MASTER THESIS

CORPORATE VENTURE CAPITAL PORTFOLIO MANAGEMENT

A CASE STUDY AT DSM VENTURING

PUBLIC VERSION

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ABSTRACT

In this case study Improved Portfolio Management Practices are developed for Corporate Venture Capital Investments at DSM Venturing. The results are meant to support DSM Venturing's increasing investment activities. Practices in the fields of Portfolio Construction, Investment Monitoring and Exit Management are stressed. Greatest emphasis is set on Investment Monitoring in terms of measuring strategic value and financial performance of the investments. Corporate Venture Capital as a specific group of Venture Capital in the first instance serves strategic objectives of the corporation by investing in start-up companies. Therefore a structured way of portfolio management along the specific goals of the investor is shown here. This way of portfolio management starts with a consideration of strategic alignment and objective setting between the corporation and the Corporate Venture Capital Unit. Following these objectives an appropriate portfolio construction is shown and discussed for the case of DSM Venturing. Most relevant practical application is the improvement of an investment monitoring in terms of strategic and financial measures and indicators accordingly. The solution developed in close interaction with DSM Venturing is characterized by a standardized and internally consistent investment assessment including strategic and financial performance indicators with specific relevance for DSM Venturing. The solution agreed on is meant to capture the overall experience and expectations of the investment managers with their investments in a guided but individual assessment. The strategic, but also the financial assessment, is shaped by the idea of including the overall experience and expectations of each investment manager.

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LIST OF ABBREVIATIONS

ASR	Annual Strategic Review
BSC	Balanced Scorecard
BUs	Business Units
CVC	Corporate Venture Capital
DV	DSM Venturing
EBIT	Earnings Before Interest and Tax
EBITDA	Earnings Before Interest, Tax, Depreciation, and Amortization
EBT	Earnings Before Tax
EPS	Earnings Per Share
GAAP	General Accepted Accounting Principles
IFRS	International Financial Reporting Standards
IPO	Initial Public Offering
IRR	Internal Rate of Return
LSF	Life Science Food
LSP	Life Science Pharma
MPT	Modern Portfolio Theory
NPV	Net Present Value
PE	Private Equity
PM	Performance Materials
PRC	People's Republic of China
R&D	Research & Development
ROA	Return On Assets
ROE	Return On Equity
ROI	Return On Investment
ROIC	Return On Invested Capital
ROR	Real Options Reasoning
ROS	Return On Sales
VC	Venture capital
VCF	Venture Capital Funds
WACC	Weighted Average Cost of Capital

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1. INTRODUCTION

1.1. Corporate Venture Capital

Corporate Venture Capital must be seen as one specific form of Private Equity and more specifically, as a special form of Venture Capital. However, especially the terms Private Equity and Venture Capital are often used interchangeable (Mathonet & Meyer, 2007; European Commission, 2006). The terms Venture Capital and Corporate Venture Capital are sometimes not distinguished in literature at all. To clarify the different terms in this field an overview of the European private equity industry can be seen in the following illustration:

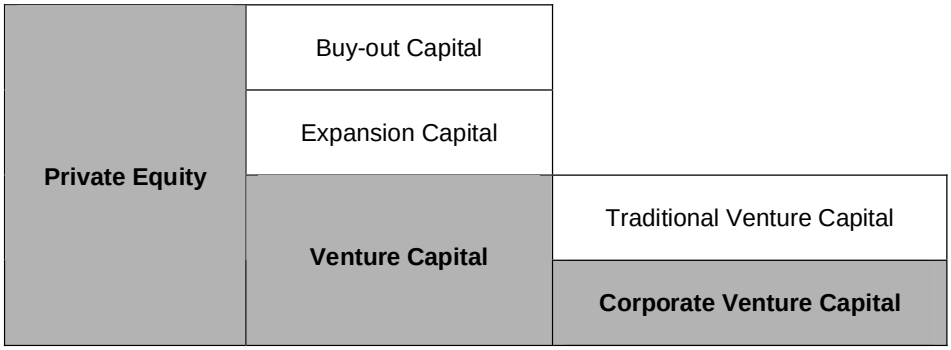

Figure 1: The European Private Equity Industry (European Commission, 2006, adjusted and expanded)

Private Equity (PE) in this context can fist be defined as "… the provision of capital and management expertise to companies in order to create value and subsequently, with a clear view to an exit, generate capital gains after a medium to long holding period." (European Commission, 2006, p. 9). This includes firstly Venture Capital with focus on young start-up companies, secondly Expansion Capital with focus on capital finance in a later stage such as expansion or growth, and thirdly Buy-out Capital as a majority investment together with either the existing management, referred to as management buy-out, or a new management team, called management buy-in (European Commission, 2006).

Venture Capital (VC) in general "…can be defined as equity or equity-linked investments in young, privately held companies where there is a financial intermediary who is typically involved as a director, an advisor or even a manager of the firm" (Markham et al, 2005, p. 51).

Corporate Venture Capital (CVC) in this sense is similar in its general characteristics to VC. It differs, however, from traditional venture capital while its focus is usually on strategic objectives of the corporation investing in the young companies and not primarily on their financial return, as focused by traditional venture capital investors. The capital invested by corporate venture capitalists is usually only the capital of that specific corporation (NVCA, 2008). Corporate venture

capital can therefore be "…defined as the provision of Venture Capital (VC) by corporations."(Reichardt & Weber, 2006, p. 813). CVC "…is usually called "direct investing" in portfolio companies by venture capital programs or subsidiaries of nonfinancial corporations" (NVCA, 2008). With regard to Markham et al (2005), these investments can be done internally as well as externally. Both opportunities together are referred to in general as Corporate Venturing. Internal Investments are focused on investment opportunities already existing within the boundaries of the corporations, for example in own research ideas. External Investments in contrast are focused on investments beyond the boundaries of the corporations, meaning investments into start-up companies (direct investments) independent of the corporation or into external Venture Capital Funds (VCF). Especially the external direct investments "…offer exposure to a much wider world of opportunities than would be the case if one remained within corporate boundaries." (Markham et al, 2005, p. 51). In this report we will focus on external direct investments by DSM Venturing (DV) representing the DSM Corporation into start-up companies beyond DSM's boundaries.

1.2. The Role of Portfolio Management for Corporate Venture Capital

"If you like a challenge, you should try modeling venture capital funds. The venture capital (VC) market is illiquid, immature, and lacks transparency. There does not exist a clear framework to deal with the risks, and established models for public equity products are not directly applicable." (Meyer & Weidig, 2003, p.1)

Portfolio management with specific focus on CVC brings several restrictions for usually used portfolio management practices such as Modern Portfolio Theory referred to in chapter 3.2. This is in particular due to the above mentioned market imperfections stated by Meyer and Weidig. Nevertheless VC and CVC investors must effectively choose the composition of their portfolio (Knill, 2008).

Although standard tools for portfolio construction are hard to apply; also for PE in general the key issue is diversification in order to manage risk and return of the investments (Mathonet & Meyer, 2007). For CVC, as we will see, also specialization and other tools for risk management play an important role. In addition to these more financial issues the strategic alignment with the corporate investor and the coverage of its strategic goals is an important issue for CVC as described earlier. A study of KPMG (2003) also shows that a consideration of portfolio management is increasingly focused by the PE sector in general.

1.3. DSM Venturing

DSM Venturing (DV) is part of the multinational company DSM which is headquartered in Heerlen, The Netherlands. DSM creates innovative products and services in Life Sciences and Material Sciences. In 2007 the net sales of the overall company amount € 8,757 million. Out of this an EBITDA of € 1,247 million and an operating profit (EBIT) of € 823 million was realized.

The DV department as a part of the Innovation Centre invests actively in an increasing amount of direct CVC investments as well as in selected VC Funds. The DV mission is to explore emerging markets and technologies in order to enhance DSM's product portfolio and create value. Therefore DV supports DSM's overall vision by following the important aspect of market driven growth and innovation and to increase presence in emerging economies as shown in Figure 2. "Based on a strategic review of Vision 2010 in September 2007 DSM has decided to accelerate the group's shift to a specialty Life Sciences and Materials Sciences company, deliver faster growth, higher margins and improved earnings quality." (DSM, 2008)

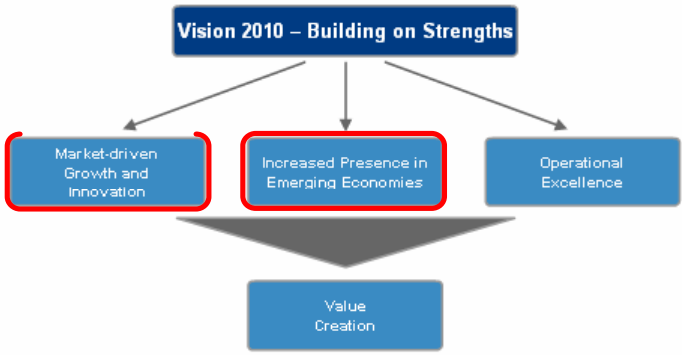

Figure 2: Vision 2010 (DSM, 2008)

The scope of the venturing activities is to open up a window to the world, creating strategic value, and to gain financial return. The idea of opening up a window to the world is based on DSM's approach for open innovation. By investing in innovative start up companies DV opens the window to new emerging markets, technologies and products in order to enhance DSM's product portfolio, technology toolbox and business models. Strategic co-operations with the start-up companies DV invested in (Portfolio Companies, direct investments) allow creating strategic value for the particular company but also for DSM. Therefore every investment inhere the intention for strategic cooperation with DSM business groups. In this manner DV provides the business groups with access possibilities to new technologies, new markets, and new products. Sufficient financially returns are nevertheless an essential qualifier for each investment decision.

To invest with strategic alignment with the major strategic clusters of Life Science Food, Life Science Pharma, and Performance Materials DV focuses actually on 20 direct investments, but also invests in 10 selected Venture Capital Funds in addition.

The full version of this chapter contains confidential information. The confidential version of this study can be requested using the contact details provided in Appendix 7.

Typical investment amounts per company vary between € 0.5 – 2.5 million in the early investment stage and are mostly increasing later on. The typical target range in start-ups is a 5% to 20% share.

CREAGRI, INC.	FQSI	Ganeden	HARLAND Medical Systems
InMat	IntegraGen	IQ Therapeutics	JURILAB
micromuscle	NOVOMER	OPM	ORYXE
Sciona	Sol-Gel Technologies	SupraPolix	TERRECO
GREEN BIO	upfront	Van Technologies, Inc.	XYLOS

Table 1: DSM Venturing's 20 Portfolio Companies (DSM, 2008)

The portfolio companies of DV, as illustrated in Table 1, are all in the clusters of Life Science Food (LSF), Life Science Pharma (LSP), and Performance Materials (PM). They represent several sub-areas such as food spoilage sensor technology, renewable materials, or personalized healthcare for instance. However, the recent concentration is on Life Science Food and Performance Materials. The investments are generally with international orientation and are currently represented by around 51% investments in the USA, 43% in Europe, and 6% in the rest of the world.

The investment time is usually from the startup stage to the rapid growth stage, which is typical for venture capitalist (Leach & Melicher, 2006). During this time DV does not purely provide financial support but supports the companies also with knowledge transfer, resources, and networks. The interactions of representatives of DV in the board of each particular portfolio company allow working out possibilities for current or future cooperation. This can be arranged

by using DSM global structures, technology and business networks. On the other hand it is an explicit intention to allow as much freedom for development as possible especially in terms of operational management.

The investment process involves two basic filters: a first filter of strategic fit and a second filter of other venture capital criteria. The strategic filter checks for the suitability of the company's operations to DSM's knowledge base and potential for strategic benefits for both, the company and DSM's business groups. The second filter, of other venture capital criteria, checks for viable business proposition, attractive return potential and proper exit opportunities.

2. RESEARCH METHOD

2.1. Problem Statement and Motivation

Due to growing operations in the field of CVC a more active portfolio management is needed. DSM started its dedicated venturing business in 2001. Especially the last two years were characterized by a remarkable increase in direct investments as well as in personnel. In 2006 and 2007 the DV department invested in 6 new start-ups per year. Currently DV portfolio holds already 20 direct investments and 10 selected fund investments. From originally 2 investment managers in 2006 the personnel were stocked up to 6-7 investment managers in 2008. Not only the increasing amount of people involved, but also the fact that 2 of the investment managers are located oversea, in the USA and in the PRC, makes an appropriate control of the growing portfolio a difficult task.

The focus on direct investments is due to the fact that these are of specific importance for strategic reasons. As mentioned earlier these direct investments are seen as a window opener to discover access possibilities to new technologies, new markets, and new products for DSM business groups. The 10 existing venture capital fund investments are basically used as a source for deals of direct investments. This source of deal flow therefore serves the needs of direct investment opportunities. Due to this indirect characteristics and a decreasing consideration, fund investments contribute less from a strategic view point.

The objective therefore is to enable DSM Venturing to do a more active portfolio management of their direct Venture Capital Investments.

2.2. Research Methodology

The overall methodology must be seen as a case study on DSM Venturing. In this manner general information about Venture Capital Portfolio Management practices will be applied on the case of DSM Venturing in particular. The project can therefore be tackled by the following research questions:

Overall research question: How can relevant practices for Corporate Venture Capital Portfolio Management get improved at DSM Venturing?

Sub question 1: Which important Portfolio Management Practices for Corporate Venture Capital exist in literature?

Sub question 2: What portfolio management practices are used at DSM Venturing?

Sub question 3: What are the wants and needs for DSM Venturing in terms of portfolio management?

Sub question 4: How can the considered practices get improved?

