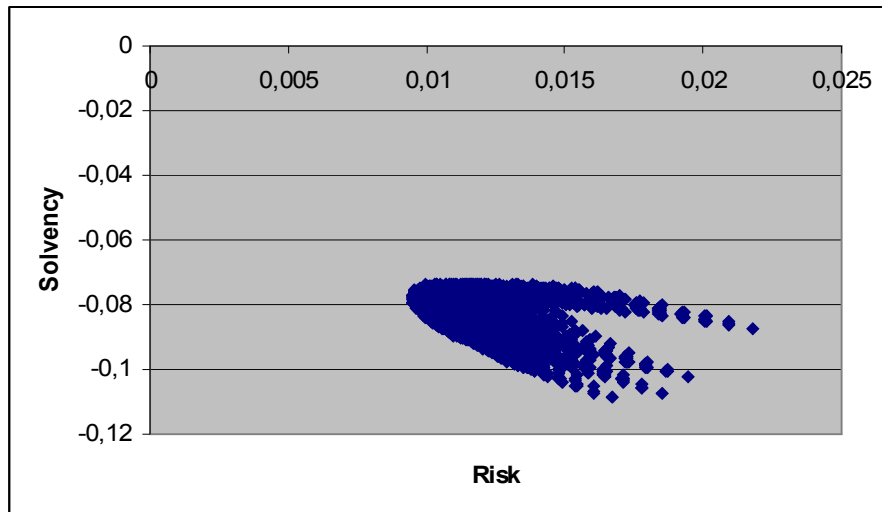


Picture 14a. Average standard deviation graphical analogue of developing company “X” liability portfolio for 0,005; 0,25; 0,5; 0,75 and 0,995 levels of quintiles with independable variables.

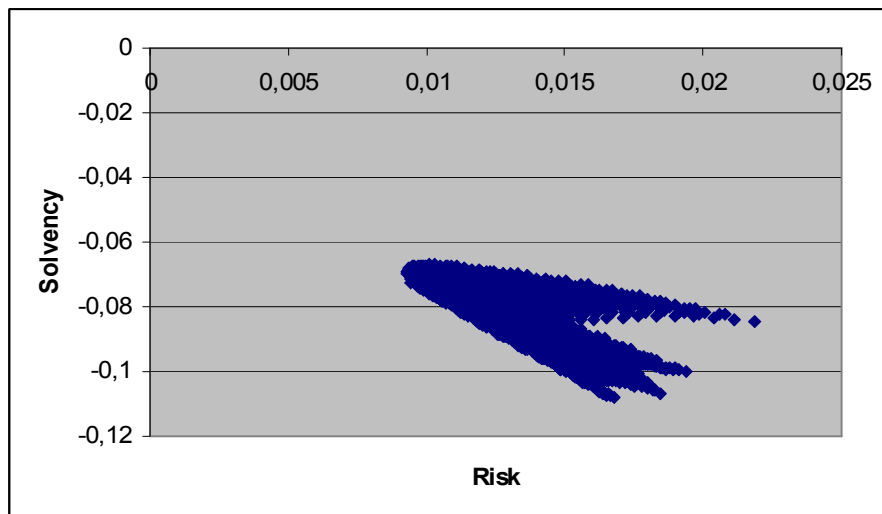


Picture 14b. Average standard deviation graphical analogue of developing company “X” liability portfolio for 0,005; 0,25; 0,5; 0,75 and 0,995 levels of quintiles with dependable variables.

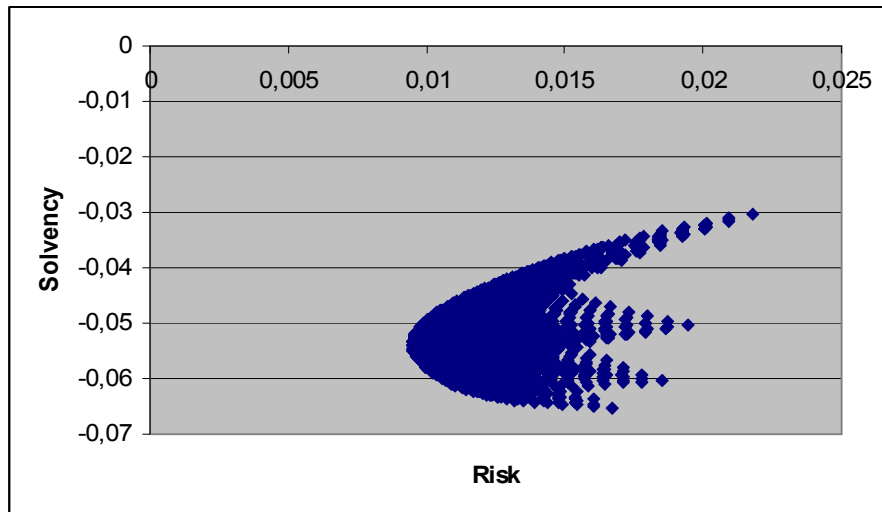
As a result, the graphs change their view, they change the place little bit and it is seen that the risk in the case with dependable variables is increasing.



