Value added by Venture Capitalists: The case of EDC

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Thesis submitted to the
Faculty of Graduate and Postdoctoral Studies
In partial fulfillment of the requirements
for the MSc degree in Management

Telfer School of Management
University of Ottawa

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Abstract

It is generally well understood that venture capital (VC) is an important and significant source of financing for small firms. Questions revolving around the increased likelihood of a firm backed by Venture Capitalists (VCs) to be export oriented have yet to be fully explored. Responding to this research gap, a sample of Canadian VC backed firms is used to compare the performance of Canadian VC firms in terms of facilitating internationalization among their portfolio companies.

The particular reference of this study is Export Development Canada (EDC), a crown corporation mandated to promote export among Canadian firms. This research finds that EDC as a VC investor and export-oriented consultant has no association with the increased probability of exporting. Also, stage of the investment does not show any relationship with internationalization. These results run contrary to previous speculation that syndication of VCs increases the probability of internationalization among portfolio firms.

Acknowledgement

First and foremost, I would like to offer my sincerest gratitude to my supervisor: Professor Allan Riding, Deloitte Professor in the Management of Growth Enterprise at the University of Ottawa's Telfer School of Management. I benefited immeasurably from Professor Riding's invaluable assistance, support, and encouragement.

I also would like to thank my co-supervisor Professor Kaouthar Lajili, Associate professor of Finance and Professor Mark Freel, Director of the M.Sc. in Management program for their assistance and feedback. Insightful comments were also provided by my thesis committee members: Professor Martine Spence and Professor Ajax Persuad, of the Telfer School.

At last, I would like to thank my friend and partner, Pedram, for his tremendous support.

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1. Introduction

The importance of a strong Venture Capital (VC) market lies in its potential ability to promote growth of entrepreneurial firms. VC financing, as mentioned by several scholars (Cumming & Johan, 2010; De Clercq & Manigart, 2007; Macmillan, Kulow, & Khoylian, 1989; Sapienza, Manigart, & Vermeir, 1996 among many), aids in establishment and growth of entrepreneurial firms and commercialization of innovation, specifically when firms' high risk activities and products disadvantage them from receiving other source of financing. Venture Capitalists (VCs), by definition, are known for demanding high rates of growth from their portfolio companies. In other words, they are willing to invest in companies which have a prospective high rate of growth. Internationalization is an important means through which VC-backed firms can grow quickly enough to compensate the VC for the high cost investment.

The money provided by VCs is not their only contribution. VCs also engage in the management of their portfolio companies. Their involvement is divided into two types of activities: monitoring and value adding. Although activities comprising each category may overlap, the underlying assumptions are different. Value adding activities pertain to involvement and assistance that help the portfolio companies to grow faster with lower cost, while monitoring activities give the opportunity for VCs to control the behaviour of entrepreneurs so as to limit risk. Literature recognizes several mechanisms through which VCs are able to provide added value to their investee companies. VCs provide:

- credibility, reputation, and experience;
- counselling, mentoring, serving as a member of the board of directors;
- giving operational advice; and
- assisting in establishing connections with third parties.

Previous studies do not show consensus about the efficiency of VCs' various forms of involvement; while some studies reported positive effects, others indicated non-significant or negative relationships between VCs' activities and VC-backed firms' performance.

Scholars have used several measures to investigate the effectiveness of VCs' value adding and monitoring activities. These include the growth and valuation of companies, the performance of firms at the time of IPO and the performance of firms in delivering innovation. One of the new research streams is evaluating the presence of the VCs in the exporting activities of their portfolio firms. In other words, this type of study investigates to what extent VCs help their portfolio companies to grow faster through internationalization[1].

This thesis tries to explore the role of Canadian VCs in facilitating internationalization among their portfolio companies. Internationalization is critical for Canadian firms' growth and development since small and geographically dispersed product market does not allow Canadian firms to experience fast growth unless they undertake internationalization, with all its risks. Although the effectiveness of VCs' involvement is not guaranteed, the preliminary assumption is that VCs are capable of facilitating the process of internationalization through their reputation, experience, and their networks. This thesis seeks to understand whether one particular VC, Export Development Canada (EDC), performs differently from its counterparts in terms of facilitating internationalization.

EDC has been selected as a reference for this thesis for two reasons. First of all, EDC is a crown corporation which has a mandate of promoting export among Canadian firms and therefore, its VC investment actively pursues the same strategy. Second, EDC offers a set of activities to its customers, including VC-backed firms, to assist them with exporting. This set of activities is known as *Connect Strategy*. The main question dealt in this study is that whether EDC is performing differently from its counterparts.

Beside the importance of exporting for Canadian entrepreneurial firms, the means by which VC investors lead their portfolio companies towards internationalization is a recent, and yet understudied, research stream. The limited amount of research that explores the role of VCs in internationalization mainly focus on U.S. firms and even fewer numbers discuss the different types of VCs and nature of their service and their effects on export behaviour of their portfolio companies. The thesis sought to compare one Canadian VC investor with its

[1] Internationalization, as defined by Welsh and Luostarinen (1993), is the "process of increasing involvement in international operations" (p.84). This includes not only foreign sales, but it may include Foreign Direct Investment, Licensing and Franchising, etc. The focus of the thesis is on exporting and the words "export" and "internationalization" are used interchangeably in the extant document.

competitors and understand the strength and weaknesses of Canadian VCs' involvements in their portfolio companies as well as to enlighten the limitations of conducting research in this area.

In the following document, first the literature of VC value adding activities and the outcomes of their involvement are reviewed with focus on the role of VCs in facilitating internationalization. Upon the literature, theories and hypotheses are developed and in the following chapter, the data collection and methodology for testing the hypotheses are presented. Finally, the results, conclusions, limitations of the research and issues that need to be addressed in future studies are discussed.

2. Venture Capital

Venture capital (VC) is a form of finance designed to invest in high growth potential firms. VC as a financial intermediary entity takes the investors' capital (i.e. pension funds, banks, institutions, government, and wealthy individuals) and invests directly in its portfolio companies (Landstrom, 2007). However, as pointed by several scholars (Cumming & MacIntosh, 2003; De Clercq & Manigart, 2007; Large & Muegge, 2008; MacMillan, Kulow, & Khoylian, 1989; Metrick, 2007 among others), financial contribution is not the only VC firms' function; VCs are known to be active in monitoring their portfolio companies and helping them to develop their businesses. Generally, VCs' initial goal is to maximize the financial return of the investment at the time of exit (Cumming & MacIntosh, 2003; Metrick, 2007). Hence, during the investment time, it is expected that VCs' endeavor is to maximize the value of their investee firms. With the onset of investment, VCs negotiate the deal including financial contributions, timing, and the investment stages. After finalizing the contract, the VCs' involvement in their portfolio companies is known as post investment or pre-exit activities (Zacharakis & Sheperd, 2007). A proportion of post investment activities is expected to manage the relationship between the entrepreneurs and VCs, known as *monitoring* activities. While monitoring activities can aid the company to achieve its goal and increase the value of the firm, another set of activities, known as *value adding* activities have been reported to have positive impact on the value of the investee companies (Large & Muegge, 2008; MacMillan et al., 1988; Nahata, 2008).

In the following text, the post-investment activities in general and value adding activities, specifically, are discussed and the potential outcomes of value adding activities are introduced. Then the roles of VCs in internationalization, as the contribution of this thesis, are explained. As the thesis' focus is on the value adding activities of VCs, the literature does not cover the other factors that can affect the success of a firm such as product advantage, entrepreneurs' ability, product market condition, and equity market conditions (Soderbloma and Wilkund, 2006). However, it has been discussed that VCs consider these factors in their

due-diligence analysis before making the endowment (Macmillan et al., 1985). It is worthwhile noting that in this section, as well as the whole thesis, the focus is on non-financial contributions of the VCS.

2.1. Entrepreneurs – Venture Capitalists relationships

The relationship between the entrepreneurs and the VCs are explained from different perspectives such as agency theory (Busenitz, 2007; De Clercq & Manigart, 2007), social exchange theory (H. Sapienza & De Clercq, 2006), and stewardship theory (Arthur & Busenitz, 2003).

2.1.1. Agency theory and monitoring role:

De Clercq and Manigart (2007) examine the VCs-entrepreneurs' relationship using the agency theory approach where there is a chance of "adverse selection" or "moral hazard". Agency theory is used to investigate the impact of information asymmetry on VCs and entrepreneurs' behaviours. In agent-principal relationship, one party delegates work to the other party (agent) to perform some duties as specified in a mutual contract (Smyth, Soberman, & Easson, 2007). In VC investments, both entrepreneurs and VCs can be considered as agents. If the entrepreneur is considered as agent, adverse selection happens when VCs make a false evaluation about the entrepreneur's capability and later recognize that the entrepreneurs may not be able to satisfy the pre-set expectation (De Clercq & Manigart, 2007). Moral hazard, however, pertains to situations where the entrepreneurs show non-cooperating behaviours or unwillingness to achieve the pre-set objectives and they might endanger the well-being of the investments (De Clercq & Manigart, 2007). For example, goal incongruence could exist between the two parties, or the entrepreneur might have access to private information about the product development stage and not reveal that to the other party. Alternatively, if the VCs are considered as agent, they may endanger the well-being of the deal by under-investing, seeking pre-mature exit, or being negligent about the progress of the firms (De Clercq & Manigart, 2007). It is hypothesized that contracts can solve many agency problems as time passes, but there are times during the investment phase that the likelihood of agency problems is increased. Arthur and Busentiz (2003) call these situations

"potential inflexion points" and argue that without these inflexion points; using agency theory is not salient in explaining the behaviour of VCs and entrepreneurs and other theories which consider the VCs- entrepreneur from a positive perspective should be considered.

Early studies on the entrepreneur-VCs relationship, as cited by De Clercq and Manigart (2007), consider the VC firms as the principals and entrepreneurs as agents. VCs need mechanisms to make sure that the entrepreneurs are complying with the signed agreement. The monitoring role of the VCs, empowered in the contract, gives the chance to the VCs to control the entrepreneurs' behaviours and outcomes of their activities (Macmillan et al., 1989). VCs, due to their equity stake and their control over financial resources, have higher bargaining power in their relationship with entrepreneurs (Busenitz, 2007; Fernhaber & McDougall-Covin, 2009). Financial levers like convertible debt and convertible preferred stock (Leleux, 2007) along with having a representative on the board of directors (Busenitz, 2007; Leleux, 2007; Macmillan et al., 1989; Metrick, 2007), conducting formal and informal checkups (De Clercq & Manigart, 2007), and checking financial reports (Metrick, 2007) allows VC to control or remove the entrepreneur. These mechanisms aim to reduce agency problems. Although it has been reported that VCs may endanger the well being of the investee companies, monitoring mechanisms are used to correct the potential harmful behavior of the entrepreneurs (Busenitz, 2007).

It seems agency theory is still applicable since most of the extant literature envisions a monitoring and governing role for VCs to control the entrepreneurs' behaviours and well being of the investment. Nevertheless, all the activities of the VCs cannot be categorized as "monitoring", since other functions exist which their aims are not to mitigate the goal incongruence problems, but to maximize the performance and value of the investment. Scholars try to look at the relationship between entrepreneurs and VCs from a positive perspective when there is a trustful relationship and cooperation between two parties to achieve common goals. In this situation, another type of post-investment activities, known as "value adding" activities, play a role (Arthur & Busenitz, 2003; H. Sapienza & De Clercq, 2006).