The research will consider broad topics of Portfolio Management with explicit consideration of Corporate Venture Capital Portfolios. In this context the main focus will be on relevant practices needed to handle them in the business environment of DV. The project is also related to controlling and management accounting, especially in terms of financial and strategic performance indicators. Besides literature review for general parts of the project, especially interviews of appropriate specialists at DSM Venturing will be a major source of data and information. This choice is in particular favoured by close cooperation with the company. With reference to the Web Centre for Social Research Methods (2008) also the possibility for visual presentation, clarifications and explanations, direct judgment of the quality of the response, or the feasibility of long surveys are relevant arguments for the interview method. These aspects are important for the case study at DV as for example reporting tools must be visually represented. Aspects must get clarified and explained further if needed to reach a common understanding especially in the international communication context. Also are many interviews comparably long and time consuming as they touch complex processes at DV for instance. This circumstance requires a method which allows complex explanations. The collection of relevant data is done by interview notes and examination of existing documents. The whole project, however, consists of different parts with each specific research activities which help to answer the above research questions. Each research step is further explained in the following research model.

2.3. Research Model

2.3.1. GENERAL RESEARCH APPROACH

The research model shown in Figure 3 illustrates the undertaken research in this project. The overall objective is to enable DV to do a more active portfolio management of direct CVC investments. The main aspects of the model are the four coloured boxes in the middle, headed with 'General overview of relevant portfolio management practices for CVC', 'Used practices at DV', 'Wants & Needs of Suggestions', and 'Adjusted PM practices'. These four aspects will give the answers to the four research questions stated earlier respectively. The arrows between the four coloured boxes indicate a reflection of general findings against DV specifics, resulting in adjusted Portfolio Management practices as the key outcome of this thesis. The grey boxes indicate the methods of data collection and sources for information.

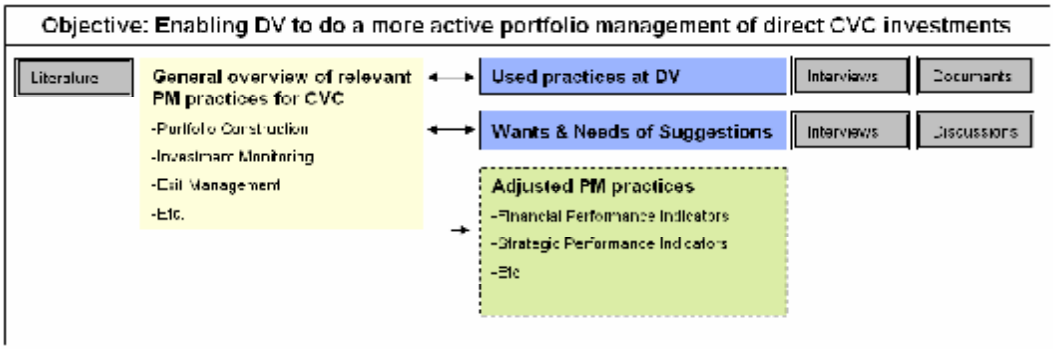

Figure 3: Research Model (Own illustration)

The overview of relevant portfolio management practices will be researched basically by secondary research in terms of literature review. The aim of this part will be to show portfolio management practices in the particular field of Corporate Venture Capital which could be relevant for the needs for DSM Venturing. Portfolio Construction, Investment Monitoring, and Exit Management are key topics here which are shown in Chapter 3.

An analysis of existing practices within DSM Venturing will take place in form of primary research. Especially interviews with DSM specialists in the relevant areas are carried out. Besides that also relevant documentations, like used reports, support this task. The aim of this part will be to find out the specific foci of DSM Venturing. Also the wants and needs will be taken into account, reflecting the ambitions of a portfolio management at DSM Venturing and possible considerations missing in the existing practices. These aspects are handled in chapter 4 and 5. As we will see, especially the Investment Monitoring is of particular interest for DV. This topic will therefore be focussed in the research parts at DV.

A reflection against the overview of portfolio management practices will be included subsequently with relevance for DV. Suggestions for improvements of the company's portfolio management practices will consequently be derived. After checking it against the wants and needs at DV, this will result in adjusted portfolio management practices with relevance to DV. The combination of used practices and adjusted elements will enable DV to do a more active portfolio management of their direct CVC investments. The main outcomes in this manner are indicators and measures for financial and strategic performance. The improvement of the existing Portfolio Management will be shown in chapter 5. A detailed description of the primary research approach at DV is shown in the following section. Interview notes, sheets, or any other additional material can be found in the Appendix.

2.3.2. PRIMARY RESEARCH APPROACH

The primary research set-up demonstrated below is based on the key learning from the literature review as shown later on page 54. Furthermore the set up is intentionally with great emphasis on practical restrictions at DV. Due to very scarce resources regarding the available time of investment managers it is sought to use interviews with investment managers with strict focus on a relevant practical solution only.

The composition of the considered department with one business controller, three senior investment managers, and four junior investment managers is taken into account as well. To filter out irrelevant parts of first solutions based on my own literature research, the business controller will be interviewed in the first step of improvement. He is considered having the broadest understanding of financial as well as strategic measurement practices. In order to be well aligned with front-line investment management experience the second step of improvement will include interviews of the three senior investment managers. As the junior investment-mangers still lack of experience and do mostly not even have own investments yet, they will be included in the latest stage for a final usability check.

The primary research set up is illustrated in Appendix 1. Primary information about CVC Portfolio Management with specific focus on objective oriented investment monitoring will be gathered in four complementary ways as shown below.

(1) Document analysis for objectives and possible measures each start-up,
(2) Document analysis for currently used practices of investment monitoring,
(3) Interviews regarding the further improvement of proposed solutions and wants and needs, and
(4) Testing and reactions on a finally improved tool for objective oriented investment monitoring.

The project is set up as such due to practical restrictions and the underlying reasoning as described above. Nevertheless, it also includes the risk that individual opinions have a great impact of the development of a final solution.

3. CORPORATE VENTURE CAPITAL PORTFOLIO MANAGEMENT

3.1. Objectives of Corporate Venture Capital Investments

Chesbrough (2002) and Winters & Murfin (1988) agree that corporations generally seek a wide range of possible objectives with CVC. The authors also agree moreover, that the objectives for CVC all come back to two principle types: financial objectives and strategic objectives. Also professional sources are in line with this general distinction:

> *Corporate venture capital groups can pursue one of two fundamental objectives:*
>
> - *Strategic investing to increase the sales and profits of the corporation's own businesses, identifying and utilizing synergies between the parent company and start-up ventures.*
>
> - *Financial investing to produce positive monetary returns, using the company's knowledge of markets and technologies to identify successful ventures.*
>
> Corporate Strategy Board (2005, p. 4)

Already pointed out by Winters & Murfin in (1988) it is necessary to clearly determine the CVC focus on either strategic or financial goals. The authors stress that an unclear understanding of the key objectives will lead to poor investment decisions due to an unfocused strategy. This is also underpinned by empirical evidence found by the Corporate Strategy Board in 2005 which shows that mixed objectives and business models are the most influential factor for CVC failure. As Winters & Murfin (1988) state, a CVC unit heading for financial returns might reach the desired financial objectives but is likely to fail the strategic objectives. Nevertheless it can be argued that to some extent financial as well as strategic objectives should be sought simultaneously (Block & MacMillan, 1993; Winters & Murfin 1988). An empirical study of the Corporate Strategy Board (2005), shows that CVC activities are nevertheless primarily seen as source of financial return. Almost of same importance is a Window on Technology followed by other strategic objectives. 56% of corporations mention Return on Investment as their major objective; 49% aspire primarily for the Window on Technology. Just a minimal amount of the respondents consider these both objectives as irrelevant. The Window on Technology as the most important strategic objective is followed by some less important strategic objectives mentioned in the study. The results of the study can be seen in the following diagram:

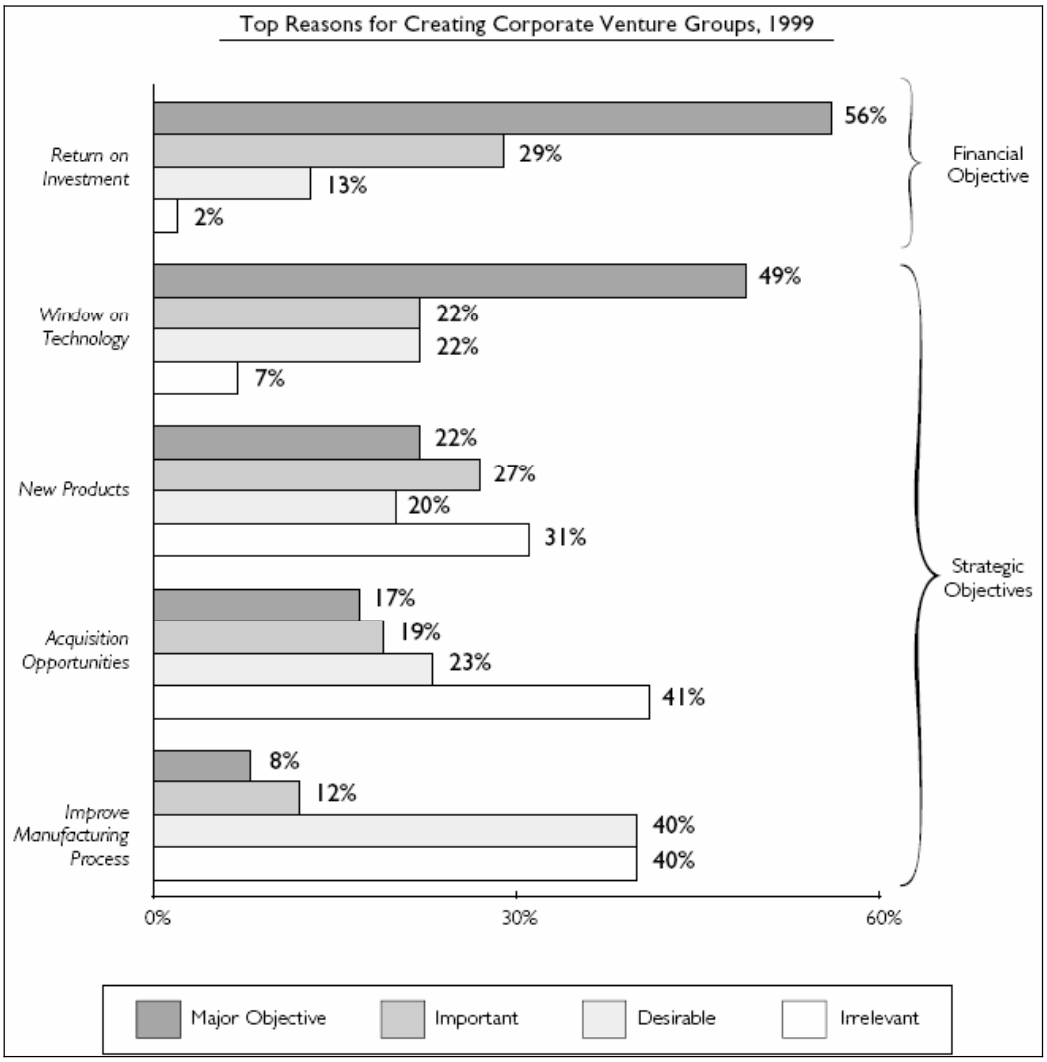

Figure 4: Financial and Strategic Objectives underlie CVC (Corporate Strategy Board, 2000, p. 4)

The Diagram also shows a remarkable amount of replies about the irrelevance of acquisition opportunities. This distinctive feature is in line with another study which found that CVC activities heading for acquisition opportunities tend to be the least successful objective and that CVC should focus on the Window on Technology as the most successful objective (Block & MacMillan, 1993). Window on Technology in this context refers to a view on development areas of new technologies, observation of trends, and business opportunities (Winters & Murfin, 1988). Nevertheless "…it may take a company several years to realize the strategic value either from the investment itself or from a related commercial agreement with the start-up." (Corporate Strategy Board, 2000, p. 27)

Although not exactly reflected in the study represented by Figure 4, in the context of CVC the strategic aspect should be seen as even more important than only direct financial returns of the investment (Dushnitsky & Lenox, 2006). A clear pursuit of CVC for strategic value is most likely to

create firm value. In contrast a CVC program which is only financially oriented is less likely to create benefits for the corporate investors. Innovative benefits are generally more valuable than pure direct financial returns and a concentration only on financial returns can even cause problems in terms of misaligned incentives, internal conflicts, and incompatible objectives from the perspective of the corporate business (Dushnitsky & Lenox, 2006).

3.2. Modern Portfolio Theory

3.2.1. OVERVIEW OF MPT

The probably best known theory for portfolio management is known as Modern Portfolio Theory (MPT) and was founded by Harry Markowitz in 1952. The main aspect of the theory is the consideration of risk and return of investments arranged in a portfolio. The risk in this context is measured by the standard deviation of the returns. “The MPT assumes that investors seek to achieve the highest return with the least risk and, for simplification, that they pay no taxes or transaction fees.”(Mathonet & Meyer, 2007, p. 317). The most important point in the MPT is however, that investments should not be considered separately but in the effects on the portfolio as a whole. This is based on the idea that the fluctuations of several investment returns can, in the best case, outweigh each other. Therefore the co-movements of all investments are of specific relevance. By arranging a portfolio taking into account the relationships between the portfolio securities the same expected return can be achieve while reducing the risk compared to the case of individually considered investments. Therefore the standard deviation of each investment returns but also the correlations are important for the impact of adding a security to the existing portfolio. The correlation is needed to allocate the most efficient portfolio, which shows its outstanding importance for MPT (Mathonet & Meyer, 2007; Elton & Gruber, 1997; Brealey et al. 2006).

The MPT is, however, based on some essential assumptions. According to Mathonet & Meyer (2007) the MPT is based on the following key assumptions:

- Investors exclusively hold publicly traded liquid financial assets and act as though security prices are unchanged by their own trades in those securities
- All Investors have the same information
- All Investors interpret the information in the same manner
- All Investors have the same time horizon

It will be shown in the following section that these assumption cause obvious difficulties to manage to fit private equity to them.