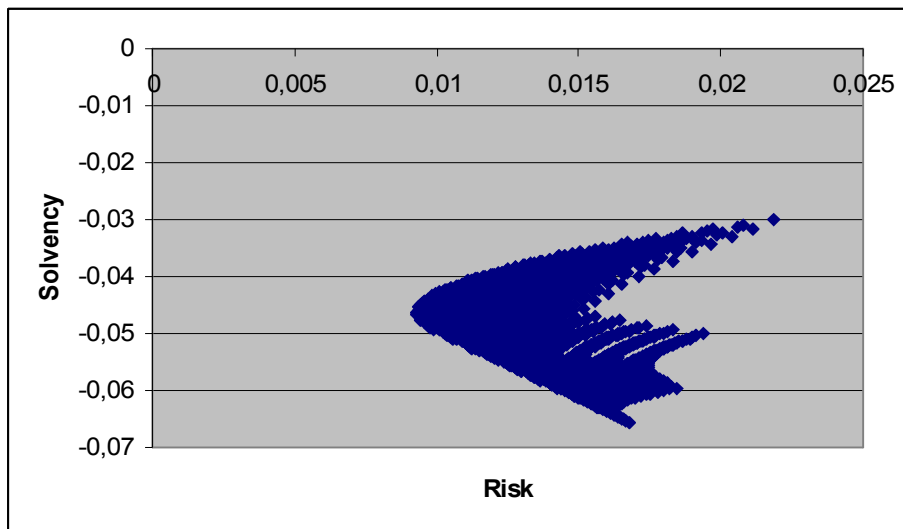
Picture 15a. Liability portfolio of developing company “X” graphical analogue of standard deviation 0,005 level of quintiles (minimum) with independable variables.



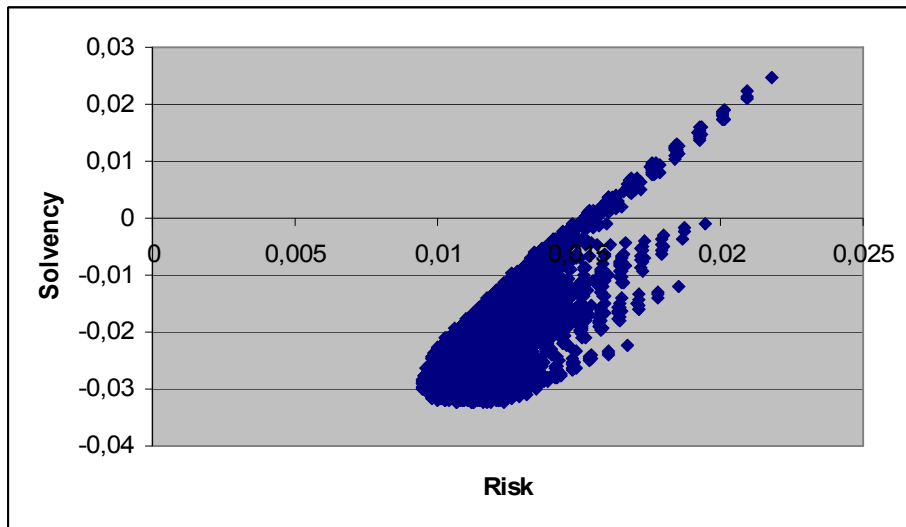
Picture 15b. Liability portfolio of developing company “X” graphical analogue of standard deviation 0,005 level of quintiles (minimum) with dependable variables.