2.1.2. Social Exchange theory and value adding role:

According to social exchange theory, the economic transactions are embedded in a social context which entails social connections and mutual trust (Sapienza & De Clercq, 2006). Based on this theory, the social network is considered as a capital that can be used for development of the firm. Trust, confidence in other party's goodwill and the ability to predict its behaviour, are essential in determining the quality of the exchange relationship(Sapienza & De Clercq, 2006). In a trustful relationship, the resource used for controlling and monitoring the other party is freed, confidential information may be shared, and the risk of opportunistic behaviors may be reduced. Social connections enhance and improve the rate and quality of information sharing and help to align the goals between two parties. According to Sapienza and De Clercq(2006), this approach is associated with better perceived performance of investee companies. Consistent with social exchange theory, stewardship theory is applicable when stewards' (entrepreneurs) and VCs' objectives are aligned (Arthur & Busenitz, 2003). Stewardship theory is a complementary explanation to agency theory in which goal incongruence is the essence of the relationship (Arthur & Busenitz, 2003). Based on this approach, human beings act in a way to increase their self-esteem and growth and therefore, when there is no conflict, stewards try to be "organizational centered" (Arthur and Busentiz, 2003). When the actual objective of all parties is to maximize the performance of the firm, stewardship theory is more applicable. However, Arthur and Busentiz (2003) discuss that this theory still cannot explain the entrepreneurs' behaviours completely since they cannot always prioritize VCs' interest or "turn off their self-interest".

In the following section, different types of assistantship offered from VCs to their investee firms are discussed. Entrepreneurs may profit from the VCs' shared knowledge and experience, and access to their informational resources (Busenitz, 2007). However, these functions are hard to recognize, describe or contract on (Casamatta, 2010). The value adding role encompasses a wide range of activities from setting goals, hiring capable human resources, and establishing contacts with potential customers and suppliers to adding to the

credibility of the start-up firms. These activities are not presented by all the VCs and the extent of their involvement depends on the characteristics of VCs and start-up companies(De Clercq & Manigart, 2007).

2.2. Value added activities:

One of the aspects that differentiate VC financing from other types of financing is the ability of the VCs to be involved in their firms' activities (De Bettignies, 2010) and help the firm to expand or smooth the operations. Besides the importance of VCs in financing high growth firms, entrepreneurs are willing to pay the high cost of VC involvement in their businesses (Manigart et al., 2002) or accept the lower valuations of their companies (Nahata, 2010) to benefit from what VCs can provide in terms of value adding activities. From one point of view, value adding activities can be categorized into strategic, operational, and personal assistant(Macmillan et al., 1989). Strategic activities include all the functions that give strategic directions and objective to the firm. Operational activities encompass all the roles that help the firm to smooth its operations such as aid in accessing new markets. The personal assistant role is observable when the VCs behave like a mentor or a trusted friend of the entrepreneur (Macmillan et al., 1989). From another perspective, value adding activities are categorized into two different classes (De Clercq & Manigart, 2007): a set of functions that can affect the firm directly and the ones that are influential indirectly. Since the impacts of direct involvements are enhanced when they are made by a more reputed and more experienced VC firms, the indirect impacts are explained firstly.

2.2.1. Indirect impact

Many scholars discuss that VCs can make contributions in their portfolio firms indirectly, mediating their reputation and experience (Busenitz, 2007; Casamatta, 2010; Cumming, Fleming, & Suchard, 2005; Cumming & MacIntosh, 2003; De Clercq & Manigart, 2007; Krishnan, Ivanov, Masulis, & Singh, 2009; Leleux, 2007; Nahata, 2010). In these studies, reputation and experience are considered a type of resource that can affect the performance of the VC-backed firms. As cited by Maula et al. (2005), resources are "all assets, capabilities, organizational processes, firm attributes, information, etc. controlled by a firm

(Barney, 1991)" that aid the firm to implement its strategies and also improve the productivity. By this definition, gained knowledge and reputation of the VCs as a form of capital can be deployed in their portfolio companies.

Reputation

Nahata (2010) introduces reputation as a critical resource for VCs in their competitions with other investors and also among the VC-backed companies. Reputation is a signal that shows one VC firm is more capable of solving the problem of information asymmetry of the venture, so investors and business partners agree to intermediate the reputed VC firm to invest in or cooperate with that project (Maula, Autio, & Murray, 2005). Reputation is important not only to the investee companies, but also for VCs themselves, because they use their reputation to raise new funds or close deals with entrepreneurs with lower valuation (Cumming et al., 2005; Nahata, 2010).

VCs' reputation maybe a critical source of legitimacy for VC-backed companies, especially in the start-up phase, when VC-backed firms work in a high risk environment and there are no or limited amounts of record history about their activities (Busenitz, 2007). Besides the lack of credit history, being supported by VCs entails a high degree of uncertainty. VCs are known as investors in high risk projects; therefore, the third parties may perceive a higher level of ambiguity about the VC-backed company's activities and products. VCs mediate their reputation to solve the problem of information asymmetry between their firms, the market (suppliers and customers), financial institutions (Maula et al., 2005), and highly reputed managers (Metrick, 2007). They also use their credibility when they want to direct their invested companies towards the exit phase (Cumming & MacIntosh, 2003). The importance of the name or brand of a VC firm is emphasized when Metrick (2007) claims that "I have heard many MBA students, when describing their prior experience at a start-up, say the name of the top-tier VC that invested in the company even before they said the name and business of the company!" (P.96) It seems reputation is one factor that all scholars agree has a positive influential impact on the development of the VC-backed firms.

The importance and function of VCs' reputation differ according to the firms' stage. For example, VCs may help a start-up firm establish a network with suppliers and customers,

find additional sources of financing, and develop their own credibility (Busenitz, 2007; Maula et al., 2005). Reputation can lower the time needed to find additional financing; therefore, giving more time to entrepreneurs to focus on their product developing activities (Busenitz, 2007).

In the case of late stage firms, the role of VCs have been observed in helping firms to have a successful exit through an IPO or acquisition, solving the problem of under pricing, and lowering the cost of going public (Cumming & MacIntosh, 2003; Ivanov & Xie, 2010). Chemmanur et al. (2010) discusses firms with lower performance before VC deals show increased performance after VC selection and the effect is enhanced when the VC firm is a highly reputed one. The presence of the VC firm at IPO can lower the information asymmetry about the VC-backed firms' activities and hence, lower the under-pricing and increase the likelihood of a successful IPO (Cumming & MacIntosh, 2003). Dolvin (2005) find that presence of VC in a firm is associated with lower cost of issuance and higher price adjustment. In addition, Nahata(2010) find that a reputed VC firm can attract better underwriter and a proper time to exit; therefore, increase the valuation of the firm at the time of exit.

Experience and knowledge

Another factor affecting both the level and quality of the value adding activities is the experience of the VCs. One of the reasons behind distinguishing the experience as a separate factor is that specialized VCs are better positioned to reduce the information opacity of the market and also assess the entrepreneurs' decision by anticipating and understanding the misbehaviour of the entrepreneurs (De Clercq & Manigart, 2007). For instance, the highly experienced VCs are more likely to recognize shortcomings in the plans and suggestions of the entrepreneur. More successful VCs are more likely to be successful in their future investment which emphasizes on the role of experience as a resource that is accumulated in firm and cannot be imitated (Söderblom & Wiklund, 2006). In the extant literature, experience and knowledge are considered equivalent, since it can be hypothesized that learning through experience in managing portfolio companies, and communicating with other VCs and entrepreneurs will add to the tacit and explicit knowledge of the VC firm(Hochberg, Ljungqvist, & Lu, 2007).

Previous studies suggest that information gathered through years of experience and regional and national marketing research, makes the VCs capable of understanding the market situations and product development stage, and consequently giving salient advice to the invested firms (Maula et al., 2005). Conversely, Soderbloma and Wilkund (2006) point to several studies that show experience does not always improve the efficiency of VCs' decisions. Besides that, they find that lower experience does not mean lower performance since they find less knowledgeable VCs limit themselves to limited geographical regions and industry to increase their efficiency.

2.2.2. Direct impact

The literature introduces different activities that VCs can initiate in their portfolio companies. The extent of these activities and their influence, however, are found to be dependent on various variables such as VC human resources experience (Maula et al., 2005; H. J. Sapienza et al., 1996), investee firms' stage (Lockett, Wright, Burrows, Scholes, & Paton, 2008), and VC firm country origination (Söderblom & Wiklund, 2006). For instance, VCs with high degree of experience in business rather than finance tend to spend time with higher risk companies, and American VCs are known to be more involved in their firms compared to their European counterparts (H. J. Sapienza et al., 1996; Söderblom & Wiklund, 2006). Notwithstanding these differences, VCs influence their portfolio companies directly through board representation (De Clercq & Fried, 2005; Large & Muegge, 2008; Metrick, 2007), hiring human resources (Hellmann & Puri, 2002; Large & Muegge, 2008; Macmillan et al., 1989; Metrick, 2007), providing contacts (De Clercq & Fried, 2005; Macmillan et al., 1989; Metrick, 2007), and providing operational advice (Large & Muegge, 2008).

Board representation

A position on the board of directors gives the opportunity to VCs to exert their power and influence the firm's decisions (De Clercq & Fried, 2005; Macmillan et al., 1989; Metrick, 2007). VCs spend a substantial proportion of their time at their investee firms as a board member which involves monitoring and value adding activities. Being a representative on the board of directors gives the opportunity to VCs to give strategic advice to the managerial team and initiate business strategy development (Macmillan et al., 1989). Experienced VCs,

due to their skills in managing different firms, have a better position in deploying governance mechanisms which will lead to better performance (Busenitz, 2007). VCs can influence the firm's strategy by developing a strategic mission and assisting to plan strategically, so the company's operations serve the mission. For instance, VCs may aid their portfolio companies to develop and test marketing plans through their knowledge of market (Macmillan et al., 1989). Alternatively, the presence of VCs on the board of directors is not always positive. As cited by Metrick (2007), VCs companies with a busy board of directors are associated with lower market value. Or, companies with a majority of outside directors are showing lower performance from different perspectives.

Connection establishment

VCs use their social network and reputation to establish a relationship between their investee companies and customers, suppliers, and other partners which may help their portfolio companies to operate smoothly (De Clercq & Fried, 2005; Metrick, 2007; H. Sapienza & De Clercq, 2006). Assisting the entrepreneurs to establish a trusting relationship with third partners will reduce the time of searching and negotiating, so the entrepreneurs can focus on internal processes and improve the key performance indicators (Busenitz, 2007). In an early study, Macmillan (1992) identifies and classifies the VCs' endeavours to establish connections by selecting suppliers, introducing customers and distributors, and also selecting the equipment. Regarding their focus on the corporate VCs, Maula et al. (2005) concluded that since corporate VCs are connected to "big" names, they have the ability to solve the information asymmetry in the market and entice business partners and new customers, domestically and internationally. Especially, for an early stage firm that has no or limited sale records, the intermediary role of VCs are important.

Human resource

The role of VCs in introducing and hiring managerial and skilled human resources is cited by different scholars (Hellmann & Puri, 2002; Large & Muegge, 2008; Macmillan et al., 1989; Metrick, 2007). Macmillan et al (1989) divided the VCs initiatives for managing human resources into four categories: searching for top managers, interviewing and selecting a managerial team, negotiating employment contracts, and replacing the management. To

add to this list, Large and Muegge (2008) discuss that VCs are capable of gaining managers' commitment to join and stay at the company. In line with this idea, Hellman and Puri (2002) find that VCs are successful in the hiring of senior executives and keeping the CEO at the company since the CEO turnover happens long after the VCs leave the investment. On their comparison among different types of VCs, Maula et al (2005) suggest that working with a wide network of people in different organization gives the chance to the independent VCs to be acquainted with high performing executives who can realize the fast growing plans. But corporate VC firms know managers within a limited range of specializations, which may affect their performance in identifying and hiring a new manager or replacing the existing not-well performing executive.

Conversely, the effectiveness of VCs' involvement in hiring staff is debated. Macmillan et al (1989) discuss that a high degree of VCs' involvement and low level of entrepreneurs' involvement may result in lower productivity due to lack of compatibility between the entrepreneurs and the managers assigned by the VCs.

Consulting and mentoring

Literature recognizes a role of personal mentor, business consultant, friend, or confident for VCs (Large & Muegge, 2008). This role provides the entrepreneurs with "off-the-record" and less strategic advice. Mentoring is more personal; conversely, consulting activities are formal and serve managers and professionals. According to Large and Muegge (2008), mentoring and consulting activities are more effective when the firm is in the early stage.