3.2.2. USAGE OF MPT FOR CVC PORTFOLIOS

According to Mathonet & Meyer (2007) most of the assumptions underlying the MPT cannot get applied to CVC portfolios. This is also agreed on in a paper of the Tuck School of Business in 2003. The argumentation of both sources is summarized in the following table:

MPT Assumption	Problems with PE/CVC portfolios
Investors exclusively hold publicly traded liquid financial assets and act as though security prices are unchanged by their own trades in those securities	Holdings are illiquid; relatively few buyers and sellers
All Investors have the same information	Access to financial data only for the funds that invests in the company.
All Investors interpret the information in the same manner	The PE market is inefficient and the valuations are unreliable.
All Investors have the same time horizon	Long investment periods between 10 and 12 years; illiquidity of stakes; investments spread out over time

Table 2: Unsuitability of MPT for PE/CVC (Own illustration, on the basis of Mathonet & Meyer, 2007; Tuck School of Business, 2003)

The holdings of Private Equity firms in general and of Venture Capital Investments must be seen as highly illiquid. As companies invest directly in start-up companies only a few market participants are of relevance. This makes it difficult to sell share in portfolio companies after the investment decision is done due to relatively few buyers. Also the information flow in the market is far from being perfect. The financial information of a typical portfolio company is only available for the companies investing in these firms. The market must be seen as inefficient especially due to these typical information deficits. Also the time horizon can vary significantly. Long term oriented investments and investment rounds spread out over time is common.

Further more the possibility to measure risk is restricted due to the fact that a valuation, especially for CVC, is based on estimates rather than actual transactions. According to Mathonet & Meyer (2007) the distribution of returns in the field of PE are highly non-normal. This is the result of the possible large gains and a resulting positive skewness for instance. However, the calculation of correlations with reference to the MPT requires normal distribution.

Mathonet & Meyer (2007) therefore conclude that "…modern portfolio theory does not offer the right tools…" for the portfolio construction of private equity and especially not for CVC. As an alternative to manage the CVC portfolio we therefore show in the following sections an approach following the goals of CVC. Strategic alignment with the corporation, objective oriented portfolio construction and an investment monitoring explicitly tracking the financial and strategic objectives are presented as tools for CVC portfolio management.

3.3. Portfolio Construction

Based on the strong interrelation of the corporation itself with its CVC unit and the characteristic that CVC units serve several strategic and financial objectives of their corporation, portfolio construction is here understood in the way depicted in Figure 5. Following this understanding portfolio construction for CVC is influenced by two constructive steps: (1) The strategic alignment between corporation and its CVC Unit including the setting of objectives and, effected by this, (2) The objective oriented portfolio construction itself.

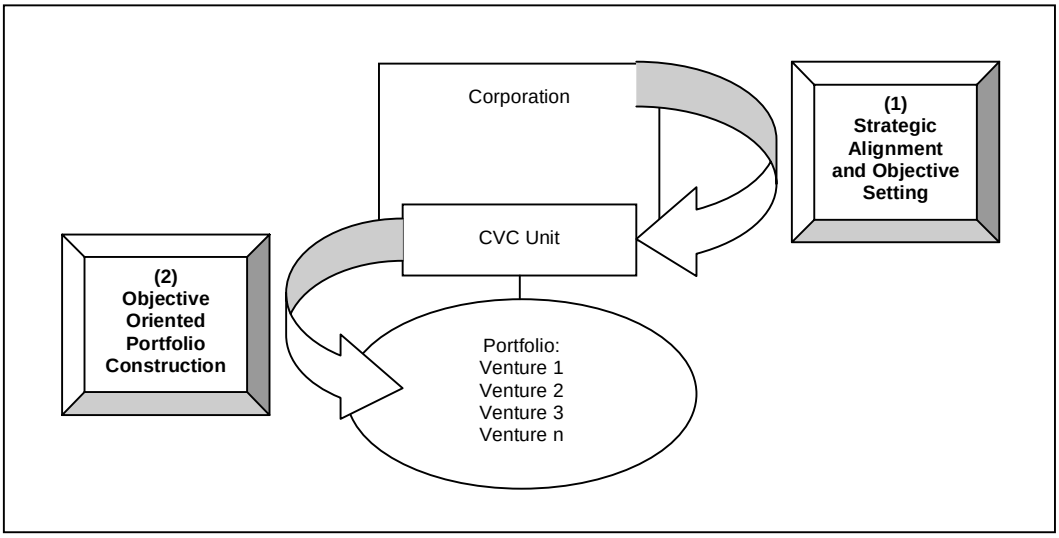

Figure 5: Portfolio Construction Total Overview (Own illustration)

In the Strategic Alignment and Objective Setting the crucial objectives for the CVC unit as a whole get already set, which find their reflection in the Objective Oriented Portfolio Construction. The Strategic Alignment and Objective Setting respectively predetermine the objectives followed in the Objective Oriented Portfolio Construction in the following step. It should therefore be seen as an important part of the overall portfolio construction. The Strategic Alignment and Objective Setting will be demonstrated in chapter 3.3.1 using the Balanced Scorecard (BSC) approach. In the context of portfolio construction also a brief consideration of risk management for CVC will be shown on page 29.

The Objective Oriented Portfolio Construction structures and evaluates existing and potential venture businesses particularly along the corporate investment objectives basically determined in the previous step. The framework for portfolio construction as shown in figure 7 (p. 27) will give a guideline to build the investment portfolio and to asses existing and potential investments.

3.3.1. STRATEGIC ALIGNMENT AND OBJECTIVE SETTING

(1) BSC and its relevance for CVC strategic alignment and objective setting

The BSC is typically described as a tool to translate the vision and strategy of company and business units into a strategic performance measurement system reflecting financial and non-financial indicators. Bassen et al (2006) consider the BSC as the most suitable performance measurement instrument for CVC units. This evaluation is based on its fulfillment of requirements in terms of Monitoring and Controlling, Reporting and Communication, but also CVC Specific factors in comparison with other performance measurement instruments. With respect to strategic measures the BSC is capable to monitor and control strategic objectives and delivers flexible metrics for changing environments, typical for CVC. Financial measures are also included to control for financial objectives. We therefore show the BSC here as a suitable tool for strategic alignment and objective setting.

(2) BSC adjusted for CVC

The BSC concept adjusted for CVC needs mentioned in literature (Faisst et al, 2002; Bassen et al, 2006) focuses, as it is typical for the BSC, on the integration of financial and strategic measures within a CVC unit. The BSCs developed by the authors consider the four perspectives Financial Performance, Process Perspective, Collaborative Perspective, and Knowledge perspective as exemplarily shown in Figure 6.

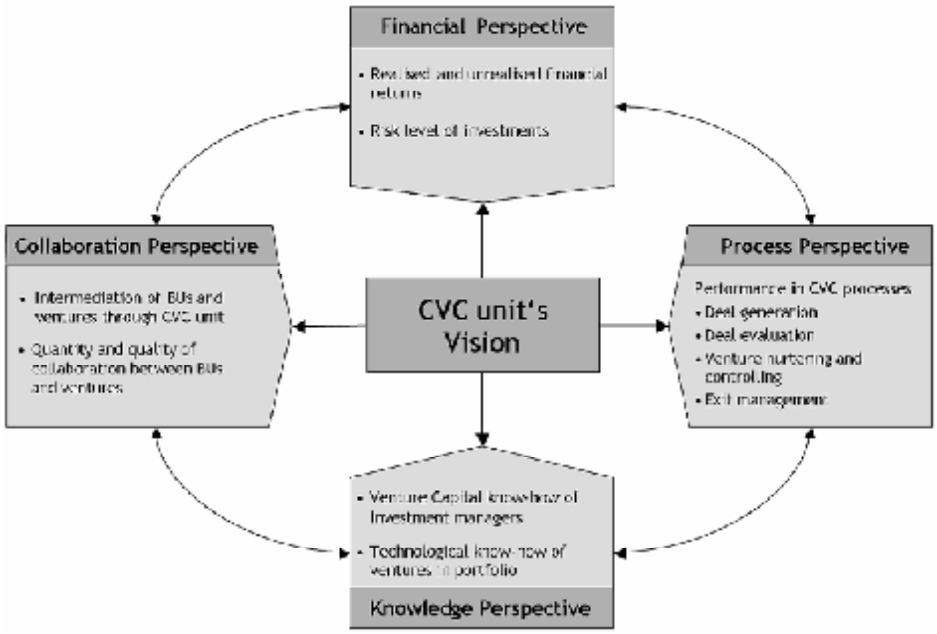

Figure 6: Balanced Scorecard for CVC (Bassen et al, 2006, p. 425)

With regard to the four perspectives shown in Figure 6 the focus of the Financial Perspective is on the return and risk allocated to the CVC portfolio. The Process Perspective adds the perspective of the internal value chain of the CVC unit including deal generation, deal evaluation, deal structuring as well as portfolio and exit management. The consideration of the knowledge perspective is the development of technologies and human resources. Finally the collaborative perspective is concerned about the collaborations and interactions of the main "customers" of the CVC activities: Corporate business units on the one hand and start-ups on the other hand. The main purpose here is to support strategic objectives of the corporate business units and to enforce the collaboration and interactions between business units and start-up companies (Faisst et al, 2002). The arrows indicate the interrelation between those balanced perspectives to serve the CVC unit's vision and strategy. The authors are generally very close to the perspectives suggested by Kaplan & Norton (1996), namely financial, internal business processes, learning and growth, and customer.

(3) The impact for portfolio construction

In addition to strategic alignment between the corporation and the CVC unit, the BSC shown here must be recognized as a tool to set the overall objectives for the CVC unit. The focus on financial and strategic objectives goes also perfectly in line with the objectives of CVC investments shown on page 19. Any further portfolio construction activity must consequently get aligned to those objectives documented in the BSC perspectives. Explicitly the financial perspective sets financial objectives; whereas the collaboration and knowledge perspectives set rather strategic objectives for the whole unit but consequently also for the portfolio construction. To sum up, the BSC will help to clearly formulate and communicate relevant objectives for the construction of the portfolio and the evaluation of existing and potential venture businesses. These objectives are financial ones on the one hand and strategic ones on the other hand. The objectives are of relevance for the portfolio construction shown in the following section, but also for the investment monitoring shown in chapter 3.4.

3.3.2. OBJECTIVE ORIENTED PORTFOLIO CONSTRUCTION

Framework for CVC portfolio construction:

To manage CVC portfolios successfully and with significant impact on the corporation's own growth "…we need an organized way to think about corporate venture capital, a framework that can help a company decide whether it should invest in a particular start-up by first understanding what kind of benefit might be realized from the investment." (Chesbrough, 2002, p. 92). This framework suggested by Chesbrough in 2002 will be exemplarily described here, as it helps to construct the CVC portfolio along the two relevant objectives for CVC, strategic and financial objectives. In this manner the framework is a useful tool to assess existing and potential investments.

As it can be seen in Figure 7, the author distinguishes venture investments besides the corporate investment objectives also by the link to operational capability, meaning "…the degree to which the operations of the investing company and the start-up are linked." (Chesbrough, 2002, p. 92). Operational capabilities in this context refer to the resources and processes of the corporate investor. A tight link to operational capability would for example mean that the start-up company makes use of those resources and processes of the corporate investor. This can be as concrete as using the corporation's manufacturing plants, distribution channels, technology or even the corporation's business practices.

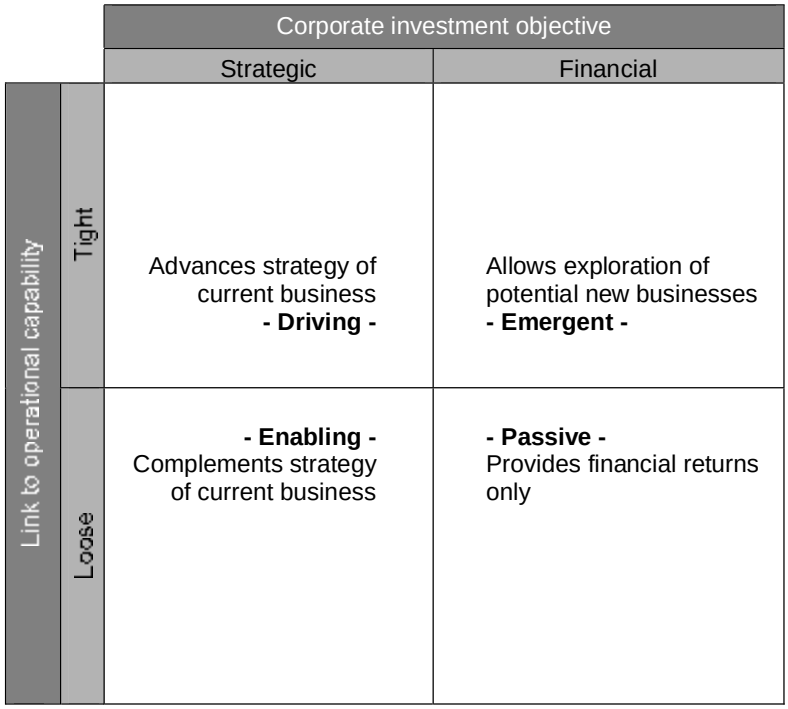

Figure 7: Portfolio Construction Framework (Chesbrough, 2002, p. 95)

In practice a one-to-one positioning of an investment in exactly one of the white squares in Figure 7 will cause its own difficulties. Positions somewhere along the whole spectrums from loose to tight and respectively from strategic to financial are more realistic in practical use. Nevertheless, the framework provides good support to map the own portfolio along these parameters. This results in four general types of investments: Driving Investments, Emergent Investments, Enabling Investments, and Passive Investments.