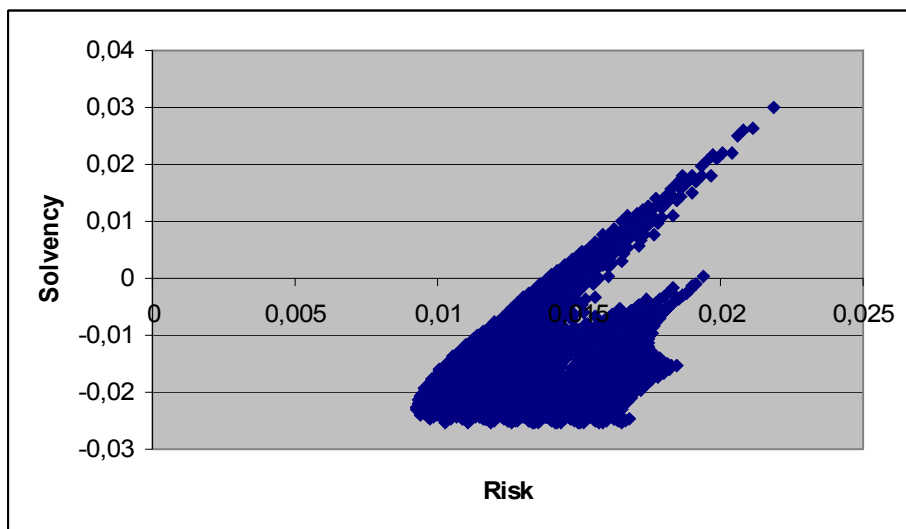
Picture 16a. Liability portfolio of developing company “X” graphical analogue of standard deviation average with independable variables.



Picture 16b. Liability portfolio of developing company “X” graphical analogue of standard deviation average with dependable variables.



Picture 17a. Liability portfolio of developing company “X” graphical analogue of standard deviation 0,995 level of quintiles (maximum) with independable variables.



Picture 17b. Liability portfolio of developing company “X” graphical analogue of standard deviation 0,995 level of quintiles (maximum) with dependable variables.

Now we can see the difference between portfolios with dependable and independable variables. The differences are seen in the solvency zone as well as in the distribution of portfolio profitability possibilities. However, the excel does not give very clear view, but some assumptions can be done according the data we can see. Such remarks can be done after the comparison of portfolios with dependable and independable variables:

1. the difference in the solvency axes is that the graph in the case of dependency has changed its form and moved, so the direction is a bit another, it has went up and made a light shift to the right.

2. the axes with risk on it have changed also: the clearest result is that the risk of portfolio set has grown up. Standard deviation grew increasing the variance of possible portfolios in the case of independent and dependent assets although in latter case the growth of standard deviation was slower. One more result is that the dimensions of efficiency zone (the difference between the highest and lowest value) and average standard deviations were larger in the case of dependent assets. It is understandable with regard to general probability theory. But the obtained solution confirms the comprehensible truth and allows the accomplishment of quantitative evaluations.

Using the data obtained we can chose portfolios for the companies with different utility lines. We can identify 3 groups of utility curves, the first one- the companies which are risk averse, the second – average risk seekers and the third group –risk seekers. According the data obtained the recommendations can be given and they are systematized in the tables below.

Nr.	Type of company	Optimal portfolio parameters		Liability portfolio components			
		Solvency, a_1	Risk, σ_1	A_1	A_2	A_3	A_4
1	Risk averse	-0,05309	0,009648	0,32	0,28	0,16	0,24
2	Average risk seeking	-0,04632	0,011989	0,08	0,36	0,12	0,44
3	Risk seeking	-0,03229	0,02007	0	0,04	0	0,92

Table 6. Optimal portfolios for different utility curves with independable variables [made by author]

Nr.	Type of investor	Optimal portfolio parameters		Liability portfolio components			
		Solvency, a_1	Risk, σ_1	A_1	A_2	A_3	A_4
1	Risk averse investor	-0,04386	0,009726	0	0,44	0,04	0,52
2	Average risk seeking investor	-0,05368	0,013553	0,44	0	0,4	0,16
3	Risk seeking investor	-0,03169	0,019715	0	0	0,08	0,92

Table 7. Optimal portfolios for different utility curves with dependable variables [made by author]

To conclude the fourth chapter such conclusions can be done and these strategies identify for creating high-performing portfolios:

- (1) advocate a unique industry architecture that proactively shapes the industry,
- (2) take long jumps that exploit opportunities to coordinate unconnected, often distant firms, and
- (3) defend against emerging industry uncertainties as they occur. These strategies thus combine active foresight, opportunistic maneuvering, and defensive positioning. Together they comprise a rich repertoire of strategies that relies on holistic understanding of an industry and both formation and execution of ties.