Beside the aforementioned roles and functions, literature points to other types of activities that are occasionally offered to investee companies such as assisting in developing products and services, motivating personnel, and managing the company when it is in crisis (Macmillan et al., 1989). For example, due to their experience in negotiating on compensation terms, VCs are able to motivate the employees by incentives and increase the performance of the company.

2.3. Outcomes

In the review of the extant literature on VCs' value adding activities on the performance of the firms, Large and Muegge (2008) identify a variety of performance measures dominated by perceived success, exit state, and IPO exit performance. Other studies add to this list by using venture performance, post-exit performance, and venture success or survival (Bayar & Chemmanur, 2011; Cumming & MacIntosh, 2003; Cumming & Johan, 2010; Dolvin, 2005; Macmillan et al., 1989; Nahata, 2008, 2010). There are some studies that investigate specific outcomes such as innovation (Veda, 2010) and internationalization (Fernhaber & McDougall-Covin, 2009; George, Wiklund, & Zahra, 2005; LiPuma, 2006, 2012; Lockett et al., 2008; Smolarski & Kut, 2009). Different measures of performance have been developed for it is not enough to evaluate VC-backed firms based on their financial return, since there might be some VC firms whose strategic objective is not shareholders' wealth maximization (Ivanov, 2010). For example, corporate VCs may pursue acquisition of new technology or developing new products and services, which increases the level of innovation (Ivanov, 2010).

In the extant review, the outcomes are categorized in five groups. The first four groups present a brief review of the venture performance, exit success and exit timing, IPO valuation, and innovation. The last section provides an insight into internationalization and previous research on the role of VCs in facilitating export.

2.3.1. Venture performance

Performance of the VC-backed companies, before the exit phase, can be measured with two approaches: accounting and subjective measures (Busientiz, 2007). In his review on the impact of VC-value adding activities, however, Busenitz (2007) could not find any studies that use accounting measures to capture the performance of the firms while the VCs are still backing the firms. He explains that using ratios such as sale or revenue are not good indicators to compare entrepreneurial companies because of the fact that innovative firms do not experience sales in their first years of activities. In addition, the accounting information is usually confidential and researchers cannot have access to the data. For this reason, subjective measures are more common among the scholars (Busenitz, 2007).

In an early study by Macmillan et al. (1988), VCs were asked to rate their involvement and their perception of their success in their portfolio firms. With 18% response rate, VCs were classified into three different types: active, moderate, and less active investors. For active VCs, excessive involvement in hiring human resources is known to have negative relationship with the performance of the venture. One of the implications of this finding is that excessive involvement of the VCs in hiring key executives will eliminate the entrepreneur from the process of searching and selecting; therefore, the conflicts between the manager and the entrepreneur are probable. Moderate VCs perceive monitoring activity will increase the performance of the companies and less active VCs consider their support in network establishment has positive effect on the performance of the firm. In a more recent study, Sapineza and De Clercq(2006) investigate the role of relational capital and commitment on the perceived performance of the ventures. They find that the higher the level of trust, social interaction, goal congruence (relational capital), and commitment exists, the higher the level of perceived performance is. This finding implies that VCs will try to help their portfolio companies to succeed when they see enough trust and commitment among themselves and the entrepreneurs.

There are some studies that examine the role of VCs on the performance of the companies after IPO, when the VCs have left the investment. The aim of this type of study is to investigate the long-term effect of the VCs since Cumming and MacIntosh (2003) argue that there is evidence that the equity market is affected by psychological factors, and there is a chance of periodic overvaluation of IPO. Besides that, strong IPO valuation and equity markets might be affected by a strong economy.

One of these studies, conducted by Ivanov (2010), investigates the role of reputation, age, VC centrality, and syndication on the post–IPO performance in terms of return on assets (ROA), market to book ratio (M/B), and survival or return. VCs reputation in terms of IPO market share is known to be positively related with all four performance measures. However, other VCs characteristics such as age (as a proxy of experience), VC centrality, and syndication size, do not show consistent results.

2.3.2. Exit outcome

The vehicle that VCs use to exit from a contract is used to define the success or failure. Several studies consider IPO and acquisition as success of a VC firm and the other types such as buy back or write-off as failure (D. J. Cumming & MacIntosh, 2003; Nahata, 2008). In their salient investigation on what factors affect the exit vehicles, Cumming and MacIntosh (2003) argue that IPO and after that, acquisition, are successful exit methods. IPO is the only way to bring fresh capital to the company and spread the risk among higher number of shareholders. It shows that VCs were successful in helping the firm to grow enough to become attractive in IPO market, and it shows VCs were capable of solving the information asymmetry between owners and future buyers (Cumming & MacIntosh, 2003; Nahata, 2008). Also, acquisition happens when VCs are successful in finding a strategic fit for their portfolio companies and solve the problem of information asymmetry. Acquisition increases the value of the acquired company due to realization of synergy if it does not lead to fusion of the acquired company to the parent. Buybacks and write-offs are two signals showing that VCS were not successful in their endeavour to growing their investee companies, or solving or mitigating the information asymmetry laid in the VCs-entrepreneurs relationships (Cumming & MacIntosh, 2003).

Cumming and Macintosh (2003) identify several factors that affect the exit strategy such as VCs' ability of resolving information asymmetry for newcomers and reputation incentive, the readiness of IPO market, and exit preference by investee firm. Nahata (2008) investigates the effects of reputation, syndication, and connection of the VC firm on the likelihood of successful exit. Withstanding the market conditions and VC-backed companies' qualities, he finds that firms backed by more reputed VCs, based on market capitalization of IPO, are more likely to exit successfully and have access to the public market faster. Other measures such as age, cumulative aggregate investments, and number of investment rounds do not show consistent results. In another study, by focusing on the types of VC firms, Nahata (2003) finds that lower reputed VCs are more likely to experience liquidation.

In the analysis of VCs' exit from their investments, there is another research stream which focuses on exit timing. This relatively new research stream discusses the ability of VCs in determining the best time to exit which can increase the return on investment or reduce the

loss. To explain the variables affecting the decision of exit timing, it can be referred to Cumming and Macintosh's (2003) general theory of VC exit. According to this theory, VCs exit from their investment when the costs of remaining and monitoring of the firm exceed the value generated from their stewardship efforts (all the activities that VCs can do to increase the value of the firm). Again, VCs' ability to solve the problem of information opacity and reputation consideration is among the recognized factors.

Cumming and Johan (2010) find that proxies for agency problems, market conditions, and institutional characteristics are associated with the exit time. They find that Canadian VCs exit from their investment sooner than their American counterparts. Considering the general theory of exit and assuming that the greater the value added by the VCs, the longer the duration of investment, this finding suggests that Canadian VCs are less skillful in developing and maturing their portfolio companies. One of the main differences in VC market structure in Canada and the U.S is the dominant presence of government subsidized LSVCC (Labour Sponsored Venture Capital Corporation) funds (Cumming and Macintosh, 2003; Cumming and Johan, 2010). According to Cumming and Johan (2010), due to relatively inefficient VC investment practices in LSVCCs, VCs are not capable of providing a productive environment for their investee companies. Because of the lower marginal value added, VCs in Canada exit from their investment sooner than their American counterparts. In general, Cumming and Johan (2010) view that Canadian VCs as less experienced in developing their firms. The study shows that Canadian VCs tend more to late stage firms and hence, the duration of first investment to IPO is shorter than their American counterparts. For Canadians, it takes more time to write-off their investment. Longer time to write-off suggests that Canadians VCs are less able to solve agency problems, and maintain a portfolio of "living dead" investments, which, consequently, exacerbate their reputation.

2.3.3. IPO valuation

Another measure, discussing the effects of value adding activities, is the value of the company at the time of IPO exit. The rate of return from the investments can reveal information about the magnitude and speed of exit, and it is also straightforward, measured exactly with the onset of change in ownership, and it is on a ratio scale (Large & Muegge, 2008), so it enables researchers to compare different funds.

Beside the value of the firm at the time of IPO, some scholars measure the ability of the VCs to lower the under-pricing. According to Dolvin (2005), effective certification role of the VCs is associated with lower issuance costs. He finds that being backed by higher quality VCs have positive associations with lower issuance cost; therefore, lower under-pricing. Whereas lower quality VCs show the same effect in the penny stock market since highly reputed ones avoid competing in that market.

2.3.4. Innovation

According to Veda (2010), innovation can be measured in four different ways: whether the firm introduced something new, R&D expenditure, registered patent, and productivity growth (labour or total factor productivity). Veda (2010) portrays a theoretical framework to show how VCs increase innovation. He claims what innovation needs is patent capital and value adding investors who are experienced and, at the same time, less regulated. VCs have the ability to provide such an environment, since they stay in their contracts for a long time without revenue and they have the option to amend the contracts if an unpredictable event happens. Moreover, VCs with technical expertise have access to a network of specialists that can provide a good source of knowledge for their portfolio companies. Busenitz (2007), however, argues that VCs investment in funding technological innovation is rare, such as the case of LAN when VCs helped in preparing a business plan. He finds that VCs tend to invest in innovations which are on their rise and ready to deliver to industry. Hence, it appears one of the possible value-adding activities to support and develop innovation is to exploit or commercialize the innovation (Busentitz, 2007).

2.3.5. Internationalization

For small and medium sized enterprises to compete with multinational companies in exporting, it is crucial to develop some distinctive and dynamic features(Etemad, 2009) so it can compete with established multinational and national enterprises, abroad and domestically. In their reviews of the international entrepreneurship research from 1989 till 2009, Jones et al. (2011) classify the international SMEs studies into three streams: entrepreneurial internationalization, international comparison of entrepreneurship, and comparative entrepreneurial internationalization. The first group, entrepreneurial

internationalization, deals with the different ways that a firm can extend its activities to outside the national borders. Papers discussing the first category, which is the emphasis of this thesis, present the factors affecting the ways of and important resources in the process of internationalization. Studies review the effects of intellectual resources (such as entrepreneurial orientation and motivation), marketing strategies (such as entry mode, market selection, strategy, and competitive advantages), and finally performance and characteristics of the venture. There is a theme of studies which review the role of the entrepreneurs' orientations towards internationalization, risk perceptions, experiences and knowledge, and their connections and networks. Several studies discuss the role of networking and social capital and investigate the influences of the network ties. In a nutshell, the studies discussing the process of internationalization recognize strategic orientation, knowledge, experience, and networks as firms' resources that are crucial in exporting. As discussed earlier, if the entrepreneurial firm lacks these resources, it is well-known that VCs provide this capital for their investee firms. How VCs can influence the internationalization is discussed in the following studies.

Lockett et al. (2008) argue that export intensity is the outcome of a strategic decision and it is influenced by the intellectual and financial capital of the firm. They point to the governance role as one of the sources that can affect the export density and resource allocation in the venture. They also emphasize that the role of VCs are highlighted when VCs invest in an early stage venture, since the stake and control of the entrepreneur from and over the firm's resources is diluted at the onset of VC investment. Beside VCs' control over firms' resources, Lockett et al. (2008) emphasize the impacts of the VCs' value adding activities at the early stage are more crucial in order to develop the business, while monitoring activities are important in the late stage to discipline the venture and certify the accounting information.

George et al. (2005) look at the presence of the VCs from different angles. They argue that equity ownership can influence the management's attitude toward risk of internationalization. To investigate this theory, they consider the impact of internal and external equity ownership on scale and scope of internationalization and find that external equity ownership has positive relationship with scope and scale of internationalization,

measured by the number of countries in which the firm has export relationships and the percentage of the firm's business done internationally. George et al. (2005) discuss that since VCs gain experience and knowledge from the fund they have managed, they understand the importance of internationalization and they know how to overcome the barriers and penetrate across the national borders. Moreover, the involvement of VCs can adjust the top managers' and CEOs' risk aversive attitude; the interaction effect of internal and external equity ownership have positive relationships with scale and scope of internationalization.