Driving investments:

Driving Investments are classified by current strategic purposes and a tight link of the start-up company to the corporation's operational capabilities. They help to advance the strategy of current business of the corporation. These investments are of clear strategic interest and are furthermore focused on supporting the current strategy of the corporation. The support of the current strategy is realized by a tight relationship between the start-up's and the corporation's processes and resources. It can therefore help to sustain and to develop the currently used strategic path of the corporation. For example could the CVC unit invest in a start-up company which is active in a field which is planned to get explored by the own corporations also. The experience provided by such an investment would deliver important insights in the possibilities and pit-falls of a similar business activities done by the own corporation. Although this type of investments is very supportive for the current strategic situation, it finds its boundaries in the area

of disruptive strategies. If the corporation needs to find new ideas beyond its current operational capabilities in order to react on changing environments emergent investments might be more suitable.

Emergent investments:

These kinds of investments are not made to enhance the current strategy of the corporation. They are characterized by a primarily financial objective coupled with a tight link to operational capabilities of the corporation. Nonetheless, they still carry the possibility to result in strategic benefits for the case that the current corporate strategy changes. The tight link to operational capabilities opens the view on possible strategic shifts. An investment typical for this investment type could for example be in a start-up company selling a corporation's or similar product in a market which is not yet of strategic interest for the corporation. This way it might be that the corporation finds out about a new market and new customers beyond its current strategic focus. The financial return generated by such investment is therefore still underpinned by an inherent potential for future strategic benefits.

Enabling investments:

In this area are investments which do support the current strategy, but which do not have a tight link to operational capability. The benefits for the corporation are sought without a strong operational link between start-up and corporate investor. The focus is rather on the surroundings of the corporation, namely the development of economical system it operates in. A very good example given by the author is an investment in ventures producing products complementary to the corporation's own products: "…Intel [a producer of microprocessors] invested in hundreds of companies whose products - such as video, audio, and graphics hardware and software-required increasingly powerful microprocessors inside the computers they ran on, thereby stimulating sales of Intel Pentium chips." (Chesbrough, 2002, p. 95). The downside of this type of investment is, however, that a stimulation of the wider economical system favors the corporation's competitors likewise. Investments in this are should therefore always include a careful glimpse on the own ability to capture a substantial part of the market growth resulting of the stimulation.

Passive investments:

Passive Investments are characterized by only financial purposes and without a tight coupling of the corporation's and start-up's operations. The relevance for the own strategy and operational capability is very low. The CVC investment activities fail in this field to enhance the corporation's own business. This type of investment must therefore be seen as miss use of the corporation's financial resources. Albeit financial returns, the invested amount could be better used for investments in one of the other areas in order to advance the pursuit of current or future oriented strategic objectives.

3.3.3. RISK MANAGEMENT FOR CVC PORTFOLIOS

(1) Diversification

Diversification is, with regard to MPT, a very important tool for risk management in general financial literature (e.g. Brealey et al, 2006). As we saw in chapter 3.2.2 already MPT is not suitable for CVC portfolio management, however. With respect to diversification CVC portfolios must be recognized as rather specialized portfolios. Especially industry diversity cannot be expected from CVC investors as they invest in industries strongly related to their corporation's industry in order to serve strategic objectives. Gupta & Sapienza (1992) found empirical evidence that CVC investors prefer less industry diversification than non-corporate VC investors but a broader geographic scope. This indicates that CVC investors can basically only use geographic diversification to diversify their portfolios. In addition, also holding investments in companies of different stages can be seen as a way of diversification.

(2) Specialization

Specialization as being the more likely case for CVC portfolios can nonetheless also be seen as a tool to control portfolio risk. In this context "…fairly robust empirical evidence [was found] in favor of the perspective that venture capitalists control portfolio risk through their efforts to specialize, to build reputation capital, and to become important members of information and deal flow networks." (Norton & Tenenbaum, 1993, p. 431). Specialization, in order to make use of technical and product expertise among the constructed networks in the portfolio, can therefore be seen as a suitable alternative to diversification in terms of reducing risk of CVC portfolios (Norton & Tenenbaum, 1993).

(3) Other relevant tools

Besides diversification and especially specialization some other tools are relevant to CVC portfolio management. Norton & Tenenbaum (1993) describe (1) the Screening Process, (2) the Active Involvement, (3) Staged Commitments, and (4) the use of Investment Vehicles as tools to control the risk of VC portfolio. They should also be seen as being relevant for CVC portfolios. In this manner the screening process is described as risk reducing as finally only 1-3 % of the carefully analyzed proposals really receive funding. The active involvement of the CVC unit can furthermore help to minimize risk, because it allows for example to get involved in strategic and operational decision making when being present in the boards of the portfolio companies. A staged commitment refers to the spread of capital commitments over time. This gives the possibility to evaluate any new investment round in a start-up company before even more money gets invested. This therefore reduces the risk of heavy losses or miss-investments. Certain

investment vehicles, such as put options or redemption options, also help to structure an investment with controlled risk.

3.4. Investment Monitoring

As it could be seen in figure 4 (p. 19) 'Goals of Corporate Venture Capital Investments' CVC programs follow financial objectives as well as diverse strategic objectives including first and foremost the objective of having a window on technology which generates strategic value for the CVC investor. The investment monitoring therefore has to track financial but also strategic objectives the CVC investor aims to achieve with investing in the start-up companies.

"In the context of equity investing, strategic value refers to those benefits gained from interaction with start-ups that allow the investing company to realize new or additional revenues separate from direct financial returns on equity invested." (Corporate Strategy Board, 2000, p. 35) An in-depth consideration of those strategic benefits will be shown on page 33 and following.

Financial performance in this study refers to indicators of the start-up companies' financial success in order to measure actually gained profits but also financial figures likely to result in future profits, such as sales growth. These measures are meant to track the financial objective of CVC.

The investment monitoring process can be depicted in a decision tree shown in Figure 8. The decision tree is basically divided in two important steps: first the strategic value caused by the existing investment in a start-up company is checked; secondly the financial return is taken into account.

Starting point is the existing start-up company in the CVC portfolio indicated by the grey shaded box. The diamond shaped boxes indicate a problem statement which can each get answered with yes or no. The white single framed boxes show certain actions taken as a result of the decisions about a problem statement. Arrows indicate the following step after a decision is made or an action is carried out. The double framed boxes stand for the tools used to answer our key questions about strategic benefits and financial returns. These tools are first strategic value measures and secondly financial performance measures and will be explained in the following sections.

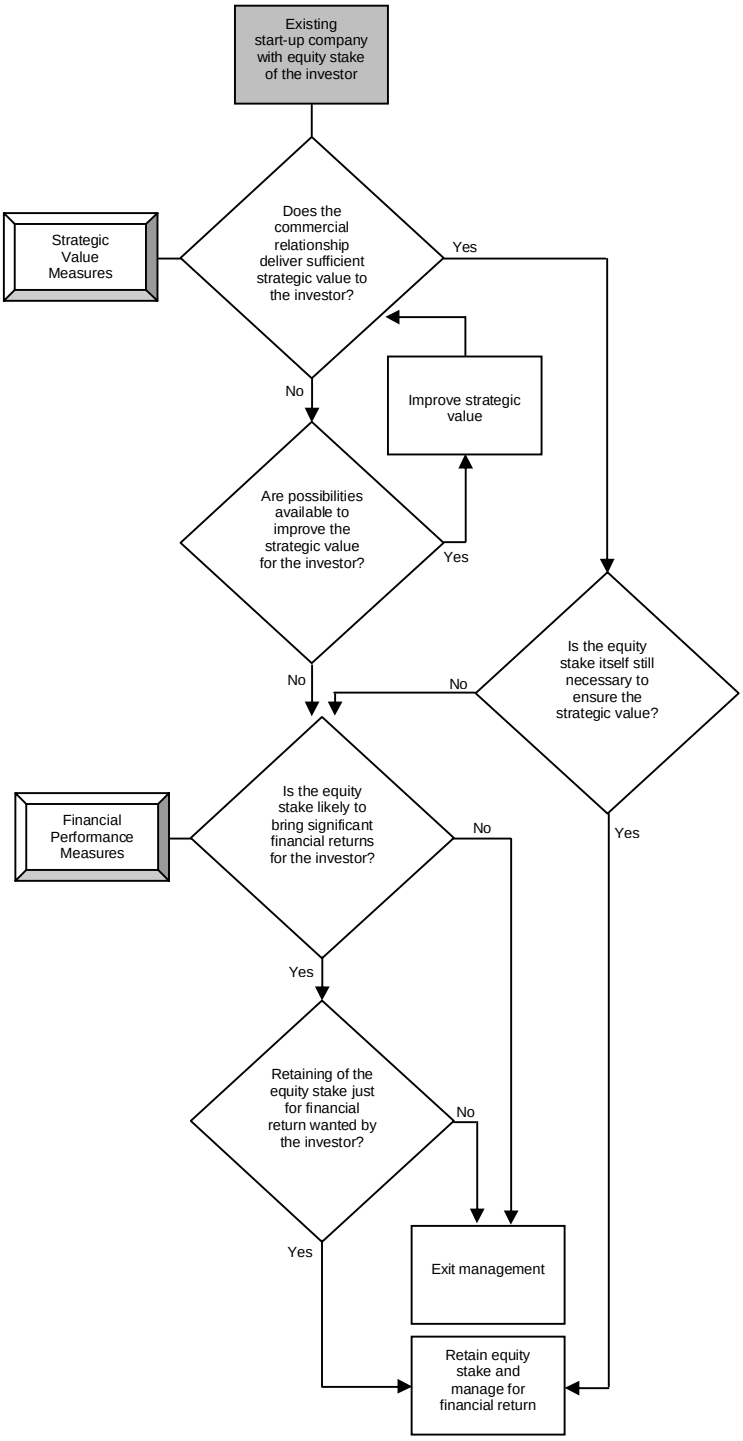

Figure 8: Investment Monitoring Process (Own illustration on the basis of Corporate Strategy Board, 2000, p. 33)

Figure 8 shows the process of investment monitoring starting with an existing start-up company. In this start-up company the investor, namely the CVC unit, has invested in and therefore holds an equity stake.

The first crucial question in the process is whether the commercial relationships between the investor and the start-up company deliver sufficient strategic value for the investor. As we will see in a later section this value can be based on diverse possibilities for strategic benefits. However, to answer this question strategic value measures need to be considered as indicated by the double framed box.

If the commercial relationship does not deliver sufficient strategic value to the investor, the question should be asked whether there are possibilities to improve the strategic values. If such possibilities are existent, the strategic values should get improved respectively. If an improvement of strategic value can not be realized the investment could still be kept only for financial benefits depending on further questions explained below.

In case the commercial relationship does actually deliver sufficient strategic value to the investor, the next question is whether the equity stake itself is still needed to ensure this strategic value generated out of the commercial relationship. If this is the case, for example to maintain a window on technology (see p. 34), the equity stake should be retained for these strategic reasons and should also be managed for financial returns. This can also include increases of the total amount invested in order to keep a certain level of shareholding.

It might be, nonetheless, that the equity stake itself is not needed anymore to ensure the strategic value. If the strategic value is due to good relationships build during the investment time for example, such as supply agreements or product marketing rights (see p. 34). These strategic benefits are then most likely to sustain even without keeping the equity stake of the company. In the latter case the investment could then also still be kept for only financial benefits depending on further questions.

The decision whether an investment should be kept for only financial benefits starts with the question whether the equity stake is likely to bring significant financial returns. Significant financial returns should be returns higher than expected by other investment opportunities. To be able to answer this question financial performance measures are needed as indicated by the double framed box.

If the equity stake is indeed likely to bring significant financial return and the retaining of the equity stake just for financial returns is also wanted by the corporate investor, the equity stake should be retained and get managed for financial return.

For the case that the equity stake is not likely to bring significant financial return; or for the case that it is likely to bring those returns but nevertheless the retaining of the equity stake just for financial return is not wanted the exit management should be started. Several exit alternatives are shown on page 51 and following.

3.4.1. STRATEGIC VALUE MONITORING

(1) Strategic benefits for the CVC investor

CVC brings a wide range of possible strategic benefits for the CVC investor which shows the strategic value of direct investments (Winters & Murfin, 1988; Dushnitsky & Lenox, 2006). Such benefits are likely to become objectives of the CVC activities such as shown in figure 4 (p. 19). Strategic benefits resulting from venture capital investing for the CVC investor are for instance "…acquisitions, technology licenses, product marketing rights, international opportunities, and a window on technology." (Winters & Murfin, 1988, p. 207-208). Also the creation of supply relationships for corporate products is an important strategic benefit (Dushnitsky & Lenox, 2006; Riyanto & Schwienbacher, 2006). Furthermore operational learning can be seen as strategically relevant and is facilitated during the whole CVC activities (Dushnitsky & Lenox, 2006). I exemplarily show here some of the possible benefits mentioned by Winters & Murfin (1988) if not stated otherwise.

Acquisitions:

Decisions about acquisitions of start-up companies are specifically favored by a long relationship of the corporate investor with the start-up company and its industry. Based on experience by close involvement, the investor can find attractive start-up candidates for an acquisition. This is especially important if the suitability with the corporation is considered, e.g. in terms of synergistic fit. The investor gets a good impression of those companies which can contribute most to the corporations' structure. Furthermore it can gain first experience with the specific market or industry and the specific technological field.

Technology licenses:

Technology licenses are an important possible benefit for investing companies. The ability of fast commercializing new technology by start-up companies must be seen as a great advantage in comparison to relatively slow development processes in mature corporations. After the expensive and time consuming research phase is completed venture companies are better in developing new products than large corporations. A consequent cooperation between the corporation and the venture company can therefore result in licensing for the corporation.