Although we have the same starting information for calculating portfolio for developing company, but the result depends on the company's decision what level of risk the company is willing to take. the most suitable combination for every group of companies is presented in the tables above. When the variables are independable so for the company it is recommended to have minimum risk and to take into consideration such a combination with a risk of 0,009648, the company will take such a composition 32% of bank credit, 28% of bonds, 16% of resources from alliance portfolio and 24% of shares.

The results of comparison of portfolios with dependable and independable variables are such, that the risk is growing and the graphs change their forms, so not only the level of risk changes but also the solvency is changed, as a result, the solvency zone goes down and a bit to the right side. For this reason it is recommended for the company to minimize the risk and to use the sources which are independable.

CONCLUSIONS AND SUGGESTIONS

1. The company works not in a closed environment, but in a competitive market, where there are many other companies working in the same industry. This macro environment makes an influence on the company; these influencers make a decision on liability source choice. More than half of the firms have specific targets for fixed/floating mix, short-term/long-term debt, average maturity, duration, and the fraction of borrowing done from the banking sector. When it comes to deciding on maturity structure and debt currency mix, the structure of the firm's assets is more important, but even for those elements of liability structure, pricing factors receive a lot of weight.
2. Optimizing capital structure can make a tangible contribution to the lowering of the price of capital and increase the value of the company. One of the main examples of this effect is the possibility in most jurisdictions to include the interest on taken loans in the costs of the company, which means that they are excluded from the taxable income of the company.
3. Pricing is the most important element when considering debt structure and the issuance of hybrids: Firms consider current pricing as well as current prices relative to expectations and relative to historical norms. As such, firms often take a view on future price movements when structuring their debt. Firms often decide on the structure of their debt without fully considering the firm's assets. This is especially the case when firms decide on the fixed/floating mix of debt. When it comes to deciding on maturity structure and debt currency mix, the structure of the firm's assets is more important, but even for those elements of debt structure, pricing factors receive a lot of weight
4. According to economic theory, a firm is creating a value if the net present value of all its investments is positive. Quite simply, EVA is a measure that enables managers to see whether they are earning an appropriate return on the capital under their control. It is a measure of profit less the cost of capital employed and is the one measure that properly accounts for all the complex trade-offs, often between the income statement and balance sheet, in creating value.
5. The question of whom to partner with may be as critical as the question of which network structure is desirable. Theoretical part goes beyond exclusive concern with the value creation impact of network resources, noting that resource-rich partners are desirable as long as they do not leverage their superior bargaining positions to appropriate value at the firm's expense. The firm may accommodate such prominent partners in its alliance portfolio by avoiding direct competition with them or by attracting competing partners to balance its disadvantageous position and restore its appropriation capacity. Portfolios with prominent, resource-rich, and experienced partners improve the likelihood that firms will gain the benefits of ties. Network resources encompass tangible and

intangible assets, including partners' human resources, financial assets, marketing and R&D investments, and reputation.

6. A key insight is that executives who visualize their portfolios in the context of their entire industry are more likely to originate high performing portfolios. This more complete cognitive understanding of an industry enables firms to add multiple, simultaneous ties (not a series of single ties) that increase the firms' value to their potential partners and the operating synergies of their ties
7. After analysis of the industry company "X" operates in and the company itself, and the drivers of value of the company several types of portfolio combinations were offered depending on the tolerable risk. When the variables are independent so for the company it is recommended to have minimum risk and to take into consideration such a combination with a risk of 0,009648, the company will take such a composition 32% of bank credit, 28% of bonds, 16% of resources from alliance portfolio and 24% of shares. The dimensions of efficiency zone (the difference between the highest and the lowest value) and average standard deviations were larger in the case of dependent assets. It is understandable with regard to general probability theory. But the obtained solution confirms the comprehensible truth and allows the accomplishment of quantitative evaluations.
8. Portfolio analysis explained that making the same inputs and constraints investors, who are accepting different risk levels, will be satisfied by different combinations of risk and profitability. The difference in the solvency axes is that the graph in the case of dependency has changed its form and moved, so the direction is a bit another, it has went up and made a light shift to the right. The axes with risk on it have changed also: the clearest result is that the risk of portfolio set has grown. Standard deviation grows increasing the variance of possible portfolios in the case of independent and dependent assets although in latter case the growth of standard deviation was slower.