Zahra et al. (2007) investigate the effect of presence of VCs on the internationalization. VC ownership measured by the percentage of VCs shares from the equity, has positive relationship with SME's investment in building human capital. As the percentage of VC ownership increases, the activities for building knowledge and superior technological assets increase. It can be concluded that the presence of VCs with export orientation may increase the firms' activities in generating and capturing international knowledge.

Fernhaber and McDougall-Covin (2009) investigate the impact of knowledge and reputation of the VCs on start-ups internationalization. They emphasize the role of the international knowledge which can reduce additional costs of internationalization and also that of the reputation that can lend to start-up firms to operate globally. By measuring the international sales intensity, international asset intensity, and international scope (extents to which firms operate across national borders) as proxies of internationalization, they find that both VCs' international knowledge and reputation has a positive association with internationalization, but the impact of knowledge is higher when VCs are highly reputed ones.

Gleason et al. (2006) study the effect of VC ownership in the born global companies. Born global firms are those who start their activities at an international level in the early stages and in a quick process(Jones, Coviello, & Tang, 2011; Oviatt & McDougall, 1994). Since born global companies have dispersed assets and cost centers, they need more resource to monitor their activities. Hence, Gilson et al. (2006) find that presence of VCs, due to their monitoring role, is at a higher level in born global enterprises.

Smolarski and Kut (2009) investigate the effect of incremental or lump-sum financing and syndication on the export ratio and find that incremental financing and syndication increase the probability of a higher export ratio. They view both incremental financing and syndication as control mechanisms that mitigate the risk of investment. However, findings show the interaction effect of incremental financing and syndication have a negative effect on export ratio, suggesting that restrictive monitoring mechanisms have a negative effect on export.

In contrast to the above literature, LiPuma (2006) find that VCs' value adding activities cannot make any difference in the level of internationalization in their firms. Moreover, he analyzes whether there is any difference among different types of funds: independent VC or corporate VC. The result reveals that both of these funds do not show any association with a higher level of internationalization. In another study, LiPuma (2012) investigates the relationship between internationalization and IPO valuation. By analyzing 184 U.S. technology based VC-backed companies, LiPuma (2012) finds that there is a negative relationship between IPO valuation and internationalization. Due to the high cost of internationalization, ventures may delay their IPO with lower value until they can be active in foreign countries to offset the expenses and show revenues. However, non-VC backed companies were not considered in his analysis.

2.4. Conclusion

The extant literature recognizes an ability in VCs to increase the value of their portfolio companies. This can be inferred from the reviewed studies since most works are not concerned about the presence of the VCs, but, rather, the influential elements. The extent of involvement and the results of the post-investment activities depend on a range of criteria such as the position of the VCs in the market, the characteristics of portfolio companies, and the entrepreneur's capabilities and the market. Withstanding these considerations, the scholars recognize the following possible inputs and outcomes of VCs involvements, as depicted in the figure 1.

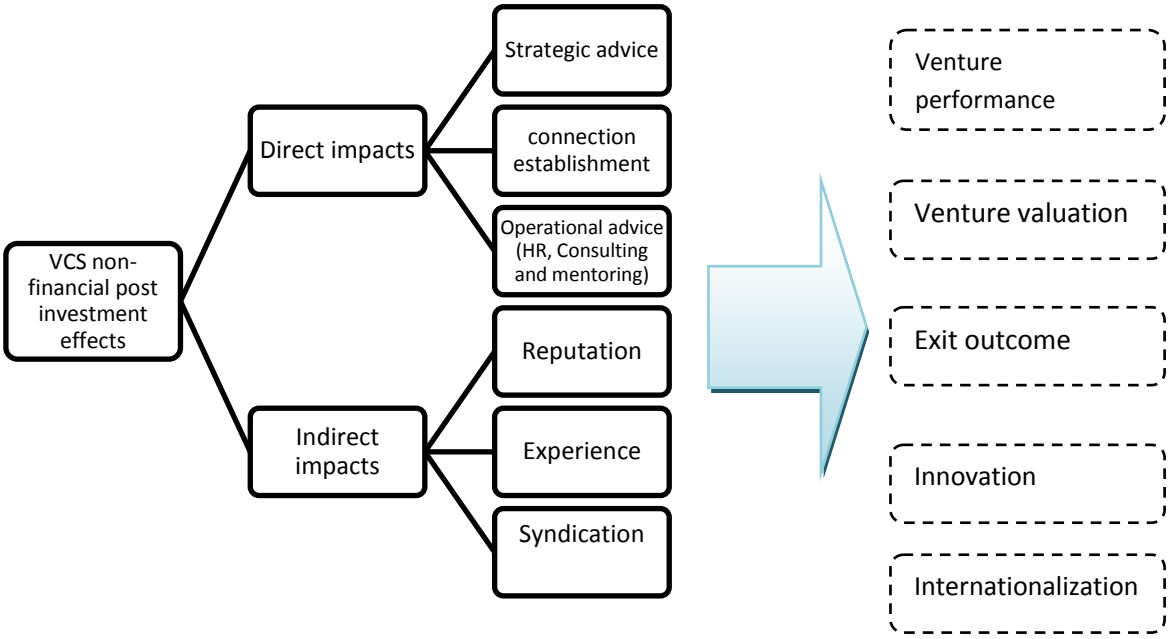

Figure 1- The identified VCS' value adding activities and their potential impacts

Among the above inputs, reputation is the only factor whose positive effect on the performance of the VC-backed firms is highlighted by all the scholars. There is still debate about the efficiency and functionality of the other factors. Besides the difference among VCs in different countries and industries that may affect the findings, it seems the measurement methods can also be one of the reasons that diversify the findings.

Another factor that might influence firms indirectly through enhanced reputation, experience, and connection establishment is syndication. Syndication happens when one VCs cannot meet the financial requirement of the venture (Brander, Amit, & Antweiler, 2002); however, other motives may lead to VCs' syndication. Lerner (1994) suggested that syndication confirms one VC firm's investment selection. In other words, the peer reviewing and re-evaluating the project is one of the added value of the syndication. Even if the syndication does not happen at the first stage of investment, the presence of another VC firm, in later stage of the investment, acts as confirmation on the continuation of the investment. Brander et al.(2002) raises another hypothesis for syndication of the VCs which called value-added hypothesis. Upon on the role of VCs in adding value to their portfolio companies, Brander et al.(2002) show that syndicate project in their sample have higher rate of return than standalone projects. They also argue that the value adding effect of syndication is more significant than the peer

review effect in the time of selecting the investment since when a project is worthy enough that one VC firm wants to invest in, adding the second VCs add a very low marginal value to the decision.

One of the concerns about conducting this type of studies is the measurement. As it has been mentioned, data related to VC-backed firms is usually confidential and VCs are not willing to share it with third parties. In addition, data about the failure of the VCs, write-offs, or buy backs is not easily available (Busenitz, 2007). Since failure affects the VC firm's reputation, it is easy to envision that VCs are not willing to share the information related to lower performance. However, this is not only the possible bias in information. Much of the research related to VC firms suffers from the selection bias. It is not always clear if the VC-backed companies are successful because of the role of VCs or because of their intrinsic characteristics. Nevertheless, several studies, aware of the effects of selection bias, tried to solve this dilemma (Krishnan et al., 2009; Lockett et al., 2008).

3. Conceptual model

Having discussed previous research findings about the role of VCs in adding to value of their firms and developing their portfolio companies, in this part, focus is made on the one specific outcome: export development. In this research, the lens is set on the characteristics of VCs. In other words, the question of whether VCs are influential in encouraging and facilitating export among their portfolio companies – in comparing with other types of investors- is not being investigated. Rather, the question is that whether a specific type of VCs is more or less influential. The reference of the thesis is Export Development Canada (EDC).

Internationalization can speed up the growth of the small businesses and accordingly of the economy (Keen & Etemad, 2012). One strategy for fast growth is to expand the activities to new markets and across national borders (Keen & Etemad, 2012). Export orientation can be an internal capacity of the firm; however, when it comes to growth, firms' stakeholders may intervene in firms' strategies to maximize their wealth. For example studies show that VCs may participate in business strategy development of their portfolio companies (Macmillan et al., 1989). While Fernhaber and McDougal-Covin (2009) discuss that the role of VCs in internationalizing small firms is debated, VCs, due to their equity stake, logically should seek export and growth opportunities entailed by export. Firms intending to expand their activities' boundary to foreign countries have to bear additional cost and risk (Fernhaber & McDougall-Covin, 2009). Therefore, only those firms can be successful in this endeavour that their managers or boards of the directors pursue internationalization actively. For example, the governance of the firms needs to change to manage the cost of internationalization (Gleason, Madura, & Wiggenhorn, 2006). Consistent with Locket et al. (2008), Gleason et al. (2006) and George et al. (2005), it is expected that VCs can be successful in conveying their orientation to their portfolio companies through having a seat on the board or giving strategic and operational advice. Even if the relationship between VCs

and entrepreneurs is not trustful, VCs monitor their portfolio firms in a way that increase the goal congruence. Hence, VCs with international orientation are more likely to navigate their firms through internationalization by changing managers' attitude to accept the risk and cost of exporting.

Beside the strategic orientation and operational advice that may affect the portfolio companies' strategies and operations, there is an intermediary role for VCs in connection establishment. Entrepreneurial firms, seeking to be active in cross border markets, need to pay an additional cost of information asymmetry. VCs are able to facilitate the process of finding and negotiating with customers, suppliers, or other third party companies. The facilitator role of the VCs has been emphasized by several scholars (Macmillan et al., 1989; Maula et al., 2005; Metrick, 2007). VCs' reputation can mitigate the under-credibility of entrepreneurial firms in global markets. Small and venturous firms do not have credibility to enter foreign markets easily. Credibility of VCs can mitigate the problem of information asymmetry, so firms can negotiate and enter into long-term relationship with the suppliers and customers with lower cost. VCs' international reputation can be used as a mediatory tool in the process of internationalization (Fernhaber & McDougall-Covin, 2009).

VCs can also reduce the risk of failure in exporting through their knowledge and experiences. For example, knowledge obtained from market research in foreign countries, knowledge and experience of working in targeted countries' regulations, and that of penetrating in targeted counties can reduce the cost of search, study, and marketing. One source of knowledge is through managing and directing different portfolio companies. While differentiating the portfolio in a different industry can reduce the risk of the portfolio, many VCs prefer to be specialized in one industry (De Clercq & Manigart, 2007). Also, Maula et al. (2005) view corporate VCs as better positioned to accumulate knowledge of market and product rather than independent VCs. They argue that independent VCs are general investors who need specialists' opinions in case of complex problems. In line with these findings, we can expect that a VC firm with a mandate of exporting accumulates its knowledge and expertise in this area and can offer higher quality service to its portfolio companies. Nevertheless,

Sometimes the difference between experience and reputation is not clear as VC firm age is used for measuring both criteria (Cumming & MacIntosh, 2003; Fernhaber & McDougall-Covin, 2009; Nahata, 2008)

Why Export Development Canada? EDC has a specific mandate in encouraging export among its portfolio companies and it is easy to envision that this strategic objective affect its VC investments: selection of companies, post-investment activities, and exit phase. On the other hand, with a geographically spread Canadian market and expected higher growth rate for VC-backed companies, it can be expected that other VCs seek internationalization actively. However, what we think can differentiate EDC from its counterparts is the explicit priority of export development as a mean to generate financial returns and unique set of activities known as *Connect* that are designed only to build new opportunities for Canadian companies to trade. The *Connect strategy* includes eliciting knowledge from EDC's strategic partners and then recognizing forward opportunity, identifying customers' capabilities and requirements, assisting customers to connect to new partners, and defining and implementing new business models. Because of export oriented objective and services, it can be expected EDC's support as an investor, business partner, or both offers significant results in terms of internationalization. Therefore:

Hyp a: Canadian firms backed by EDC are more likely to internationalize comparing to other VC-backed firms.

Since EDC has some customers in its portfolio that do not have EDC as investor, but as a business partner, the hypothesis can be broken down into two sub hypotheses:

Hyp a1: Canadian firms that received VC money from EDC, due to EDC's strategic orientation, are more likely to export comparing to other VC-backed firms.