Product marketing rights:

Product marketing rights for the corporate investor can also get set up without any licensing of technology. Start-up companies do not have the extent marketing systems including elaborated distribution channels for products. Therefore they are interested in negotiations about product marketing rights given to corporations. For the corporation of course the sales of the start-up's products are relevant sources of profits, in addition it gives the opportunity for a close future relationship with the emerging company.

International opportunities:

Corporate investors can take domestically developed technologies of the start-up company and deliver it internationally if agreed with the start-up company. Due to a lack of time and resources, start-up companies mainly focus on their domestic market. This gives the possibility for corporate investors to do the international business with the start-up's products. These markets can for example be the corporation's own home markets but also other established markets of a multinational corporation.

Window on technology:

The window on technology is probably one of the most used phrases in this context. It refers to a view on development areas of new technologies, observation of technological trends, and related business opportunities. As the change in technology is tremendously fast, an open window to recent developments can be essential for the observation of trends and finally for the strategic planning process of the corporate investor. However, the technology window should be used in addition to internal research and development of the corporation.

Supply relationships:

Supply relationships can get build up by the corporation during the investment phase in a start-up company. As the final product and its ingredients for instance need to be increasingly defined in the development phase of a new technology, the corporate investor can influence this process. This can then e.g. result in a final product of the start-up company with products produced by the corporate investor. The venture will therefore preferably demand the corporate company's product as an input. This in turn protects the supply relation against other suppliers. (Riyanto & Schwienbacher, 2006)

Operational learning:

Strategically relevant learning is facilitated during the whole CVC activities such as pre-investment due-diligence processes, post-investment board seats, and even a failing ventures can give important insights in market (im)possibilities. The due-diligence process for example uncovers key customers, product developments and new technology besides others. As corporate investors typically involve representatives of their relevant business unit in the due-

diligence process, this already gives a great chance for leaning about new technologies and products. Board seats, board observation rights or other close interactions between the corporate firm's personnel and the start-up's personnel are active mechanisms for triggering organizational learning. Therefore, even if a start-up company fails the learning can be sufficient pay back already. But also the fail of a company can be taken as valuable learning opportunity. Due to insight information the corporate company can analyze reasons for failure and can see the pitfalls for its own business. (Dushnitsky & Lenox, 2006)

This section demonstrated the wide variety of possible strategic benefits including multiple chances of learning during the CVC investment period. Most strategic benefits shown above are related to information and organizational learning. Furthermore, with regard to Weber (2005) the strategic benefits will result in exploitation of existing markets and in exploration of new market opportunities. However, the strategic benefits and learning objectives for the corporate investor are likely to be very firm specific in a particular case and especially the weighting of each objective can be substantially different among corporations (Allen & Hevert, 2007). In this variety a clear definition of strategic goals sought by the CVC activities is needed. "The success of a corporate venture investing program depends on clear definition of financial and/or strategic goals." (Winters & Murfin, 1988, p. 221). These goals can then get measured and the activities can get controlled in order to reach the aspired benefits.

(2) Measurement and control of strategic value

Research about the evaluation of returns and economic relevance of CVC especially at the level of individual start-up companies as a direct investment is lacking in the field of CVC. This is in particular true for strategic benefits resulting of such investment programs as shown above. Especially the innovation oriented character of strategic objectives such as organizational learning and the search for future opportunities for technologies and markets can be taken as perfect examples to demonstrate the difficulties with measuring. Nevertheless, Dushnitsky & Lenox (2006) mention four popular measures of innovative performance used in empirical literature: R&D expenditures, New product announcements, Patents, and patent citations. These measures are, nonetheless, only meant to highlight the innovative capability of a company as such. They do not directly serve our specific consideration of measuring strategic benefits generated by participations in start-up companies. Although such measures try to translate innovative outcomes into countable metrics, in particular organizational learning and future opportunities remain problematic. Nevertheless, comparable indicators can be relevant for performance measurement as shown later. Below we will therefore focus on some attempts of monitoring the strategic benefits and relevance of direct investments by CVC investors. Efforts with relevance for CVC were made in the area of Real Options (Allen & Hevert, 2007; Luehrman, 1998; McGrath & Nerkar, 2004), in the area of Balanced Scorecard (Faisst et al, 2002; Bassen et

al, 2006), and in the area of customized metrics for evaluating strategic benefits (Corporate Strategy Board, 2000; Kola-Nyström, 2004). These concepts are shown in the following parts.

(4) Real Options

"Real options reasoning (ROR) is a conceptual approach to strategic investment that takes into account the value of preserving the right to make future choices under uncertain conditions." (McGrath & Nerkar, 2004, p. 1). Real Options allow monitoring and controlling strategic results next to financial results. This approach also provides flexible considerations of changing environments. However, it must be stated that this approach is not applicable as a direct performance measurement instrument. It does not check any key performance indicators, nor does it provide any standardized performance measures (Bassen et al, 2006). The value for CVC lies rather in the understanding that investments in new business ventures can be seen as a source of options for getting access to technology acquisition for instance (Hurry et al, 1992). The real options approach is considered here as being not suitable for directly measuring strategic benefits generated by participations in start-up companies and will therefore not be shown in more detail.

(5) Balanced Scorecard related measures

Some of the BSC perspectives, as described on page 25, reflect categories of objectives for strategic value generated by the investment activities. The BSC performance indicators in these perspectives can therefore get taken as measures for strategic value generated for the CVC investor by participations in start-up companies. Namely the Collaboration Perspective and the Knowledge Perspective deals with those strategic values.

While the financial performance perspective and the process perspective exclusively show measures from a portfolio point of view in order to control the CVC unit as a whole, the collaboration perspective and the knowledge perspective depicts measures which could easily get taken as measures for strategic value generated by the CVC investment. For example the number of patents and licenses perfectly reflect the benefit of technology licenses as mentioned above. The turnover of ventures with business units goes in line with the possibilities for supply relationships.

Concrete measures for the Collaboration Perspective and the Knowledge Perspective mentioned by Bassen et al (2006) in combination with those mentioned by Faisst et al (2002) are summarized in Table 3 and give a first idea of relevant measures in those fields.

Collaboration Perspective	Knowledge Perspective
▪ Intermediation of Business Units (BUs) and ventures CVC unit ▪ Quantity and quality of collaboration between BUs and ventures ▪ Collaboration agreements ▪ Number of new products ▪ Turnover of ventures with business units and their customers ▪ Amount of Co-Investments ▪ Proportion of Investments with participation of Bus ▪ Amount of cooperation agreements between BUs and start-ups	▪ Venture Capital know-how of investment managers ▪ Technological know-how of ventures in portfolio ▪ Number of Copyrights ▪ Number of Patents ▪ Number of Licenses ▪ Cumulative development time in start-ups

Table 3: Measures for Collaborative and Knowledge Perspective (Own illustration)

The indicators are given as typical examples and should get adjusted to specific conditions. Especially the strategic focus differs from corporation to corporation (Faisst et al, 2002). As shown above the benefits of CVC investments can be diverse. The specific strategic focus of the CVC activities will therefore differ accordingly. It can, nevertheless, be argued that aspired strategic values can get monitored by these kinds of BSC related measures.

It must be said, however, that for example the actual synergies resulting from collaboration and knowledge transfer are difficult to calculate in practice. Especially the real transfer of knowledge is obviously hardly valuable (Faisst et al, 2002).

The BSC characteristic of expressing strategically relevant non-financial aspects in terms of measurable quantifications appears to be a very useful approach for the measurement and control of strategic value generated by direct investments in start-up companies. A more detailed consideration of strategic return and evaluation metrics is shown below.

(6) Corporate specific evaluation metrics and customized objective tracking

We saw in the previous sections already that it is possible to express strategic goals in clear and even measurable and quantified objectives. In this section we will show similar evaluation techniques including customized metrics for evaluating strategic benefits. We will first show a more in-depth consideration of Strategic Return Metrics (Corporate Strategy Board, 2000). Customized Tracking Scorecards (Corporate Strategy Board, 2000; Kola-Nyström, 2004) will finally show a way how to handle a strategic orientated control process in practice.

In this context it cannot be overstated that strategic objectives are very company specific and so the corresponding measures and metrics are different and must get adjusted to certain company specific needs. This holds true for different corporate companies as well as for each start-up. As

we will see, the customized tracking scorecard can help for this adjustment. Kelly Battles, the director of corporate development at Hewlett-Packard Company perfectly states for the example of Hewlett-Packard (HP):

> *"HP has dozens of different product lines, many of which want to partner with other companies for different reasons and different needs. The strategic objectives for each relationship therefore vary by deal; deal teams define tracking metrics based on the terms negotiated for each agreement. Those metrics form the basis of the [customized tracking] scorecard. In other words, it is the deal that drives the [customized tracking] scorecard, not the [customized tracking] scorecard that drives the deal."*
>
> (Kelly Battles in Corporate Strategy Board, 2000, p. 32)

(7) Strategic return metrics

CVC managers often struggle to measure strategic returns accurately. This is in particular based on the fact that strategic measures are far more difficult to quantify than financial returns. However, clear measurement of strategic gains is necessary to make founded equity management decisions which are in line with the investing objectives (Corporate Strategy Board, 2000).

To assess the strategic value of a direct investment generally two types of strategic metrics are distinguished by the Corporate Strategy Board (2000): direct and indirect measures. Direct measures indicate the directly measurable strategic return resulting by the investment. This can be the actual achieved number of Research & Development (R&D) or the number of patents for instance. They are called "Strategic Value Metrics" by the authors. Indirect measures, such as the number of site visits or the frequency of board meeting participation, do only measure the indirect contribution of CVC activities to strategic objectives. They do not show explicit outcomes of strategic relevance, but measure activities which are seen as necessary condition for knowledge transfer and organizational learning. They are called "Metrics to assess Activities that generate strategic value" by the authors.

A list of metrics to monitor and assess strategic returns can be seen in Appendix 2. A selection of the measures in Appendix 2 is shown in the following table:

Direct Measures (Strategic value metrics)	e.g. ▪ Number of new products/technologies developed ▪ Number of patents ▪ Number of technology collaboration agreements ▪ Number of purchasing/distribution agreements ▪ Number of additional unique customers ▪ Number of co-marketing agreements
Indirect Measures (Metrics to assess activities that generate strategic value)	e.g. ▪ Number of visits to portfolio companies ▪ Number of operating units working with each start-up ▪ Number of observation rights

Table 4: Selected Measures for Strategic Return (Based on Corporate Strategy Board, 2000, compare Appendix 2)

After company specific selection and adjustment of these kinds of measures a structured way of documentation and reporting on these strategic measures besides financial measures is advisable. The Customized Tracking Scorecard can be a useful tool to turn such an instrument into action. The following section therefore elaborates on this monitoring tool.

(8) Customized tracking scorecards

A Customized Tracking Scorecard as suggested by the Corporate Strategy Board (2000) reflects all strategic objectives and also the financial objectives selected for one specific start-up company out of a list of generally important objectives in the eye of the corporate investor. It furthermore gives the opportunity to document to what extent each goal is met or not. Kola-Nyström (2004) uses a similar approach when she ranks each business venture on the relevance to the corporation in strategic terms such as learning by doing the venturing process, direct knowledge transfer, spin-ins, or new ideas generated. She evaluates each of these fields of aspired benefits in the dimensions actually achieved, planned to achieve, not achieved. Especially the expansion of the dimensions of achievement used in her example could be used to expand the suggested version by the Corporate Strategy Board (2000). An adjusted combination is exemplarily shown below:

Strategic Objectives and Milestones	Q1	Q2	Q3	Q4	Comments
■ Attendance of monthly board meeting	A	P			Planned for Q3
■ Adoption of key corporate technology by the start-up					
■ Using the corporation as the key supplier					
■ Arrange marketing cooperation agreements	A	A			
■ Acquire patents or licenses for new products	N	N			Product licensing still likely
Financial Objectives	Q1	Q2	Q3	Q4	Comments
■ Significant Sales Growth	P	A			
■ Increase of Profitability	A	A			
■ Positive Cash Flows	A	A			
■ ROE above 10%					
■ Increasing V					

■ = used objective for this investment

■ = not used objective for this investment

A = Actually achieved

P = Planned to achieve

N = Not achieved, no planning yet

Table 5: Customized Tracking Scorecard (Corporate Strategy Board, 2000, p. 32, adjusted and expanded)

As Table 5 demonstrates the customized tracking scorecard allows selecting certain objectives which are of specific relevance for a certain direct investment. This selection is visualized in our example by grey and black marks in front of the possible objective. The objectives should be agreed on in team meetings (Corporate Strategy Board, 2000). Appropriate documentation for the underlying reasoning should be secured. Each objective, my they be strategic or financial, can then be documented on quarterly basis for instance. The indication each objective allows, as demonstrated, three amplitudes “Actually achieved”, “Planned to achieve”, “Not achieved, no planning yet” in line with Kola-Nyström (2004). Naturally not only the objectives but also the amplitudes can get adjusted to company specifics. Finally comment fields each objectives give the possibility to give further comments.

The customized tracking scorecard first of all allows customizing particular measures to certain suitability for a single investment. The strength of this scorecard must be also seen in the structured way of tracking strategic aspects in clear combination with financial ones. Besides the documentation of achievement of goals itself it furthermore assures an agreed working procedure. Starting with the definition of corporate specific and start-up company specific

objectives the usage of a customized tracking scorecard supports the internal alignment with commonly agreed goals. This must be seen as being outstanding important concerning the strategic objectives. The actual measures underlying the sheet could for example be based on a BSC approach or the strategic return metrics as shown earlier. Quantified metrics such as e.g. number of new products developed, number of distribution agreements, or number of co-marketing agreements could either be underlying to the definition of each objective or they could get directly included and get measured as numerical amplitudes of the objectives achievement.