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APPENDICES

APPENDIX A. The following tables provide a condensed synopsis of Ittner, C. D. and D. F. Larcker., 2001 findings as well as any limitations or future research opportunities that they identified.

1 - Research related to the choice of objectives in VBM programs	
<i>Study</i>	<i>Main Point</i>
Copeland et al, 1996. Stern et al, 1995. KPMG Consulting, 1999.	To have congruence between organizational goals and shareholder goals, primary objectives must specify measures of economic value such as EVA & Cash Flow ROI. These measures are more closely aligned to changes in shareholder wealth & should replace traditional accounting measures for goal setting purposes.
Anctil, 1996. Rogerson, 1997. Reichelstein, 1997.	Residual income-based measures such as EVA can assure goal congruence between principal and agent
Milunovich & Tseui, 1996. Lehn & Makhiga, 1997.	Market value was more highly correlated with EVA than ROE, EPS, and other traditional measures.
O'Byrne, 1996	Best model found to predict market value used EVA after controlling for industry and capital for each firm. In the same paper, the best model for predicting market value using net operating profit after tax found no additional benefit by controlling industry and firm capital.
Chen & Dodd, 1997	"Although the EVA measures outperform accounting earnings in explaining stock returns, the earnings measures provide significant incremental explanatory power above EVA (p. 359)."
Biddle, 1997	"Traditional accounting measures generally outperform EVA in explaining stock prices. While EVA measure's capital charges and adjustments for accounting "distortions" have some incremental explanatory power over traditional accounting measures, the contribution was not economically significant (p. 359)."
Gjesdal, 1981. Paul, 1992.	Stock returns are irrelevant objectives.
Zimmerman, 1997	While corporate EVA may be aligned with stock price, divisional EVA may not be an indicator of value creation.

Appendix A continued

Garvey & Milbourn, 2000	"The correlation between performance measures and stock returns is a useful input into the choice of internal objectives (p. 360)."
Wallace, 1997	Compared to companies who did not adopt residual income-based compensation measure, firms who did adopt these measures "decreased new investments, increase payouts to shareholders through share repurchases, and utilize assets more intensively, leading to significantly greater change in residual income (p. 360). Also, found that stock market participants responded favorable to the adoption of these types of compensation plans, but evidence was actually weak.
Hogan & Lewis, 1999	Extends (Wallace, 1997) to investigate performance over a 4-year period, instead of 1. After introducing past profitability into their analysis, they conclude that economic value plans offer no benefit above traditional plans.
Limitations and/or Future Research	
1. Studies usually obtain their data from a consulting company who does not adjust public financial data needed to derive approximate economic profits. As such, the benefits of EVA may be understated. Also, it's questionable whether conclusions should be drawn about EVA from companies who have not implemented EVA systems. 2. Research needs to focus on EVA for something besides executive compensation, such as for goal setting or capital budgeting. 3. Studies tend to focus on EVA as an economic value measure, but there are others such as Cash Flow ROI. These alternative measures should be investigated. 4. Should the maximization of shareholder wealth be the main focus or are other stakeholders more important?	

2 - Strategy Development & organizational design choices	
<i>Study</i>	<i>Main Point</i>
Briskly et al, 1995. Milgrom & Roberts, 1995.	Support the idea that step 2 in the VBM model should be to develop a strategy and an organizational design to accomplish strategy.