Hyp a2: Canadian firms that received Connect advice from EDC, due to EDC's operational advice, are more likely to export comparing to other VC-backed firms

Moreover, it is expected that the effect of VCs on young companies is crucial since early stage firms are more likely than later stage firm to need strategic objective guidance which can help them to grow faster and also structure the organization to facilitate exporting. Later stage firm have relatively established vision and structure; thus, the organizational inertia does not allow VCS to influence the firm's objective dramatically. Besides that, the effect of experience, knowledge, and reputation is more when the first investment is made in early stages, since they can compensate the lack of entrepreneur's and managers' knowledge in internationalization and lack of firms' credibility. For these reasons:

Hyp b: The effect of VCS in internationalization is reinforced when the first investment is made in the early stages.

One of the important factors in the performance of the VCs portfolio companies and consequently VC funds is the effect of syndication of VCs. The collaboration among VCs, known as syndication and led by one VC firm, impacts on the performance of the fund. Syndication mitigates the risk of investment by diversification, increases the expertise by information sharing, and improves the screening phase by having peer reviews. Moreover, it adds to portfolio companies' value by sharing social capital among the VCs (Chemmanur, Krishnan, & Nandy, 2010; Söderblom & Wiklund, 2006). VC firms participating in syndication mediate the reputation and credibility of the other VCs in order to shape their own "image" and reputation (Soderbloma and Wilkund, 2006). By syndication, VCs extend their networks and increase the probability of strategic alliances and attract investors, lawyers, auditors, and other business partners (Nahata, 2008).

In encouraging internationalization among portfolio firms, it is expected VCs be in line with each other and mediate the accumulated knowledge, reputation and social networks to help their portfolio companies to export. Therefore:

Hyp c: due to the synergy effect, the firms backed by syndication of VCS are more likely to be successful in exporting than those firms which are supported by one VC firm.

To test these hypotheses several factors should be measured: at one hand, the VC-backed firm's export and internal capacity for exporting, and on the other hand VCs' specifications. However, measuring performance in entrepreneurial firms and VC specification has several complications. As Busentiz(2007) highlights, gathering information about private companies is challenging as in many countries, private firms are not required to disclose their financial information. The methodology for collecting data and analyses, and empirical results are discussed in next chapter. In the last section, the conclusion, limitations, and suggestions for future research are discussed.

4. Methodology

4.1. Definitions and data collection:

In the previous chapters, VCs' means of involvement in their portfolio companies and their potential influences have been discussed, raising the question of the extent to which different types of VCs can influence export activity. This thesis tries to answer the question of whether an export conversant VC firm, here EDC, is more capable of having an influence on, and directing, their portfolio companies towards internationalization. To test the hypotheses presented in previous chapter, two analytical methods are used: a Chi square test of independence and logistic regression. In order to mitigate the problem of selection effect and consider firms' internal capabilities in developing export, a propensity score matching technique is also used. In this section, variables used in analysis, their definition, and the techniques are briefly introduced.

4.1.1. Dependent variable

The unit of observation in this study is the VC-backed firm. To answer the research questions, the dependent variable is defined as a dummy variable that measures the presence of export activity. Since the export activity is meaningful only once the company has reached the production and sale stage, data were collected only for firms at the operational stage. The research is limited to this dichotomous dependent variable, because measuring export intensity, revenues generated from total sales and foreign sales was not possible.

4.1.2. Independent variables

To test the main hypotheses, two independent variables are defined.

1. One is the strategic orientation of VCs. Although the necessity of high required rates of return may force all VCs to encourage and facilitate exporting among their portfolio companies, EDC is considered as an explicitly export oriented VC. This is because the

constitution of this crown corporation is explicit about EDC's mandate of providing resources to Canadian firms for foreign trade. To the researcher's knowledge, EDC is the only recognized VC firm in Canada that emphasizes and prioritizes facilitating exporting in all of its activities.

2. The second independent variable captures the presence of export oriented operational advice. EDC assists its portfolio firms through a set of advice and involvement activities known as *Connect.* In this research, receivers of *connect strategy*, all of which are VC-backed companies, are c*onsidere*d as receivers of operational advice. Again, although other VCs may offer export oriented services to their portfolio companies, the focus, here, is on *Connect* receiver.

4.1.3. Control Variables (VCs specification)

All sample firms had received VC financing from at least one known Canadian VC firm. Data were collected to build an index for measuring three measures of experience, reputation, and connection establishment. These include the number of years that a VC firm had existed, the number of its investments, the total amount of investment, capital under management as well as syndication information. However, with unavailability of data for some firms, building an index to measure VCs' specification was not flexible. For capital under management, which is among the most used indices of reputation, information was not available for 46 VCs out of 70: for example, labour sponsored funds do not operate as closed-end funds, so capital under management is constantly changing. Such problems limit the study to work with a limited number of indices.

Another issue was the high rate of syndication among Canadian VCs. The Canadian VC industry market, compared to its U.S. counterpart, has a relatively smaller fund size which consequently prompts for higher rates of syndication (Nitani & Riding, 2013). A high rate of syndication makes it difficult to separate the effect of one specific VC firm from its partners in each deal. The initial idea was to build weighted index based on years each VC firm is present in each investment; however, the available information does not allow for making such indices. For example, for many VC-backed companies names of all of its investors were

not available, or, the amount of investment and date of investment were not specified. Therefore, some other approaches, explained below, had been considered rather than building a weighted index or index for incumbent VC investor.

Experience or knowledge reflects the ability of VCs to manage their portfolio. Knowledge is a cumulative asset that is expected to remain in VC firms and affects VCs' post- investment activities substantially. Years of working in VC market is therefore considered a proxy for experience; however, the high rate of syndication for VC deals makes it hard to measure the experience offered to each VC-backed firm. Accordingly, a categorical variable was employed such that VC firms were recognized as highly experienced if their establishment was beyond 20 years, medium if their establishment was between 10 and 20 years and low experienced if they were less than 10 years. Then, a particular VC-backed company was considered to be affected by its VCs' experience with the maximum value of its VC investors' experience.

Reputation is the credibility of a VC firm among its peers that can be lent to its portfolio companies to facilitate entrepreneurial firms' activities and it is expected to enhance the influence of the VCs' direct post-investment activities. The importance of the VC reputation has been investigated by several scholars (Fernhaber & McDougall-Covin, 2009; Krishnan et al., 2009; Nahata, 2008, 2010). These scholars use various methods to capture reputation: successful exits through IPO, fundraising activities, and/or investment activities. In this case, some indices based on VCs' total investment and total numbers of investee firms have been developed. Most of these indices were highly correlated with experience; hence, an index based on the adjusted number of investments has been chosen and VC firms were categorized into high and low reputations. To calculate the adjusted number of investment, the number of investments is divided by the total number of investment of the sample VC firms. To reflect the effect of several VCs, a particular VC-backed company was recognized as supported by highly reputed VCs, if there was at least one highly reputed VC firm among its investors; otherwise, the firm was recognized as supported by lower reputed VCs.

Another capability of VCs is their ability to place their portfolio firms in the networks of customers, distributors, suppliers, and consultants. To measure this ability in each firm, the focus is made on having U.S. VCs and syndication. It is expected that having U.S. VCs in

the team of investors facilitate Canadian firms' presence in the U.S. market. Syndication also offers an opportunity for expanded networks. It also allows testing third hypothesis.

4.1.4. Control variables (VC backed level)

Since internationalization is influenced by internal resources of a company (Jones et al., 2011), a set of variables is defined to control for the effect of internal source as much as possible. Moreover, other variables are introduced to capture VC deals' specifications. The following table summarizes the control variables:

VC-backed firm		
Industry	Size	Years founded
Location		
Years of VCs' involvement	Number of round of investment	Money received from VCs
Early stage investment		

Table 1- VC-backed firm's specifications

Industry affects the time of operationalization and internationalization. For example, for some industries, such as pharmaceutical sciences, the time from inception until production and then export is higher than in other industries, such as Internet services. In this research firms are categorized into 4 classes: Software, new technology (Bio technology and clean technology), services, and manufacturing.

Firm size may have a positive relationship with export; the more employees a company has, the more human resources it has to expand its activities (Fernhaber & McDougall-Covin, 2009). Moreover, larger firms can be considered more reputable (Fernhaber & McDougall-Covin, 2009) and less in need of third party's credibility. Based on European definition for small and medium enterprises[2], a firm is defined as small if it has less than 50 employees, as medium if it has between 50 and 200 people, and large if it has more than 200 employees. The Canadian definition of small and medium enterprises[3] was also used in the analysis, but due to a very small number of observations for large companies (only 6 companies with more than 500 employees), further analysis was problematic.

[2] http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/
[3] http://www.ic.gc.ca/eic/site/cis-sic.nsf/eng/h_00005.html#employment_size_category

Reputation and experience of VCs are not the only intangible sources of credibility that help firms to enter to foreign markets. Firms also accumulate credibility and knowledge (Zahra, Neubaum, & Naldi, 2007); therefore, it is logical to consider the different level of experience and knowledge of a newly founded firm with a mature, established one. The number of years passed from the establishment date is used to reflect these differences.

Location of a firm is also included in the analysis, because some of the funds in Canada are limited to invest in one particular province; therefore, it is plausible that some of the investment is made based on regional development objectives rather than national or international aims.

Another set of variables are more related to VC contracts rather than internal specifications of the VC-backed firms. According to the general theory of exit (Cumming & MacIntosh, 2003), VCs exit their investment when they do not observe added value from their involvement that justifies their presence. Hence, the years of presence of VCs in the team of investors represent the total number of years that VCs believed their existence is beneficial. The variable years of VC involvement is included in the model to show the effect of previous VCs as well as the current one.

Incremental financing has a relationship with export intensity (Smolarski & Kut, 2009); incremental financing can be considered a monitoring mechanism that can increase the efficiency of an investee firm. Hence, the number of rounds of investment is included in the model to indicate the monitoring role of VCs (Smolarski & Kut, 2009). Deal size is also incorporated in the model to reflect the trust of VCs in the entrepreneurial firm's success.

The last variable added in the model is the stage of investment. As it is indicated in the second hypothesis, we expect that VCs' involvement in the early stage of a business is more crucial because during initial years, small firms endure more problems due to their lack of credibility, experience, and networking.

In table 2, title of all the variables and their definition are presented.

Variable	Definition
Final export	Dummy variable =1 if there is any export; otherwise =0.
EDC as Investor	Dummy variable =1 if EDC is among the investor; otherwise=0.
Receiver of *Connect* advice	Dummy variable=1 if the firm receive Connect strategy; otherwise = 0.
Industry	Categorical variable =software (1) if the firm produce software and earn revenue from selling its products, New tech (2) if the firm is active in new technology sector (biotech and clean tech), manufacturing (3) if the firm is manufacturing and is not in the first and second groups, service (4) if the firms is service provider and is not in the first and second groups.
Size	Categorical value =small(1) if the number of employees is less than 50, medium (2) if the number of employees is between 50 and 200, and large (3) if the number of employees is more than 200.
Years founded	Years from the establishment till 2012.
Location	Categorical variable = ON(1) if the firm's head quarter is located in Ontario province, QC (2) if the firm's head quarter is located in Quebec province, other (3) if the firm is located in other provinces.
Syndication	Dummy variable = 1 if more than one VCs are present at the team of investors; 0 otherwise.
Early stage	Dummy variable =0 if the presence of VC as an investor is at the early stage of the firm's establishment and operation; 1 otherwise.
Reputation	Categorical variable=1 if no highly reputed VCs in on the team of investors; 2 otherwise.
Experience	Categorical variable= 1 if no highly or medium level experienced VCs is on the team of investors; 3 if there is at least one highly experienced VCs present; 2 otherwise.
U.S. investor	Dummy variable = 1 if at least one U.S. VC firm is in the team of directors; 0 otherwise.
Round of Investment	Categorical variable= 1 if the firm experienced 1 to 3 rounds of VC investments; 2 if it had 4 to 6 rounds of VC investments; 3 if it had 7 and more rounds of investments.
Years of VC involvement	Years passed from the first VC investment in the firm.
Total VC money received	Total amount of VC investment in CAD.