3.4.2. FINANCIAL PERFORMANCE MONITORING

With regard to financial performance monitoring in CVC we focus here only on measures for a performance tracking before an exit occurred. Financial returns in general are necessary to maintain venture capital investing in a corporation (Winters & Murfin, 1988). Many authors agree on the importance of specific performance measures for new business ventures and studies were undertaken to find appropriate measures for this purpose (Robinson, 1998; Brush & Vanderwerf, 1992; Murphy et al, 1996; Chandler & Hanks, 1993; Miller et al, 1988). The authors mention comparable reasons for the need of consideration of specific performance measures in this field. After highlighting the reasons for the need of specific measures in the field of venture performance measurement this section will show the most commonly used performance measures mentioned in literature. This contains basically financial performance measures. In the last paragraph we will discuss the suitability of each measure of relevance and will show some attempts to develop alternative performance measures.

(1) Reasons for the need of specific measures

Exemplarily Chandler & Hanks (1993) name six lines of argumentation reflecting the specific characteristics of new business ventures which require the development of appropriate performance indicators for new venture performance as described below.

Restricted availability of financial measures:

Chandler and Hanks state at first that financial measures of performance are often unavailable due to the fact that new ventures are typically privately held organization and therefore not obliged to disclose financial information. This argument is however cured in the practical situation of a CVC investor because the relationship between investor and Start-up Company also include information duties of the start-up. Nevertheless, several authors agree that it is difficult to obtain reliable and accurate information from new business ventures (Brush & Vanderwerf, 1992; Murphy et al, 1996). In this context especially the hindrance by a struggle of young firms of clear record keeping is worth mentioning (Brush & Vanderwerf, 1992). As new business ventures are less likely concerned with administrative work but to a great extend challenged by their young

operations, clear and exhaustive information can be assumed to be less likely available if compared to mature businesses. The availability of historical information is thus affected respectively (Brush & Vanderwerf, 1992). Another issue can be the reliability of obtained data in terms of intended manipulation by the owner or the founder of the venture (Brush & Vanderwerf, 1992; Murphy et al, 1996). However, it is questionable whether this latter issue is significantly more likely in business ventures and not also in mature companies. Nevertheless a point for this reasoning can be seen in less strict accounting rules for small businesses, for instance.

Volatility of growth:

The authors describe the problem with volatility of growth basically as a statistical problem. They argument, that due to enormous and erratic growth rates and therefore extreme outliers, statistical analysis is difficult to achieve. For practical considerations extreme fluctuations of growth make it difficult to predict a trend of development to judge future perspectives. Furthermore comparison of growth is restricted to only long term considerations.

Low physical assets:

Physical assets can be very low in start-up companies. This in turn has its impact on the explanatory power of conventional return measures. As start-ups are sometimes able to generate relatively high returns while just having a low investment or asset base, they can appear as remarkable profitable. However, because the low asset base is only a characteristic for the start-up phase, this can be misleading especially in comparison with firms with higher asset bases. Even more hurdles of return measures can be found in literature concerning return on investment for instance (Miller et al, 1988). These will be shown in a later section, however.

Different definitions of performance:

Different definitions of performance obviously require different measures for performance. Therefore performance measurement is dependent on the goals which are sought. A market entry strategy focuses on market share for instance and requires other measures as pure profit maximization. This argument therefore underpins the necessity of careful selection of suitable measures which reflect the relevant goals. In this manner Robinson (1998) mentions the possibility of a trade-off between profitability and sales growth.

Impact of industry-related factors:

Chandler and Hanks also mention the influence of industry-related factors on absolute scores on financial performance criteria. It can be argued that these factors are difficult to control. To what extend this is a specific characteristic of the venturing field is questionable, however. Industry-related factors have their impact on every business, regardless their development stage. Nevertheless, it could be true that start-ups are more heavily affected due to their size and their not established market position. Robinson (1998) for example shows that the stage of life cycle of

the industry a start-up company enters is the most important determinant of new venture performance. They should best enter an industry in the introductory stage (Robinson, 1998).

Impracticable objective measures:

The authors finally mention that objective measures (e.g. financial breakeven or survival) are often impracticable due to their need for longitudinal sample design.

(2) Financial performance measures

Commonly used measures for new venture's performance

The following table shows the most commonly used measures for new ventures indicated in the selected literature. The authors mentioned in the table (Robinson, 1998; Brush & Vanderwerf, 1992; Murphy et al, 1996; Chandler & Hanks, 1993) have undertaken literature studies but also empirical studies to demonstrate the most popular measures in this field. Their studies in total therefore reflect broad academic sources, but also the practical situation for performance measurement of start-up companies. The table demonstrates the overlap of certain measures mentioned in the studies illustrated by different shading. While Sales Growth, Net Profit and Return Measures are mentioned in each of the considered studies, Number of employees and Sales are only mentioned in two of them. The remaining measures are each only mentioned without any overlap. This literature review shows that almost all commonly used performance measures for new business ventures are financial performance measures except the number of employees and market share.

Brush & Vanderwerf (1992)	Robinson (1998)	Chandler & Hanks (1993)	Murphy et al (1996)
Sales Growth	**Sales Growth**	**Sales Growth**	**Sales Growth**
Net Profit	**Net Profit**	**Net Profit**	**Net income**
ROS, ROI	**ROE, ROI, ROA, ROIC, ROS**	**ROS**	**ROA, ROE, ROI**
Changes in number of employees			Number of employees
	Sales		Sales
	EBIT		
		Net Worth (Net Assets)	
		Market Share	
		Cash Flow	
			Net profit margin
			Current ratio
			Quick ratio
			Times interest earned
			Net sales/Tot cap
			Receivables turn
			Debt to equity
			Sales/equity
			Gross rev per emp
			Sales/Working capital
			EPS
			Net income change

Table 6: Commonly Used Measures for New Venture's Performance (Own illustration)

Table 6 shows that Sales Growth and Net Profit (Net Income) followed by Return Measures, such as ROS or ROI, are the most common measures in the field of new business ventures. Also the Number of Employees and Sales play a role in some sources. The measures in the lower part of the table such as EBIT, Cash Flow, or Net Profit Margin are mentioned less frequently.

Return measures, such as ROS or ROI, can be found in all of the four studies, despite that Chandler & Hanks (1993) do only specifically mention ROS. They found that especially ROI and ROA are significantly less used to evaluate the ventures performance than the other measures.

> *"The founders (…) [they] interviewed talked in terms of this year's sales vs. last year's sales, improving the cash flow, and earnings – not in terms of Return on Assets, Return on Equity, or Return on Investment. Interestingly, none of them mentioned the number of employees or growth in the number of employees in this context."*
>
> (Chandler & Hanks, 1993, p. 399)

This statement goes perfectly in line with our findings in Table 6 despite that other authors focus more on return measures. Nevertheless, Sales Growth and Earnings, explicitly named in terms of Net profit or Net income, show the highest correspondence between the four studies. Although it must be mentioned that return measures in one or the other form are still very popular performance measures in the field of new business ventures. In contrast to the statement however it can be seen that also the number of employees was still mentioned in two of the four studies.

Cash Flows were just mentioned in one of the four studies. This is quite remarkable because many managers recently focus much more on cash flow based measures than on profit based ones, which is due to the thought that "…not accounting profits, is what can be spent or invested, and cash flow is therefore the more important financial measure to monitor." (Miller et al, 1988, p. 289) The calculation of cash flows requires some adjustment of the financial data typically reported and is based on the balance sheet and profit and loss (Leach & Melicher, 2006).

This section gave an overview of commonly used measures of performance for start-up companies. The next section evaluates the most common measures found here, namely Sales Growth and Net Profit and Return Measures. Also some alternatives are aspired.

(3) Evaluation of commonly used performance measures for new business ventures

Sales Growth/Sales

Sales and Sales Growth are considered here as serving exactly the same goal, although they are separated in some studies as shown in Table 6. This consideration is based on the assumption, that sales are also compared with past sales figures to get an impression of the development of sales. This is in turn the same purpose of sales growth. Sales growth is seen as indicators reflecting customer acceptance and success in the market. Robinson (1998) stresses that sales growth is a necessity to build future options for a new business venture. Furthermore he agrees that sales growth indicate an increasing acceptance and demand of the products or services offered by the start-up company. He considers sales as an indicator for "…the venture's success in its market transactions…" (Robinson, 1998, p. 169). In this context he sees Sales as an even better indicator for market success as Market Share. The reasoning behind this is quite convincing: If a new venture enters a market as a first-mover for example, it will most likely loose market share in time simply due to the fact that other providers will follow. Although the venture will loose relative market share, in this case, the absolute sales level can still grow and will therefore better reflect the actual performance. Also other authors agree on the importance of sales for start-up companies and that sales reflect the "…knowledge of customers and how to sell to them…".(Gartner et al, 1998, 219) In addition, sales are often seen as an important dimension of business growth (Macpherson & Holt, 2007; Koeller & Lechler, 2006; Weinzimmer et al, 1998).

Business growth is seen here in a broader context and can also include the number of employees or assets for instance (Weinzimmer et al, 1998). “Growth is a recognized indicator of new venture performance in both the economic and management literatures…” (Koeller & Lechler, 2006, p. 431). New business ventures can need a long period of time and typically about eight years of sales before they ever become profitable (Miller et al., 1988). This lead time to profitability must be seen as very rough indication and is likely to be quite depended on the branch of industry for example. This characteristic of start-up companies underpins the need to consider sales and sales growth and not only profit or return measures. Sales and sales growth must therefore be recognized as an essential measure especially for start-up companies.

Net Profit (Profit measures)

Net Profits, or sometimes called net income, is the “bottom-line measure of what’s left from the firm’s net sales after operating expenses, financing costs, and taxes haven been deducted” (Leach & Melicher, 2006, p. 124). Net profit must therefore be understood in the context of an income statement as its resulting item. The calculation is exemplarily depicted in Table 7:

Revenues	500
- Cost of goods sold	325
= Gross Profit	175
- Operating expenses	380
= EBITDA	205
- Depreciation/Amortization	25
= EBIT	230
- Interest expenses	20
= EBT	250
- Taxes	75
= Net Profit/Income	175

Table 7: Net Income as a part of an Income Statement (Leach & Melicher, 2006, p. 130, adjusted)

The explicit consideration of net income in the context of an income statement, first of all helps to understand the derivation of this figure. Furthermore it clarifies the relation to other commonly used profits measures such as Earning Before Interest, Tax, Depreciation and Amortization (EBITDA), Earnings Before Interest and Tax (EBIT) or Earnings Before Tax (EBT). This is a relevant frame as most of the drawbacks are similar for these measures.

The Net income in general is of particular interest as this profit is seen as the direct contribution to the venture’s ability to invest (Robinson, 1998). However, it must kept in mind that profit positions in general are prepared following accrual accounting procedures and do therefore not represent the cash ready to spend (Leach & Melicher, 2006). This thought favors, as mentioned earlier already, the use of cash flows instead of profit positions.

The difference between net profits and real cash flow leaves much room for subjective judgments. Profits are for example affected by valuating work in progress, income from long-term

contracts, depreciation and further more (Mitchell, 2002). Although EBITDA is by definition not influenced by interest, tax, depreciation and amortization this is still a doubtful measure for companies' wealth and performance and can still get manipulated in several ways (Calabrese & Rafferty, 2004).

Return Measures

Also return measures, as accounting measures for performance must be considered with the same caution as the profit measures shown above, because they are in the same way affected by accounting regulations with all their inadequacies (Brealey et al, 2006). Return measures can be very diverse as Table 6 already indicates. We show here exemplarily the Return on Equity (ROE) and the Return on Investment (ROI). According to Brealey et al (2006) ROI is also known as Return on Assets (ROA). These measures can be seen as the most popular accounting measures of financial performance (De Wet & Du Toit, 2007; Brealey et al, 2006; Miller et al, 1988).

ROE is typically calculated in form of a broader model and therefore composed of separate ratios. It can get calculated as: ROE = Earnings/Sales * Sales/Assets * Assets/Equity (De Wet & Du Toit, 2007). As the separated calculation combines elements from the income statement, namely Earnings and Sales, with elements from the balance sheet, namely Assets and Equity, it is has some special appeal (De Wet & Du Toit, 2007). It is supposed to show the investor the return earned with the investment they made in the company as it focuses on the shareholders equity (Leach & Melicher, 2006). However, De Wet & Du Toit (2007) point out several drawbacks of ROE as a measure of performance. Besides other arguments the authors mention (1) Accounting issues, (2) Timing of Cash Flows, (3) Short term considerations and (4) Financial gearing and risk (5) Weighted Average Cost of Capital (WACC). Accounting principles allow the manipulation to some extend and the results must therefore be considered carefully. Furthermore this can cause problems when accounting principles change. One could also think about difficulties of international comparison in this manner. A second problem is concerned with the fact that the ROE does not take into account the timing of cash flows, which can however be significantly for the companies' liquidity as shown earlier. Another issue is also, that the ROE must be seen as short term orientated which incorporates the risk of overlooking long-term growth opportunities. The fourth problem is connected to the financial gearing in relation to financial risk. The ROE is calculated after the cost of debt and it can therefore even increase with a higher gearing without taking into account the increasing financial risk inherent in an increasing gearing. The fifth problem, about the weighted average cost of capital, is seen in the fact that the company can actually increase its ROE while still realizing a return below its WACC. The impact of problem four and five are shown in the following table.