Appendix A continued

Miles & Snow, 1978. Porter 1985.	Many studies look at firm strategy as somewhere between being the low cost leader to being the first to market innovator. Additional strategies include differentiation based on quality, customer service, market niche, and customization. Some firms' strategy is merely imitation.
Fisher, 1995	Environmental uncertainty and competitive strategy are related and there is more uncertainty with an innovative strategy than with a cost leadership position.
Daniel & Reitsperger, 1991; Banker et al. 1993, Young & Selto, 1993. Abernethy & Lillis 1995. Ittner & Larcker, 1995 & 1997. Perera et al 1997. Sim & Killough, 1998. Scott & Tiessen, 1999.	Instead of looking at corporate wide or business unit strategy, some studies looked at operational strategies such as JIT, TQM, and flexible manufacturing systems
Vancil 1978	"Diversification strategies are positively associated with the number of functions performed by a profit center and the degree to which profit center managers have control over the assigned costs of centralized operations (p. 364)"
Milgrom & Roberts, 1995. Wruck & Jensen, 1994.	To successfully adopt advanced manufacturing strategies, firms must at the same time change the organization's design and management's processes.
Abernethy & Lillis, 1995. Selto et al, 1995. Scott & Tiessen, 1999.	Results were mixed as to the relation between organizational design and manufacturing strategies.
Brickley et al 1997a. Milgrom & Roberts, 1995.	Objectives, strategies, and organizational designs should be decided simultaneously.
Dent, 1990. Langfield-Smith, 1997.	Accounting systems may cause the strategy rather than the other way around.
Appendix A continued	

Limitations and/or Future Research
1. The authors do a factor analysis on a questionnaire they administered regarding strategy proxies. As a result, they say that researchers "need to incorporate constructs that capture multiple strategic dimensions, and to examine their individual and joint effects on managerial accounting practices and firm performance. 2. Should objectives, strategies, and organizational design be decided simultaneously rather than sequentially as shown in Figure 1? 3. What is the direction of causality among accounting system design, strategy, objectives, and organizational designs? 4. How to organizational objectives affect strategy and organizational design? 5. What other factors affect organizational design?

3 - Identification of value drivers	
<i>Study</i>	<i>Main Point</i>
Foster & Gupta, 1990	A cross-sectional data analysis does not provide strong evidence that "complexity or efficiency-related variables explain overhead costs (p. 368)."
Banker et al, 1995. Banker & Johnston, 1993.	Complexity variables were strongly associated with overhead.
Anderson , 1995. Platt, 1996. Ittner et al, 1997. Fisher & Ittner, 1999.	Relationship found between overhead and non-volume cost drivers, but incremental value of the measures was small.
Noreen & Soderstrom, 1994. Maher & Marais, 1998.	ABC systems that assume costs are strictly linear in proportion to their drivers overstate relevant costs.
MacArthur & Stranahan, 1998	A hospital's complexity was jointly determined with the level of overhead costs needed to support the complexity.

Appendix A continued

Data et al, 1993.	Interdependencies among cost drivers are investigated. Supervision, maintenance and scrap costs were simultaneously
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	determined at a plant that was studied.
Ittner et al, 1997	Manufacturing measures generally corresponded to (Cooper & Kaplan's 1991) cost hierarchy; but activities for these hierarchies are not independent.
Porter, 1985. Riley, 1987. Shank & Govindarajan, 1994. Shields & Young, 1995.	Research that extends ABC to focus on structural drivers of overhead as well as executional drivers.
Kaplan & Norton, 1996. Banker et al, 2000. Behn & Riley, 1999. Larcker, 1998b. Foster & Gupta, 1997. Chenall & Langfield-Smith, 1998. Ittner et al, 2001.	Balanced scorecard research
Limitations and/or Future Research	
1. To what extent, if any, does the linear assumption of ABC and other such costing systems harm decision-making? 2. Research should be undertaken to determine the direct and indirect effects of cost drivers on overhead. 3. What factors moderate the effects of cost drivers on overhead? 4. How and when do structural and executional drivers affect the value chain? How do they interact? What and when are there tradeoffs? 5. Research should study interaction between nonfinancial value drivers. 6. Does understanding cost drivers lead to better decision-making? This has already been studied from the perception of managers so should look at it a different way. 7. Existing studies "examine only one of many potential non-financial value drivers (p. 373)"	