Table 2- List and definition of variables

4.2. Data collection

In the first phase of data collection, data on export and sale of companies were collected. This phase started by extracting the name of active Canadian VC-backed firms from ThomsonOne database which has at least one Canadian VCs in their current investors and investment is made through VC (not merger or acquisition). Initially, 660 firms were identified; however, the number of final data set decreased dramatically, because many of these firms were pre-revenue, or lacked other necessary information.

The data on sales and exports of these firms was collected through EDC reports, the Industry Canada portal and then, from companies' websites, if available. All firms were first checked in the EDC report and Industry Canada portal. If in these two sources, a firm was reported as exporter, the dummy variable for export was set to 1; otherwise, the firm was checked again via its website. Firms that did not show any sale record or didn't name any customer or projects or sale office, were excluded from the analysis. If the website released precise and transparent information about customers located outside Canada, the export dummy variables was set to 1; otherwise, 0. Besides firms' websites, provincial and governmental news portals were also searched for any incident that showed a company had export. For example, some of these firms have received awards regarding their activities leading to internationalization.

After completing this step, data on internal capacity of the firms such as age, size, industry, and location was gathered. This information was collected through ThomsonOne database, companies' websites, and self reported information on LinkedIn.

Data on VCs' specifications were collected through the ThomsonOne database. It is worthwhile noting that information available on this website is a sample of VC investment in Canada and does not represent all the deals.

4.3. Methods

4.3.1. Chi² test of independence

In order to understand whether being supported by EDC as an investor or operational service provider has positive relationship with internationalization, initially Chi^2test of independence has been used. Chi^2 test only considers the effect of one treatment on one response; however, in our case VC-backed firms are not homogenous and they vary in size, industry, and type of VCs that supported them. In order to see the effect of other factors, Propensity Score Matching technique is used to select a sub-sample of firms that are not supported by EDC but have the most similarities with them in terms of size, industry, location, VCs' specifications, and deals.

4.3.2. Propensity Score Matching

Propensity Score Matching (PSmatch) is a technique used to estimate the average effect of a binary treatment while allowing for heterogeneity in the sample. This method can be utilized to mitigate the problem of selection bias in the sample. Selection bias happens when the researchers are not aware of why an observation is selected to be treated. In the case of this thesis, the reason of why some firms are selected and supported by EDC is not known to the researcher. PSmatch is a method that can adjust the problem of selection bias by creating a control group that its observations have the same probability of being selected as the observations in the treatment group.

Let Y_i^1be the outcome after treatment (here, referred as supported by EDC, EDC=1), and let Y_i^0be the outcome without treatment. Estimated effect can be written as $E(Y) = E(Y^1) - E(Y^0)$ where both outcomes cannot be true at the same time for observation i. The average treatment effect for the treated (ATT) is:

$E(Y|EDC = 1) = E(Y^1|EDC = 1) - E(Y^0|EDC = 1), where$ $E(Y^0|EDC = 1)$ is counterfactual and not observable. So the sample average treatment effect for the treated is:

SATT= $\frac{1}{N_1}\sum_{i|EDC=1}[Y_i^1 - Y_i^0]$ where N_1 is the number of treated units.

To calculate the SATT, the solution is to estimate the untreated outcomes $E(Y^0|EDC = 1)$. PSmatch finds the firms that could have received the treatment and then, use their outcome Y_i^0 for those counterfactual observation. The propensity score is the conditional probability of receiving a treatment (EDC=1) versus counterpart (EDC=0) given the characteristics X of all participants: Pr $(EDC = 1|X = x)$. For each treated firm *i*, PSmatch estimates the missing outcome with a firm that has similar covariates X but is not exposed to treatment. In this method, two assumptions should be satisfied:

i) Treated by treatment (EDC) is independent of [Y(1), Y(0)] conditional on X=x

ii) c< Pr $(EDC = 1|X = x)$<1-c, for c>0 and all x in X.

The second assumption guarantees that matched case has similar covariates; otherwise, the treated observation will be left unmatched[4]. This part of the analysis is done by using STATA.

4.3.3. Logistic regression

Logistic regression analysis is a popular method for analyzing data with dichotomous dependent variables which is the case of this thesis. It analyzes the impact of multiple independent variables to predict the likelihood of membership represented by the dependent variables. It is also a flexible model which allows for non-linear relationships between dependent and independent variables. The Logistic model, like any other regression model, has the power to explain the relationship between dependent variable and independent variables. Moreover, it has power of multilevel analysis. The general logistic regression equation for main hypothesis is:

$$log_e\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 EDC + \beta_2 X$$

[4] For more information on Propensity Score Matching technique, refer to: Abadie, A et al. (2004), B´erub´e, C., & Mohnen, P. (2009).

Where p is the probability of a case in a particular category, β_0 is matrix of constant coefficients, and β_1 is matrix of coefficient of predictor variables (Having EDC as an investor, received *Connect* advice from EDC), and β_2 is the matrix of coefficient of control variables.$(0 \leq p \leq 1)$, and $Y_i = \beta_0 + \beta_1 EDC + \beta_2 X + \varepsilon$ is a simple linear regression model that describes the binary observations of Y_i. Logistic regression shows the changes in log odd of the dependent variable and tells how likely it is that an observation is a member of a group[5]. SPSS has been used to run Logit analysis.

[5] For more information on Logit model, refer to: Neter, J., Wasserman, W., & Kutner, M. H. (1989)

5. Results

5.1. Data description

The sample included 116 active firms currently supported by at least one Canadian VC firm. 71 out of 116 firms show export activities. Table 3 summarizes the data on firms' exporting activities, being supported by EDC, and receipt of *Connect* advice.

	EXPORT		EDC as an investor		Receiver of *Connect* advice	
	Non exporter	Exporter	Present	Not present	Receiver	Not receiver
Number	45	71	20	96	15	101
Percentage	38.8%	61.2%	17.2%	82.8%	12.9%	87.1%

Table 3- Distribution of exporters in the sample

The distribution of data on different classes of industry, size and location among exporters and non-exporters is presented in Table 4. The Chi^2 analysis shows that the location and size of the firm does not have significant association with exporting among Canadian firms, but industry has a weak association with exporting.

		Exporter	Non-exporter	Total	χ2 test/Sig.
Industry	Software	30 (69.8%)	13 (30.2%)	43	.057
	New Tech	9 (47.4%)	10(52.6%)	19	
	Manufacturing	21(72.4%)	8 (27.6%)	25	
	Services	11 (44%)	14(56%)	25	
Size	Small	44(58.7%)	31(41.3%)	75	.652
	Medium	17(63%)	10(37%)	27	
	Large	10(71.4%)	4 (28.6%)	14	
Location	Ontario	29(72.5%)	11(27.5%)	40	.149
	Quebec	20(51.3%)	19(48.7%)	39	
	Other provinces	22(59.5%)	15(40.5%)	37	

Table 4- distribution of sample in industry, size, and location

Table 5 presents the distribution of sample in terms of amount of VC investment and number of companies across Canada. The distribution of the companies in the sample across Ontario, Quebec, and other provinces is a good representative of the VC deals during previous years. From 2004 till 2011, normally, 30% of the investments are made in Ontario; more than 40% belong to Quebec; and the rest is spread across other provinces leading by British Columbia and Alberta (CVCA reports from 2005-2012). According to Canadian Venture Capital

Association (CVCA) reports, the average share of money invested during 2004- 2011 is around 40% for Ontario, 35% for Quebec, and 25% for other provinces. The amount of VC investment was known for 105 out of 116 firms in the sample. This also is a good representation of the investments in Canada since most of the VC investment is made in Ontario. According to Thomson Reuters report(2012), in 2012, 600 Million CAD investment is made in Ontario, around 400 Million in Quebec, and 450 Million in other provinces.

Investment*						
Number of companies	1-10 Mil.	10-20 Mil.	20-40 Mil.	40-100 Mil.	> 100 Mil.	Total
Ontario	69	68	143	178	136	594
	21	5	6	3	1	34
Quebec	56	71	44	127		298
	26	5	2	2		29
Other provinces	51	83	86	120		340
	23	6	3	2		30
Total (Mil./#)	176	222	273	425	136	1,232
	70	16	11	7	1	105

Table 5- Number and value of VC investment by region

* First VC investment is received in 1993 and last VC investment is made in Oct 2012.

VC-backed firms in the sample are supported by 70 VC firms. The oldest fund established in 1959 while 31 of them are founded after 2000. The variation of investment in terms of money invested and number of investment vary dramatically. As reported by CVCA, in the last 5 years, the total amount of VC investment in Canada is 1,286 Million CAD, averagely.[6] Some of these companies only managed one fund during their years of activities while 6 of them had more than 10 funds which some of them is still active. The maximum amount of money invested by one VC firm, so far, is 11,196,953 thousand CAD through Teacher's Private Capital. EDC is in 19th position on this list by 168,104 thousand CAD investments in 28 companies. Looking at the number of investment made by each VC firm, most investment is made by Business Development Bank of Canada, bank affiliated VC investor, with more than 4,600 investment. In second place, Fonds de Solidarite des Travailleurs du Quebec has invested in 879 firms. Among these 70 firms, 15 of them made less than 10 VC investments.

[6] As reported by ThomsonOne database, these firms totally invested 31,351 Million CAD through 287 different funds.

By this variation, as depicted in figure 2 and 3, EDC stands in medium in experience with 19 years of experience and lower reputed with relatively lower number of investments. It is worthwhile noting that due to syndication, these numbers are not representing the net number of VC-backed companies supported by VCs present in the sample.

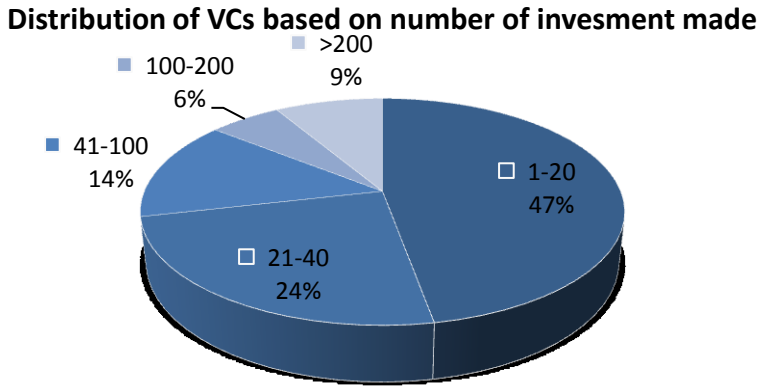

Figure 2- distribution of VCs based on number of invesment made

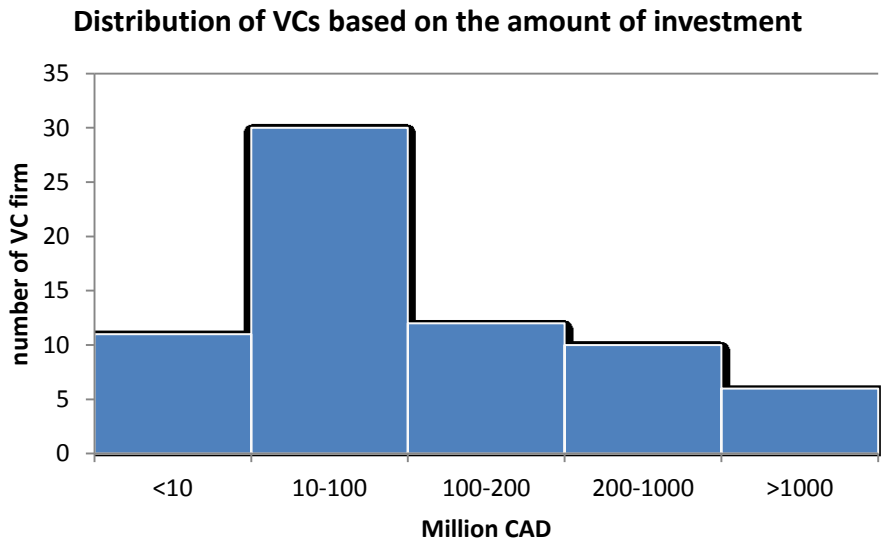

Figure 3-ditribution of VCs based on the amount of investment

Most of the VC firms in the sample are private firms. Out of remaining 19 non-private firms, four are affiliated to banks, 5 to government, 3 to corporate, and 3 to Labour Sponsored Venture Capital Corporation (LSVCC).