Problem 4: Financial gearing		
Sales	500	500
EBIT	300	300
Interest expenses	50	100
EBT	250	200
Total Assets	3000	3000
Equity	2000	1000
Debt	1000	2000
ROE*[1]	12.50%	20.00%
Cost of Equity	15.00%	15.00%
Cost of Debt	5.00%	5.00%
WACC*[2]	11.67%	8.33%

Table 8a: Impact of financial gearing on ROE (Own illustration)

Problem 5: Below WACC		
Sales	500	500
EBIT	200	250
Interest expenses	50	50
EBT	150	200
Total Assets	3000	3000
Equity	2000	2000
Debt	1000	1000
ROE	7.50%	10.00%
Cost of Equity	15.00%	15.00%
Cost of Debt	5.00%	5.00%
WACC	11.67%	11.67%

Table 8b: ROE and WACC (Own illustration)

As shown in Problem four in Table 8a, the pure adjustment of the financial gearing can have a significant impact on the ROE. A switch of the proportion of equity and dept lets in our example increase the ROE from 12.50% up to 20.00%. However, as De Wet & Du Toit (2007) point out, this does not take into account the increasing risk due to a higher gearing. It is worth mentioning in this context that the impact on the ROE by adjusting the leverage is not necessarily positive and can change in our example if the cost of debt recognizably increases. Nevertheless it shows the impact on the ROE without changing the overall performance in terms of sales or EBIT. Problem 5 shown in Table 8b illustrates that even a positive trend in ROE can still be below WACC and should therefore not overhasty get interpreted as satisfying performance.

Similar arguments, especially with regard to sensitivity to accounting principles, also apply to ROI. Miller et al (1988) point out two additional aspects with relation to some unique characteristics of new ventures. First they illustrate that certain hurdle rates of ROI are commonly taken for performance evaluation. They argument, these hurdle rates cannot meaningfully applied in the case of new ventures, which is especially true if compared with mature businesses. This line of reasoning is based on the observation that it is not uncommon for new ventures to have ROI far below zero. The authors also mention that a change of inventory, as a part of total assets, can have much greater influence for the case of business ventures because it can be a significant increase of the otherwise rather low level of assets typical for start-ups. Nevertheless simplicity and availability must be acknowledged as some of the advantages of ROI (Miller et al, 1988) in the same way as for ROE.

[1] ROE = EBT/Sales * Sales/Total Assets * Total Assets/Equity (Tax is ignored for simplification)
[2] WACC = Equity/Total Assets * Cost of Equity + Debt/Total Assets * Cost of Debt

Reflection

It was stated already that Sales and especially Sales Growth must be recognized as an essential measure for start-up companies. Sales and sales growth are strong indicators for market success and customer acceptance as well as for business growth in general. Also the long lead time of start-ups to become profitable favors an explicit consideration of sales and its growth. It could be seen in this section that Profit and Return measures need to be used with care due to substantial drawbacks. Although profits are needed for further investments a consideration of cash flows can heal some of the disadvantages of profit positions. Especially return measures can be highly misleading and require careful consideration of the overall financial situation in terms of liquidity, financial gearing or WACC. Therefore additional considerations such as liquidity measures and forecasts (evaluated as Internal Rate of Return (IRR) or Net Present Value (NPV)) should be taken as completing indicators for financial performance. Although such indicators do not directly measure for the goal of financial return, they nevertheless indicate the possibility of reaching this goal.

Alternatives

Although some attempts were undertaken to find popular performance measures in the field of new business ventures as shown above, only very rare authors (Miller et al, 1988) try to really develop tailored measures respectively.

Miller et al (1988) developed an alternative measure of venture performance based on the belief that "…A new venture is best evaluated on the basis of its progress toward a desirable end rather than the end itself."(Miller et al, 1988, p. 291). They therefore suggest demonstrating a given financial measure in a more dynamic way. They want to take into account the improvement or trend over time of a certain measure, as well as the variation around the trend. They want to achieve a consideration of the trend of certain measure and the corresponding risk at the same time. This is meant to give an indication for the predictability of a sought development.

The trend can get recorded by the beta coefficient of a regression analysis (β); the variation around the trend is reflected in the coefficient of determination (R^2). They further argument that it can be difficult to interpret the trend of a measure solely as it does not include the risk factor. A step further than pure regression analysis they suggest to multiply β by R^2. The authors refer to this product as V. They therefore "…contend that an appropriate measure of venture performance is the rate of improvement in a given financial measure across time (measured by β) adjusted by the variation or uncertainty around the overall trend (achieved by multiplying β by r^2)." (Miller et al, 1988, p. 292). Figure 9 illustrates this relationship, exemplarily based on ROI.

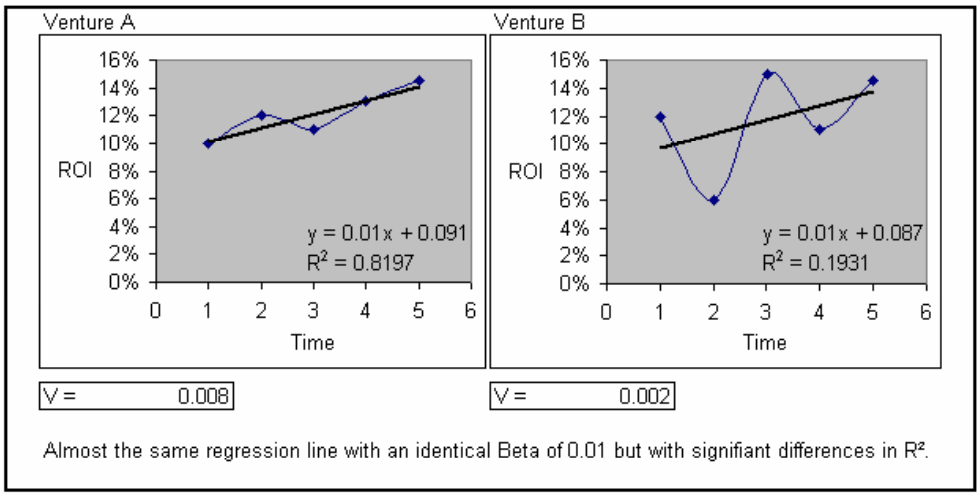

Figure 9: The Concept of Measuring V (Miller et al, 1988, p. 291, adjusted)

In Figure 9 two ventures are shown, Venture A and Venture B. Both ventures report a certain ROI level over time while showing a very similar trend line. The Beta of 0.01 is exactly the same for each venture. However, Venture B shows a very fluctuating development of its ROI while Venture A shows a steady increase of ROI. This is also reflected in a significant difference in R^2. Venture B's improvement of ROI is therefore much more difficult to predict than Venture A's. This unpredictability must be seen as a form of risk and would therefore disfavor Venture B in this example assuming all other influences are equal. The combination of β and R^2 by calculating V allows a consideration of the trend and the corresponding risk at the same time which is shown in significantly different V measures in Figure 9. To summarize as much information as possible in a single measure is seen desirable especially for venture capitalists and for evaluating portfolios of ventures (Miller et al, 1988). It must also be seen on the other side that the summarization of information will be at the expense of detailed information if not shown additionally.

The authors already mention some limitations of the measure V in the areas of market pioneers, curve line patterns of performance or a typically small set of data. It must also be mentioned that the authors used ROI to demonstrate their idea. This is a rather questionable choice, however, keeping in mind the pit falls of return measures also pointed out by Miller et al themselves.

Regardless the author's choice for ROI, the general idea of combining the trend of performance with its corresponding risk should be seen as a very useful development in this field. The measure V could therefore especially get improved by combining more suitable measures as a basis for the following calculation of β, R^2 and V or a similar constellation. Nonetheless one important drawback remains: this consideration also analyses historic data as any other measure.

3.5. Exit Management

The exit relevance for CVC differs somewhat from the importance for venture capital in general. With regard to figure 8 (p. 31) one should recall that exit management for pure financial returns is more an exception than an original desire of CVC. Exit management can simply be based on the fact that the investment is not of strategic relevance any more. In comparison an independent venture capitalist, not working for the strategic interest of its corporation, has a much more limited investment horizon. As they focus primarily on financial returns the exit decision is of extreme importance to them. This is in particular due to the fact that the exit will finally result in cash in-flow from the taken investment, hopefully including the desired returns. It is therefore of great importance to decide when and how to exit for CV investors (Gomes-Santana-Félix et al, 2008). While the reasoning for CVC exits, however, highly depends on the existence of opportunities for future strategic value generation and not so much on the timing for instance we will here mainly focus on the existing exit possibilities and their evaluation. We will also draw some attention to the degree of exits and to some problems with exiting troubled investments.

3.5.1. EXIT POSSIBILITIES

Basically five important possibilities for venture capital exits can be distinguished: (1) Initial Public Offering (IPO), (2) Acquisition Exit, (3) Secondary Sale, (4) Buyback, and (5) Write-offs (Cumming & MacIntosh, 2003; BVK, 2008). The possibilities for venture capital exits are briefly explained below and refer to Cumming & MacIntosh (2003) and the BVK (2008) if not indicated differently:

(1) IPO

An IPO means that shares of the company get initially sold to public shareholders. The IPO starts with a formal placement at a stock-exchange. The exit itself gets realized afterwards by selling the shares hold by the corporate investor. The IPO is generally perceived as the best way for CV exit especially because they are most likely to generate the greatest returns compared to other exit methods. It furthermore secures a high supply of financial resources for the former start-up company.

(2) Acquisition Exit / Trade Sale

The Acquisition Exit, also known as Trade Sale, refers to the sale of company shares to a typically strategic motivated investor. This sale can include the shares of the VC investor as well as those of other investors. Acquirers could for example be competitors, suppliers, or customers with objectives of vertical or horizontal diversification. After the IPO this exit method is seen as

the second profitable way of exiting. In some cases acquisition exits can even generate higher profits. This can be the case if it is possible to find a strategic investor willing to pay a markup in order to get access to synergy effects or market access for instance. The advantage in comparison to an IPO is that the acquisition exit is suitable for the sale of companies not being ready for an IPO and if an IPO is considered too risky and time consuming. Nevertheless it can be difficult and lavish to find a suitable buyer.

(3) Secondary Sale

In the Secondary Sale, or sometimes called Secondary Purchase, exclusively the shares of the VC investor get sold to a third party. This third party can be a strategic investor but also a financial orientated investor such as another private equity investor. Due to the fact that the buyer will most likely be an investor familiar with private equity and venture capital investments the sales trade can be much faster than the other methods. If the buyer is a purely financial oriented investor this can on the other side also result in a lower price than selling it to a strategic oriented investor in form of an acquisition exit. This is because such an investor will not be able to realize synergy effects.

(4) Buyback

If the entrepreneur or the start-up company buys back its own shares after the investment period, this is named as buyback. This method is generally not very favored and can be seen as relatively unlikely due to the instance that neither the entrepreneur nor the stat-up will have sufficient spare financial resources to buy back their own shares. The money is already invested in the company. If it nonetheless comes to a buyback a comparably low price can be expected. This goes back to the strong position of the buyer in such a case and the restricted buyer-ship.

(5) Write-offs

A write-off is connected to the failure of the start-up company. In this case no positive returns can be gained and the invested capital must fully or partly get written down from the balance sheets. In the case of a bankruptcy the company will get liquidated with all its assets. The VC investor as an equity giver bears the whole risk with its invested amount in such a case.

3.5.2. PREFERRED EXIT ROUTES

Empirical evidence shows that IPOs are the most common exit route in European corporate venture capital activities followed by Acquisition Exits and Secondary Sales to another private equity investor (EVCA, 2005). This is perfectly in line with the findings by Giot & Schwienbacher (2007); their study suggests that an IPO should be the first choice for cashing out on the CV direct investments and that, as a second possibility, the trade sale should be taken into consideration. This is based on the finding that IPOs are most profitable in a short time period whereas the "…window of opportunity for trade sales extends for a considerable amount of time…" (Giot & Schwienbacher, 2007, p. 700). Sometimes both exit methods, IPO and Trade Sale, are even prepared simultaneously which is known as "Dual Track". This enables to decide on short notice which of both exit methods will finally be taken under the specific conditions (BVK, 2008).

3.5.3. FULL AND PARTIAL EXITS

Cumming & MacIntosh (2003) show that exits do not necessarily mean that the entire investment amount is divested. They rather distinguish between Full and Partial exits. In this manner "…full exit is defined as one in which the VC fully disposes of its holdings within one year of the date of the IPO. A partial exit involves a sale of at least some of the VC's holdings within one year of the IPO, with retention of some of its holdings beyond the one-year period." (Cumming & MacIntosh, 2003). They found that the reason why VC investors make a full exit and another time make a partial exit is mainly influenced by the degree of information asymmetry between insiders and outsiders. Insiders in this context are the sellers of the start-up stakes (the CVC investors in our case), outsiders are the buyers. They show empirical evidence that the higher the information asymmetry the higher the likelihood for a partly entry. The authors suggest the explanation for this finding that partial exit can be seen as a signal of quality or trust in the investment. To keep a certain partial amount invested in the company could therefore be kind of a guarantee for the buyer that the selling investor still trusts in the capabilities of the start-up company based on his inside information. It is therefore likely that higher sales prices can be achieved in a partial exit.

3.5.4. THE LIVING DEAD – RESTRICTED EXIT POSSIBILITIES

The living dead phenomenon:

The phrase 'Living Dead' is long known in VC literature (Ruhnka et al, 1992; Gorman & Sahlman, 1989; Cumming & MacIntosh, 2003). "Living dead investments are typically mid- to later-stage ventures that are economically self-sustaining, but that fail to achieve levels of sales growth or profitability necessary to produce attractive final rates of return or exit opportunities for their venture capital investors." (Ruhnka et al, 1992, p. 137). This is, however, not similar to full economic failure of the start-up company. The start-up companies are even though able to generate positive cash flows and to meet their debt contracts. They are mostly fully able to sustain their business activities and are therefore described as "self-sustaining". They simply represent a failure of investor expectations (Ruhnka et al, 1992).