Appendix A continued

8. "Non-financial value driver studies also ignore contingent factors, even though it is likely that issues such as strategy, competitive environment, and customer requirements moderate the relation between these drivers and economic performance, and may explain the mixed results in prior studies (p. 373)." 9. What affect does IT have on the identification & importance of value drivers? 10. How do companies develop business models & how to models vary based upon strategy, firm objectives, and organizational structure? 11. Does performance increase by using balance scorecard and other value driver techniques?	
4 - Develop Action Plans, Select Measures, and Set Targets	
<i>Study</i>	<i>Main Point</i>
Klammer, 1973. Haka etal, 1985.	"Found no evidence that more sophisticated capital budgeting techniques improve performance (p. 376)."
Haka, 1987	"Shareholder returns are higher when discounted cash flow techniques are used in predictable environments and are accompanied by the use of long-term reward systems and decentralized capital budgeting processes. Other factors such as firm strategy and environmental diversity have no significant impact on DCF effectiveness (p. 376)."
Larker, 1981	"Results suggest that non-financial and external information are important in capital budgeting (p. 376)".
Carr & Tomkins, 1996	Successful companies focus on competitive issues, value chain considerations, and fundamental cost drivers more than they focus on financial calculations.
Numerous studies	"This set of studies generally supports theories that the choice of performance measures is a function of the organization's competitive environment, strategy, and organizational design, but the performance effects of these choices remains uncertain (p. 379)."
Bushman etal, 1996. Ittner etal, 1997. Ely, 1991.Lambert & Larcker, 1987. Sloan, 1993. Lewellen etal, 1987. Gaver & Appendix A continued	Research involving types of performance measures used for compensation.

Gaver, 1993. Bizjak et al, 1993. Clinch, 1991.	
Busman et al, 1995. Keating, 1997. Ittner & Larcker, 2001.	"Examine organizational level at which performance criteria are measured (p. 380)."
Wallace, 1997. Hogan & Lewis, 1999. Wallace, 1998.	Mixed results on EVA based compensation
Merchant & Manzoni, 1989. Murphy, 1999. Indejejian et al, 2000.	Little research done on target setting, except when used as a focus for setting compensation.

Limitations and/or Future Research

1. Some of the authors mentioned above tend to use subjective measures and their studies also lacked statistical testing.
2. Most studies examine only a limited number of uses for performance measures.
3. "the studies do not investigate the consistency in performance measures used for different purposes or the alignment between the measures and the firm's specific value drivers (p. 382)."
4. The studies "overlook the quality of information used for decision-making and control, even though information system characteristics are likely to influence decision-making quality and the incentive effects of control systems (pg. 382)."
5. Possible research questions posed by the authors (p. 384) - Do the same contingency factors influence the performance measures chosen for different purposes? Does consistency in the measures used for various purposes improve performance? Are some performance measure choices more important than others? Are greater measurement gaps associated with lower organizational performance?
6. Other than employee motivation, what reasons are there for implementing performance evaluation and reward systems?
7. Need novel sources of data as most studies use publicly available information and surveys.

8. The authors note good future research topics - "(1) Role & benefits of real option techniques for investment justification as opposed to DCF (2) How performance measures defined in different dimensions should be combined (3) What are the benefits from including EVA measures in compensation plans? (4) research on setting of performance topics (p. 390-392)."

Appendix A end

5 & 6 - Evaluate Performance & Reassess Objectives and Plans	
<i>Study</i>	<i>Main Point</i>
Smith, 1993. Myers et al, 1991. Gordon & Smith, 1992.	"The benefits from formal review and reconciliation procedures vary depending on a variety of contextual factors (p. 392)."
Lorange & Murphy, 1984. Goold & Quinn, 1993. Fiegen, 1997. Ittner & Larcker, 1997.	"Strategic control system studies indicate that the advantages of formal processes for determining whether a strategy is being implemented as planned and assessing whether the strategic results are those intended can actually be counter-productive in some environments (p. 393)."
Limitations and/or Future Research	
1. In what scenarios are frameworks such as the balanced scorecard process relevant? 2. Are all 6 steps in the VBM framework necessary? 3. What is the role of formal vs. informal controls in implementing and monitoring VBM systems. 4. Is there enough substantive differences between newer techniques such as ABC, balanced scorecard, and EVA or to justify their study or are they merely fads comparable to traditional accounting techniques?	

APPENDIX B. Average and standard deviation calculation

	Bank credit line	Obligations	Resources from alliance portfolio	Shares
	6,49	6,06	5,02	2,9
	6,25	5,85	4,8	2,85
	6,48	5,9	5,15	3,15
	6,58	5,89	4,8	3,3
	6,7	6,3	5,23	2,8
Average	6,5%	6,0%	5,0%	3,0%
Standard deviation	0,165378	0,185876	0,197358	0,215058

APPENDIX C. Correlation coefficient calculation.

	Bank credit line	Obligations	Resources from alliance portfolio	Shares
Bank credit line	1			
Obligations	0,732761	1		
Resources from alliance portfolio	0,588259	0,730562	1	
Shares	0,137069	-0,57224	-0,32691	1

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