The breakdown of VC-backed firms after building the indices and measuring the extent of experience and reputation lent to them is presented in table 6.

		Exporter	Non-exporter	Total	χ2 test/Sig.
Reputation	Low	45(64.2%)	25(35.7%)	70	.440
	High	26(56.5%)	20(43.4%)	46	
Experience	Low	12(57.1%)	9(42.8%)	21	.892
	Medium	21(63.6%)	12(36.4%)	33	
	High	38(61.2%)	24(38.7%)	62	
Syndication	Yes	48(59.2%)	33(40.7%)	81	.541
	No	23(65.7%)	12(34.2%)	35	
Stage of investment	Early stage	36(62%)	22(38%)	58	.849
	Later stage	35(60%)	23(40%)	58	

Table 6- distribution of VC-backed firms based on reputation and experience involved, syndication and stage of invesment

Table 6 also presents some information about syndication rate and the stage of investments. 67% of VC-backed firms are presently supported by a syndication of VCs; however, the standalone firms might be supported by syndication in the past, but at the time of data collection only one VC firm with venture capital financing was among the firms' investors. Another issue on this data is that the history of investments in each firm is not transparent: some of the VC firms are unknown and for many of the firms, the amount of investment, the date of investment, and the ownership percentage is unavailable.

5.2. Findings

Table 7 presents the Chi^2 test analysis. Initial analyses show that having EDC as an investor, receiving *Connect* advice, or the interaction of these two factors doesn't show any significantly positive or negative relationship with the proportion of exporting firms since at any confidence level, the null hypothesis of similar frequency distribution of exporter and non-exporter firms cannot be rejected. In addition, contradictory to the second hypothesis, having a VC investor in the early stage of development of the firm or in the later stage doesn't have a statistically significant relationship with internationalization of the firm. It is worthwhile noting that since the firms' managers' orientation is not known to the researcher, the effect of VCs in the early stage of the firm might not be captured thoroughly. Since VCs' involvement when the firm is in the inception phase is more concerned with business strategy development (Lockett et al., 2008), it is plausible that if firm's manager pursues internationalization earnestly, VCs' presence doesn't bring any added value to strategy setting phase.

In the initial analysis, syndication is not a significant variable in defining the probability of exporting among the firms in the sample since at any confidence level, one cannot reject the null hypothesis of similar syndication frequency between exporting and non-exporting firms.

		Non-exporter	Exporter	Chi2	Sig
EDC as investor	Yes	8	12	0.014	.903
	No	37	59		
Receiver of Connect advice	Yes	7	8	.449	.504
	No	38	63		
Interaction (EDC * Connect advice)	Yes	7	7	.842	.359
	No	38	64		
Stage of investment	Early stage	22	36	.0363	.849
	Later stage	23	35		
Syndication	Yes	33	48	.428	.541
	No	12	23		

Table 7-results of Chi^2 tests of independence

As it is discussed in the methodology section, since firms are not assigned to treatment randomly, there might be a selection effect. The Chi^2 tests of independence in table 7 do not consider the intrinsic specifications of the firms and VC deals. To mitigate the problem of

the potential selection bias effect, Propensity Score Matching technique has been used. Tables 8 and 9 depict the variables used to build the propensity score, number of observations (treated and untreated), and Sig. for Chi^2 test were ran after selecting the control group for both treatments (EDC as investor and Receiving *Connect* advice). Since receiver of EDC's *Connect* advice can be from outside of its VC investment portfolio, a test has been conducted for both variables. In the sample, 20 firms have EDC as VC investor and 15 firms have received *Connect* advice from EDC.

Covariates		Number of observations	Sig.
firms' internal capabilities	Industry, Size, Location, years of foundation	Treatment=19 Control= 19	.501
external capabilities	Reputation, Experience, Syndication, U.S. Investor	Treatment=19 Control= 19	.501
VC deals specification	Rounds of investment, Total VC money received, stage of investment, years of VC investment	Treatment=20 Control= 20	.507

Table 8- Results of Chi^2 test for EDC as an investor after Propensity Score matching technique

Covariates		Number of observations	Sig.
firms' internal capabilities	Industry, Size, Location, years of foundation	Treatment=15 Control= 15	.256
external capabilities	Reputation, Experience, Syndication, U.S. Investor	Treatment=15 Control= 15	.713
VC deals specification	Rounds of investment, Total VC money received, stage of investment, years of VC investment	Treatment=14 Control= 14	.246

Table 9- Results of Chi^2 test for *Connect* advice after Propensity Score matching technique

Based on the analysis above, none of the control groups exhibits significant differences with treatment groups and the hypothesis of a difference between the proportion of exporting and non-exporting firms across treated and control group is not supported. To restate, all the Chi^2 tests show that EDC is not performing differently from its counterparts in terms of being an export oriented investor. In addition, *Connect* advice does not create a different result comparing to other VCs' value adding activities that other VCs presumably provide for their portfolio companies.

Logit model

The results of four Logit models are presented in table 10. Model 1 investigates only the association of export with firms' internal capabilities. None of the explanatory variables in this model can explain the probability of being an exporting firm since they are not statistically significant.

In the second model, all other variables except EDC as an investor and EDC as a consultant are added to model. The third and forth models investigate whether having EDC in the team of investors and receiving *Connect* strategy have a positive relationship with the probability of exporting. Since the correlation of these two variables is very high ($\rho = .77$ at 99% confidence level, see appendix A), they are incorporated separately in model 3 and 4.

In order to interpret the coefficients of Logit models, the sign of coefficient (β) and Exp(β) of significant variables are the most common parameters used. The sign of the coefficient shows whether an increase in the variable will increase or decrease the probability of the outcome, given all the other variables constant. For example, consider the coefficient of Reputation and U.S. investor in model 2 (-0.441 and 0.493, respectively). This suggests that if these variables were significant (which is not the case in this analysis), the more reputed VC firm, when reputation is defined by the adjusted number of investment, are associated with decreased probability of exporting. While the positive sign of the coefficient for the variable U.S. Investor suggest that the presence of U.S. VCs could increase the probability of exporting, if it was significant. The second parameter is Exp(β). Exp(β) shows the relative change in odds ratio where odds ratio is defined by the probability of exporting divided by the probability of not exporting. Considering the variable Reputation, the Exp(β) is .643.This suggests that odds ratio of export in the presence of more reputed VCs is 64% of odds ratio of export when the firm is backed by low reputed VCs. Decreasing the odds ratio of more reputed VCs is resulted from the decreased probability of exporting. In another example, Exp(β) for U.S. investor in model 2 is 1.637. It indicates that the odds of exporting in the presence of a U.S. investor is 1.637 times the odds of exporting in the absence of a U.S. investor: the presence of U.S. VCs increase the probability of exporting. However, these two variables are not statistically significant and their interpretation is not explanatory.

In line with the findings of Chi^2 analyses, the variables EDC as an investor and as a consultant are not statistically significant; therefore, there is no evidence that shows EDC's involvement is associated with the change in the probability of exporting. Why EDC in this thesis is not a significant explanatory variable has been discussed in section 6.2.

In the last three models, syndication is significant at 95% confidence level and the null hypothesis of $\beta=0$ is rejected; however, the negative coefficient of syndication shows a contradictory result to what was speculated in hypothesis b. Recalling from methodology chapter, dummy variable for syndication is set to 1 when there are more than one VC firm in the deal. With the presence of syndication, the probability of exporting decreases. $Exp(\beta)$ in all three models equals .15: it indicates that the odds of export decreases when deal is syndicated. It was expected that being supported by a network of VCs brings more added value and networking ability to the firms and therefore increases the probability of exporting, but the finding shows an opposite direction. Some possible explanations for this finding have been presented in section 6.2.

In line with Chi^2 analyses, the stage of the investment is not significant in any of the models. This finding indicates that VCs' involvement from the early stage of the firm does not provide substantial added value comparing to their presence at the later stage of the firm's development.

Variables		Model1			Model2			Model3			Model4		
		B	Sig.	Exp(B)	B	Sig.	Exp(B)	B	Sig.	Exp(B)	B	Sig.	Exp(B)
EDC as investor								-.478	.480	.620			
Receiver of *Connect* advice											-1.147	.128	.317
Industry	(Ref=Service)		.122			.110			.123			.119	
	Software	.916	.116	2.5	1.221	.094	3.390	1.267	.087	3.550	1.328	.075	3.773
	New tech	-.018	.982	.982	-.288	.704	0.749	-.191	.804	.826	-.109	.887	.896
	Manufacturing	1.052	.077	2.863	.814	.261	2.256	.841	.246	2.318	.948	.195	2.580
Size	(Ref=Medium)		.750			.484			.430			.438	
	Small	-.014	.978	.987	.399	.494	1.490	.341	.564	1.406	.260	.664	1.296
	Large	.509	.509	1.664	1.129	.250	3.092	1.308	.205	3.698	1.318	.201	3.735
Years founded		.008	.676	1.008	-.026	.362	0.974	-.031	.291	.969	-.034	.245	.966
Location			.309			.209			.222			.200	
	ON	.428	.400	1.538	.719	.248	2.052	.664	.292	7.783	.622	.328	1.862
	QC	-.394	.442	.674	-.471	.450	.624	-.503	.423	.604	-.600	.343	.548
Syndication					-1.837	.018	0.159	-1.846	.018	.157	-1.892	.016	.150
Early stage					.369	.556	1.446	.487	.458	1.627	.666	.321	1.946
Reputation					-.441	.533	.643	-.425	.551	.653	-.385	.594	.680
Experience	(ref= medium)					.670			.603			.538	
	Low				.565	.475	1.759	.727	.381	2.068	.849	.310	2.337
	High				.718	.380	2.050	.782	.341	2.185	.836	.310	2.307
U.S. investor					.493	.548	1.637	.490	.552	1.632	.536	.527	1.709
Round of investment	(ref= 4-6)					.499			.483			.385	
	(1-3) rounds				-.860	.257	0.423	-.860	.257	.423	-.900	.238	.406
	(more than 7)				-.211	.806	.809	-.115	.895	.891	.159	.860	1.172
Years of VC involvement					-.080	.383	.923	-.084	.361	.919	-.099	.292	.905
Total VC money received					.018	.389	1.018	.016	.435	1.016	.015	.474	1.015
Intercept		-.286	.700		1.823	.283	6.190	1.888	.270	6.606	2.007	.246	7.440
N			116			105			105			105	
-2log likelihood			144.177			114.207			113.705			111.849	
Cox &Snell R square			.089			.184			.188			.203	
Nagelkerke R square			.120			.253			.259			.278	

Table 10- Results of Logit models

6. Conclusion and Discussion

6.1. Conclusion

This research sought to investigate the role of EDC, a Canadian Crown Corporation with the mandate of facilitating internationalization among Canadian firms, with respect to the extent to which its VC Connect strategy enabled internationalization. To explore this question empirically, statistical analyses were undertaken with the dependent variable being whether or not a portfolio firm had export sales. Two independent variables were defined: having EDC as an investor and receiving *Connect* advice from EDC. The former variable indicates EDC's strategic and prior objective in facilitating exporting in addition to and as a means of obtaining financial returns. The latter indicates EDC's knowledge of foreign markets and its networks with well established large companies and governments. To restate, the *Connect* strategy brings different results than other value adding activities presented by other VCs.

In addition to the main hypothesis, two other questions were also raised: the presence of VCs in the early stage of the firm's development has positive relationship with probability of exporting; and the presence of syndication added more value to the firm and therefore, increase the performance of the VC-backed firm in exporting. Table 11 summarizes the hypotheses and the findings of the thesis.