Relevance for CVC:

Although the financial return plays a less important role for CVC investors in comparison to traditional VC investors, the key problem of living dead investments remains: the hindrance of successful exit possibilities. "Without opportunities for an exit, VC investments are almost totally illiquid, and for all intents and purposes are equivalent to a loss of investment for their investors." (Ruhnka et al, 1992, p. 145). In addition to exit problems and correlated problems of gaining adequate financial returns these kinds of portfolio companies swallow a lot of management time and resources of the corporate investor seeking for solutions to turnaround these investments or trying to achieve an exit (Ruhnka et al, 1992).

Dealing with living dead investments:

The study of Ruhnka et al (1992) also shows strategies used by CV investors to deal with living dead investments. The authors found that the most often used strategy in this manner is to sell or merge the underperforming start-up company with larger companies with related products or technologies. This strategy for dealing with living dead investment was used in 75% of the living dead situations with regard to their study. Next to this strategy also a replacement of the start-up company's management, active involvement of the CV investor in the start-ups' operating decisions or a repositioning of the product came out as relevant strategies. Concerning the sequence of used actions the study further more indicated that the strategy of selling or merging the living dead investment was typically only followed after other strategies to turn the company around had failed. Turnaround strategies in this context are especially the replacing of the start-up's management or the repositioning the product.

3.6. Conclusions of Literature Review

The literature review of CVC Portfolio Management showed that only little research had been done in this specific field. Therefore best practices covering the challenges in a comprehensive way were not available in literature. We therefore showed an approach to tackle the problem of this rather specialized way of portfolio management in a structured way along the specific goals of CVC. Key elements in this approach are the Portfolio Construction along strategic and financial purposes for the corporation (see chapter 3.3) and the Investment Monitoring, controlling for the two crucial goals of strategic and financial performance (see chapter 3.4).

The overall picture of the literature available with relevance to CVC Portfolio Management allows the following general conclusions:

- Clear investment objectives are needed for the portfolio construction as well as for investment monitoring
- Strategic measures must be in line with objectives of each investment. They should be quantified.
- Financial performance measures for directly measuring the objective of financial performance (pre-exit) are almost extensively unsuitable for the case of CVC. Only sales growth can be judged as a relevant measure in this context. Therefore liquidity measures or financial forecasts, evaluated as IRR or NPV, should be taken as an important extension.

These conclusions have important relevance for the following case study at DV. Especially the strategic objectives and related strategic value measures are very company specific. Based on the learning so far it is therefore important for the primary research to answer the following questions: Which objectives are followed when investing in individual start-ups at DV? Which strategic value measures are suitable to track for the strategic objectives at DV? Which financial performance measures and indicators are suitable to track for the financial objective? A detailed overview of the primary research at DV is given in Appendix 1.

4. PORTFOLIO MANAGEMENT AT DSM VENTURING

The full version of this chapter contains confidential information. The confidential version of this study can be requested using the contact details provided in Appendix 7.

5. IMPROVEMENT OF THE EXISTING PORTFOLIO MANAGEMENT AT DSM VENTURING

The full version of this chapter contains confidential information. The confidential version of this study can be requested using the contact details provided in Appendix 7.

6. CONCLUSION

Most relevant practices for corporate venture capital portfolio management were found in the areas of portfolio construction, investment monitoring and exit management. Portfolio construction can get described as a strategic alignment between the corporation and the corporate venture capital unit resulting in objectives for the venturing activities and the portfolio construction respectively. As these objectives are specific for the corporation, a tailored construction and monitoring of the portfolio is required. The approaches for strategic monitoring come back to quantifications of desired results or a systematic tracking of strategically relevant milestones. Also the usage of financial measures is highly restricted in this field. Relevant financial aspects can basically be seen in the areas of sales, liquidity and forecasts of expected return. The challenges of investment monitoring discussed in literature were also reflected in the reality of DSM Venturing. The improvement of such investment monitoring was therefore followed during the improvement process.

The full version of this chapter contains confidential information. The confidential version of this study can be requested using the contact details provided in Appendix 7.

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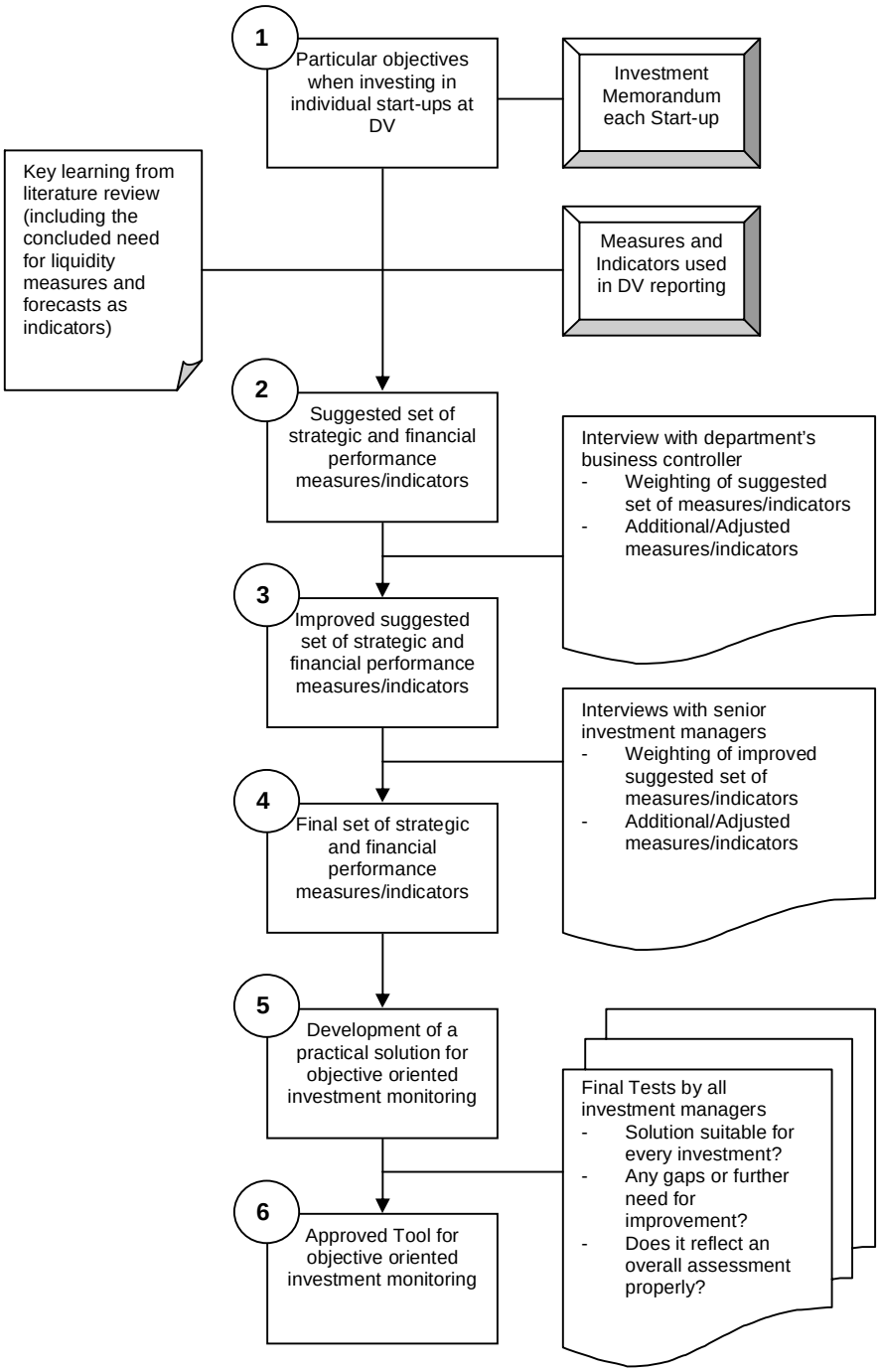
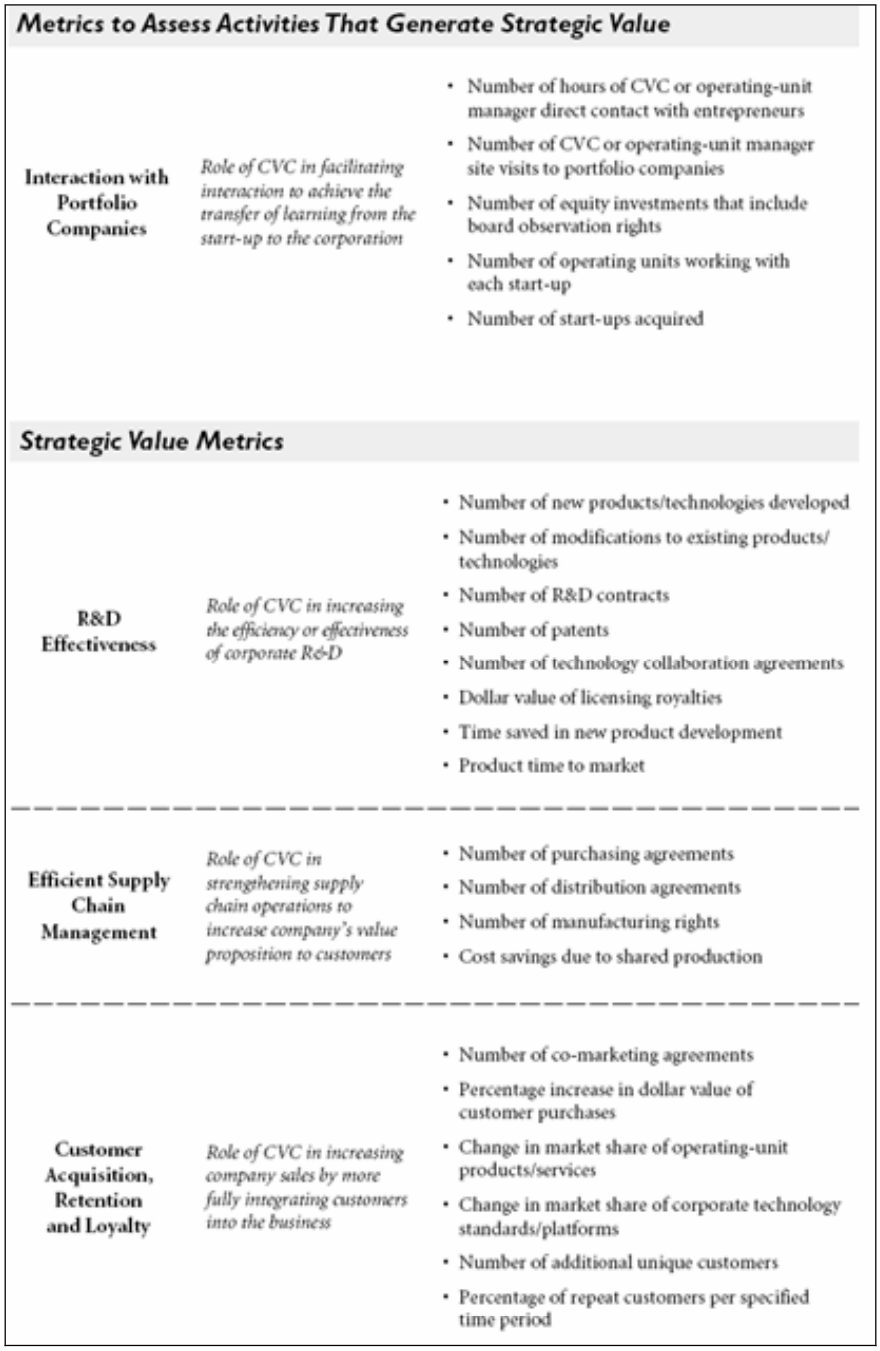
APPENDIX

Appendix 1: Primary Research Set-up Illustration (Own illustration)



Appendix 2: Metrics to monitor and assess strategic returns
(source: Corporate Strategy Board, 2000, p. 36-37)



Metrics to Assess Activities That Generate Strategic Value		
Interaction with Portfolio Companies	*Role of CVC in facilitating interaction to achieve the transfer of learning from the start-up to the corporation*	• Number of hours of CVC or operating-unit manager direct contact with entrepreneurs • Number of CVC or operating-unit manager site visits to portfolio companies • Number of equity investments that include board observation rights • Number of operating units working with each start-up • Number of start-ups acquired
Strategic Value Metrics		
R&D Effectiveness	*Role of CVC in increasing the efficiency or effectiveness of corporate R&D*	• Number of new products/technologies developed • Number of modifications to existing products/ technologies • Number of R&D contracts • Number of patents • Number of technology collaboration agreements • Dollar value of licensing royalties • Time saved in new product development • Product time to market
Efficient Supply Chain Management	*Role of CVC in strengthening supply chain operations to increase company's value proposition to customers*	• Number of purchasing agreements • Number of distribution agreements • Number of manufacturing rights • Cost savings due to shared production
Customer Acquisition, Retention and Loyalty	*Role of CVC in increasing company sales by more fully integrating customers into the business*	• Number of co-marketing agreements • Percentage increase in dollar value of customer purchases • Change in market share of operating-unit products/services • Change in market share of corporate technology standards/platforms • Number of additional unique customers • Percentage of repeat customers per specified time period

Appendix 3: Interview results with business controller
Suggested set of strategic performance measures / indicators (Own illustration)

The full version of this appendix contains confidential information. The confidential version of this study can be requested using the contact details provided in Appendix 7.

Appendix 4: Calculations underlying the discussed measures (Own illustration)

The full version of this appendix contains confidential information. The confidential version of this study can be requested using the contact details provided in Appendix 7.

Appendix 5: Interview with senior investment managers
Improved suggested set of strategic and financial performance measures / indicators (Own illustration)

The full version of this appendix contains confidential information. The confidential version of this study can be requested using the contact details provided in Appendix 7.

Appendix 6: Results Interview with senior investment managers
Improved suggested set of strategic and financial performance measures / indicators (Own illustration)

The full version of this appendix contains confidential information. The confidential version of this study can be requested using the contact details provided in Appendix 7.

Appendix 7: Contact details for request of confidential version

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