Hypothesis	Description	Speculated relationship with internationalization	Chi2 test	Logit model
Ha1.	EDC as an investor	+	N.S.	N.S.
Ha2.	Receiving *Connect* strategy	+	N.S.	N.S.
Hb.	Early stage investment	+	N.S.	N.S.
Hc.	Syndication	+	N.S.	-

Table 11- Summary of hypotheses and findings

6.2. Discussion

The present study sought to address the research gap on the effect of different types of VCs and their value adding activities. The reference of the thesis is Export Development Canada (EDC). It was speculated that EDC outperforms other VC investors in terms of facilitating internationalization; however, no significant effect was found.

EDC does provide non- financial value added activities to promote exporting among small medium Canadian firms by connecting VC teams with the other activities of EDC. VC investment and *Connect* strategy are only two means among the tools that this corporation use to reach to its goals. For example, *Connect* strategy includes efforts to integrate portfolio firms in the value chains of EDC's other corporate clients. EDC may also encourage its invested firms to provide a component for a larger company to export. This thesis does not capture the assistance of EDC in creating value chain and indirect exporting. However, based on only one outcome, even limited, there are some potential reasons that may explain the findings.

One possible explanation is that Canadian VC-backed firms, seeking to compensate the high cost of VCs investment, need to expand their activities beyond Canada borders, since geographically spread Canadian market does not offer a promising opportunity. This may indicate that if a firm has to grow in Canada and has to start exporting, it will find the means to reach its goal and VCs do not differ significantly for this end. Based on the same logic, it is plausible that Canadian VCs have the same perspective towards internationalization and they all lead their portfolio companies through it and assist them to internationalize. However, this study cannot differentiate VCs based on other variables of performance such as time to exporting or international scope and scale.

Moreover, due to the nature of Canadian VC market, small fund size and high rate of syndication (Nitani & Riding, 2013), the effect of individual VCs in this research may be confounding in the context of investor syndication and it is not easy to separate the effect of one firm from the other. Defining weighted indices for considering the blended effects was initially considered; however, the shortage of data didn't allow this approach. In addition, frequent changes of VCs among the investor team may also affect the results. In some VC-backed firms even the incumbent VC firm

is diluted during the time. It is difficult to distinguish EDC's incremental contribution from that of other VCs. Such issues could plausibly lead to confounding results.

Since the thesis only investigate the current situation of the portfolio firms, and does not consider the starting points, the analysis cannot fully capture the process of adding value. To ideally address the research questions, one would want to measure whether or not the time period between founding and initial export is shortened by the presence or intervention of EDC. However, the data required to apply survival analysis techniques that was simply not available and is left for future research.

Another potentially important factor is whether or not the firm was initially an international new venture (INV). Since INVs pursue internationalization from inception, value adding roles of the VCs would be as a facilitator rather than a requirement. However, for firms that gradually become competent to export, the role of a VC investor as a strategy developer is more of a factor. In the absence of important variables such as manager's motivation and risk aversion, firms' initial orientations towards internationalization, and firms' international knowledge (Oviatt & McDougall, 1994), this research shows that EDC is not performing significantly differently from other VC investors in terms of frequency of exporting among portfolio firms.

In line with this idea, another subject that can differentiate one VC from others is the type of investment they make. Some of the VCs make their investments in their specialty field or in case of a government agency, in very high risk initiatives that may not receive finance from other sources. Further analysis shows that EDC significantly invested in higher proportion of firms that have registered patents in Canada or U.S.: 55% of the firms backed by EDC have registered patents while only 28% of non-EDC firms hold patents (the difference is significant at 95% confidence level). Further analysis that can capture the starting point as well as the present situation of the firms can reveal more information about the impact of a particular VC investor. In addition, qualitative studies can present more insight on the situation that EDC assist firms when such value adding activities could not be offered from other VCs.

The second hypothesis deals with the stage of investment. Contrary to what Locket et al. (2008) found, stage of first VC investment is not a significant variable in explaining the probability of exporting. Using a questionnaire, Locket et al.(2008) differentiate between types of post

investment activities: monitoring and value adding. They find that monitoring resource is more effective in assisting export when the firm is in later stage of development and value adding activities is more influential if the firm is in the early stage. Rather than using a questionnaire, Smolarski and Kut (2009) used incremental financing to measure the monitoring role. In this thesis, the number of rounds of investment was considered as a proxy for the monitoring role. However, in the Canadian context, small size funds may lead to additional rounds of investment may not necessarily proxy for a control mechanism.

To the researcher's knowledge, the growth/export intentions of the manager or founder of the firm could also be a useful source of information if combined with stage of investment. If the founder of the firm is not willing to undertake internationalization from the early stage, VCs may influence a firm's strategic orientation and push the founder(s) to change their attitude towards exporting. For this case, VCs take on the role of strategy developer (George et al., 2005). But, if the firm's processes support this aim from the beginning, the presence of VCs does not add any value to this end. In the absence of other measures to differentiate the nature of VCs' involvement, early and later stage investment does not show any significant relationship with probability of exporting.

The effect of syndication may be regarded as an interesting finding of the thesis. Contrary to what was expected, syndication of VCs have a significant negative relationship with the probability of exporting. The only findings, in U.S. context, that reported the negative effect of syndication on exporting is by Smolarsku and Kut (2009). They showed that using too restricting financing method, the interaction of incremental financing and syndication, has negative impact on export ratio. In Canadian context, Nitani and Riding (2013) explain that small fund size and high rates of syndication increase the risk of the firm due to greater uncertainty about the additional financing and potential conflicts among the investors' and founder of the firm. The manager's time and resources may be wasted by managing stakeholders' conflicts and these exacerbate the firm's performance--inclusive of internationalization.

6.3. Limitations and Implications

The main limitation of this research is the availability of data. As it was expected, collecting data on VC-backed companies was not an easy process(Busenitz, 2007). This is one of the reasons that many researchers opt to use questionnaires to collect data. The first limitation of data was the measurement of exporting. In the absence of revenue and export value, the only solution was to use a dummy variable. However, dummy variables cannot show the export intensity of the firm and it views all the firms at the same level of exporting; nor does a dummy variable show the time between founding and first exports. Furthermore, the destination of exporting was also not possible to collect.

Another possible explanation for the negative findings was that data were collected only for firms that already had production and sales: that is, relatively successful VC-backed firms. Such firms, in the Canadian context, may have reached this stage precisely because they have been able to engage in international trade. Obviously, firms without any sales have no international sales. Future work might consider how best to incorporate such firms into the analysis.

As it was mentioned earlier, missing data about the deal specifications and VCs' capital under management limited the creation of indices aimed to measure experience and reputation. The high rate of syndication and changing the team of VC investors during the time also exacerbates the interpretation of results.

The presence of foreign VCs, especially U.S. firms, cannot be neglected in the Canadian VC market. In this thesis, the characteristic of these firms are not distinguished from each other and only a dummy variable captured their effect in entrepreneurial firms.

The research is designed as cross-sectional; therefore, it cannot measure the nature and depth of value added by firm. The capabilities of the firms at starting points, when selected by VCs, and their development over time were not considered in this thesis. Hence, the research cannot reveal any information about where the VC firm starts and to what extent it assisted its investee firm to evolve. Only a research design that counts both the initial setting and final situation of the VC-backed firms can discuss the effect of different types of VCs thoroughly.

6.3.1. Implications for researchers

To design research that investigates the impacts of different types of VCs' value adding activities in Canada, it is necessary to find a way to cope with the issue of high rate of syndication and changing combination of VCs in some of the firms. The presence of American VC firms is also significant in Canadian VC deals.

In addition, VCs' output depends on where they started: whether the VC-backed firm is performing well because of its capabilities or because of VCs' involvement. Although it can be justified that highly experienced and reputed VC firms are in better position to select better ventures, the initial setting of the entrepreneurial firm impacts the nature of the VC-entrepreneur relationship. For example, it can be expected that for an entrepreneur who is willing to expand its business rapidly, most of VCs' post-investment activities have value adding nature rather than an entrepreneur who need more monitoring efforts to stay aligned with mutual objectives. Or, in the case of EDC, a substantial percentage of EDC's portfolio are innovative firms that have registered patents and need more attention and value adding involvement in order to commercialize innovation.

Hence, it is recommended that future studies consider these issues:

1- Consider the change of VCs in each entrepreneurial firm. Obviously, this begs for higher quality data and also time series analysis.
2- Capture more variables about the initial setting of the entrepreneurial firm. Consider longitudinal analyses such as survival analysis techniques.
3- Combine both VC and Non-VC backed companies in the analysis to understand whether Canadian VCs' non financial contributions make Canadian firms more capable of exporting.
4- Pay specific attention to the role of U.S. VC firms in standalone and syndicated deals in Canada.

6.3.2. Implications for entrepreneurs

With the limited dataset and scope of the project, the thesis is not trying to claim any causal effect between the probability of being an exporter and any variable of interest, specifically: syndication. However, the results of this thesis are in consistent with what has been reported by Nitani and Riding (2013) about the Canadian VC market. The high rate of syndication, due to small size fund, might hinder the development of entrepreneurial firms. Although syndication offers a wider access to customers, suppliers, and other business partners, the high level of syndication is a control mechanism that may exacerbate the natural development of firms, as it is also reported by Smolarski and Kut (2009). For ventures that need large amounts of VC capital, it is better to work with VCs that are able to satisfy the financial requirements of the venture. This saves time for entrepreneurs instead of searching for additional sources of financing for each successive round of VC investment and to reduce the probability of conflicts among stakeholders.

Appendix A- Matrix of Pearson correlation

Correlations

	Export	EDC Investor	Connect Strategy	Stage	Syndication	U.S. Investor	Experience	Reputation	Total VC received	Round Of Invest-ment	Location	Size	Years founded	Years of VC presence	Industry
Export	1	-.011	-.062	-.018	-.061	.130	.021	-.078	.136	.125	-.112	.084	.013	.111	-.136
EDC investor	-.011	1	.776**	.000	.201*	.198*	-.002	-.090	.214*	.105	.071	.180	-.159	-.031	-.062
Connect Strategy	-.062	.776**	1	-.026	.197*	.204*	-.010	-.102	.246*	.243**	.075	.143	-.134	-.034	-.080
Stage	-.018	.000	-.026	1	-.282**	-.024	.168	.282**	-.085	-.305**	.116	.086	.447**	-.046	.381**
Syndication	-.061	.201*	.197*	-.282**	1	.272**	.058	-.005	.177	.307**	.025	.070	-.393**	-.204*	-.162
U.S. Investor	.130	.198*	.204*	-.024	.272**	1	-.095	-.137	.446**	.257**	.013	.172	-.127	-.059	-.089
Experience	.021	-.002	-.010	.168	.058	-.095	1	.544**	.080	.194*	-.040	.073	.229*	.326**	.193*
Reputation	-.078	-.090	-.102	.282**	-.005	-.137	.544**	1	-.044	-.026	-.018	.080	.305**	.125	.385**
Total VC received	.136	.214*	.246*	-.085	.177	.446**	.080	-.044	1	.434**	-.131	.463**	.057	.340**	-.043
Round of investment	.125	.105	.243**	-.305**	.307**	.257**	.194*	-.026	.434**	1	-.111	.151	-.016	.478**	-.125
Location	-.112	.071	.075	.116	.025	.013	-.040	-.018	-.131	-.111	1	-.115	-.010	-.247**	.044
Size	.084	.180	.143	.086	.070	.172	.073	.080	.463**	.151	-.115	1	.265**	.281**	.125
Years founded	.013	-.159	-.134	.447**	-.393**	-.127	.229*	.305**	.057	-.016	-.010	.265**	1	.360**	.369**
Years of VC involvement	.111	-.031	-.034	-.046	-.204*	-.059	.326**	.125	.340**	.478**	-.247**	.281**	.360**	1	.032
Industry	-.136	-.062	-.080	.381**	-.162	-.089	.193*	.385**	-.043	-.125	.044	.125	.369**	.032	1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
N=116, except for Total VC received (N=105).

Table 12- Matrix of correlations

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