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The impact of venture capital financing method on SME performance and internationalization

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Abstract One of the basic premises of venture capital is leverage, which often means adding money and other resources to speed up growth. As a result, small- to medium-sized venture funded firms are expected to show significant growth at an early stage. Our research examines how equity based-venture funding methods affect SME performance and internationalization. We divide venture capital financing into several categories: incremental financing where firms receive their venture capital funding in portions, lump-sum funding where firms receive their funding in one lump-sum, syndication where two or more external investors participate in a single financing round and non-syndicated financing where one investor participates in a single financing round. The results show that type of equity-based venture capital financing affect performance and internationalization. Annual sales growth rate and annual turnover are used as proxies for performance. Export ratio is used as a proxy for internationalization. Staged financing and financing through a syndicate has a positive effect on performance and internationalization when used separately. We observe a negative effect when syndication and staged financing are used in combination.

Keywords Venture capital · Syndication · Internationalization

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Introduction

Small- to medium-sized companies (SME's) increasingly compete in the global market place and Venture Capital Funds expect firms to grow quickly. Understanding variables that affect the success or failure of growth are important, especially at the firm level. One variable that fundamentally affects how firms expand domestically and internationally is financing since it affects both the acquisition of resources and business operations. This article investigates how method of venture capital financing affects performance and internationalization. To empirically investigate the affects of method of financing, we divide equity-financed firms into two groups: lump-sum and incremental. Incremental financing is also known as staged financing where venture capital funds divide the disbursement of funds into several tranches, often based on meeting pre-agreed upon milestones. In contrast, in a lump-sum financing arrangement all funds are received at one time.

We make two major contributions to the literature. First, we go beyond the extant SME Finance literature, which focuses on debt versus equity financing, and give more attention to equity financing methods. Second, we provide descriptive and statistical analyses of how incremental and lump-sum financing affect performance and growth.

We find that when incremental financing and syndication are used as separate control mechanisms, they are more effective and increase the probability of reaching higher sales growth, revenue and export growth. However, when the two control mechanisms are combined, the impact on annual sales growth is minimal and appears to decrease the probability of reaching higher annual revenue and export ratios. When analyzed from an environmental perspective, our results suggest that the degree of "tightness" of controls may affect the return of the Entrepreneur, the Venture Fund Manager and Fund Sponsors. The results are important in examining the efficiency of separate and combined control mechanisms.

The rest of the paper is organized as follows. The first section combines a literature review with theory and concept development. This is followed, respectively, by a discussion of the research methodology and the main results. The final section provides implications, a summary, conclusions and suggestions for future research.

Literature review

In this section, we give an overview of relevant research in internationalization, growth and financing of small- to medium-sized firms. We focus on variables related to method of venture capital finance, specifically incremental or staged financing, lump-sum financing and syndication.

Firm growth and internationalization have been studied extensively with mixed results. The existing literature is vast and voluminous and we do not cover it extensively in our review. One important stream of research concerns how firms internationalize as SMEs may turn to international market in order to deliver value to their shareholders. A second stream is based on factors that affect internationalization. A recent and third stream of research involves corporate governance as a driver

of firm internationalization (e.g. Lockett et al. 2008; Barney et al. 2001; Pruthi et al. 2003; and George et al. 2005).

Stage theory was initially developed by Johanson and Wiedersheim-Paul (1975) and suggests that firms internationalize in stages. The term stage is used differently depending on the study undertaken. Two main stage models appear in the literature. The most widely used definition of "stage" refers to a situation where firms begin exporting, which is followed by the appointment of a value-added reseller or similar partnership. As the firm's internationalization efforts produce the desired results, the next stage is to set up a sales organization, which is later followed by a full-service organization in a specific country. Another definition of stage refers to the situation where a firm first begins to internationalize by entering one specific country, which after success or failure is followed by a second country. There is some support for the stage model, e.g., Gankema et al. (2000) but over time, doubt has developed over its effectiveness, as evidenced by the large literature covering so called "born-globals," which are firms that have internationalized their operations at a very early stage, or even at firm inception. This is in direct contrast to the voluminous sequential international entry literature (e.g. Fan and Phillips 2007). A second common framework is network theory. The network model is a view that firms' network relationships are the basis for internationalization (e.g. Coviello and McAuley 1999).

In parallel, a body of literature has developed that concerns factors affecting internationalization, which is a form of growth. Some studies look at resource issues (e.g. Lu and Beamish 2001; Carpenter et al. 2003) while others focus on factor identification. The literature covers both tangible and intangible factors but studies over the past 10 years tend to focus on intangibles. Autio et al. (2000) suggest that knowledge intensity, age of entry and imitability affect the rate of internationalization. Lee and Tsang (2001) maintain that industrial and managerial experience is one of the dominating factors in venture growth. Orser et al. (2000) argues that sector, owner gender, size of business, legal structure and firm age affect entrepreneurial growth and performance. Studies focusing on resources include Carpenter et al. (2003), who found that the presence of venture capital had a negative effect on internationalization but a positive effect when the authors controlled for international experience of the venture capitalists. More generally, Lu and Beamish (2001) found that firms tend to under-invest in efforts to internationalize.

Resource-based research has received recent attention in the literature as more research shows that intangible resources may have a role to play in measuring firm performance (e.g. Westhead et al. 2001). Lockett et al. (2008) tests the relationship between Venture Capitalists' involvement from a resource perspective (corporate governance) and export intensity. Their results showed a positive but insignificant relationship between export intensity and corporate governance. In this study, we indirectly build on the findings of Lockett et al's 2008 article.

Financing small- to medium-sized firms has been studied but it is still a relatively under-explored research area. Davila et al. (2003) examine firm growth when venture capital financing is present and find a positive relationship between employee growth and the presence of venture capital. Specifically, Davila et al. (2003) explore if venture capital leads to growth or whether growth signals the need for venture finance. Their result show that start-ups may delay growth due to lack of financing suggesting that financing plays an important role in promoting growth

rather than the other way around. Cassar (2004) analyzes financing components and found that the level of debt is a function of firm size. He also suggests that asset structure plays a role in determining financing options and that a firm intent on growing is more likely to use bank financing. This finding is contrary to Cressy and Olofsson (1997), who find that bank debt has a negative impact on firm growth. Both findings have merit. Cassar's results essentially agree with a stream of finance research that looks at the effects firm characteristics have in relation to debt capacity. A firm with a larger asset base is capable of taking on more debt than a firm with fewer assets as the debt holders have additional securities in asset rich-firms. Less asset rich-firms do not have the same debt capacity supporting the finding by Cressy and Olofsson (1997). High earnings volatility also decrease debt capacity as it is harder to forecast cash flows, which are needed to pay off the debt due to its fixed nature. Relevant to our study, the combined result of these two studies supports the argument that firms with stable earnings or asset bases are able to support more debt. Firms with lower earnings, cash flow or asset volatilities are less able to support debt. It follows that the second category of firms are less able to deal with financial uncertainties. Cassar (2004) also finds that financing affects growth and export potential. Fu et al. (2002) finds a positive relationship between equity financing and profitability. Cowling (2004) argues that profitability affects growth. He suggests that very small firms are ready to forego profits in order to maximize growth but that larger enterprises do not make that trade-off to the same extent.

To summarize, existing research suggests that equity based financing has an impact on growth and internationalization. The extant research is not always consistent but two trends emerge. First, bank debt appears to have a negative impact on firm growth and internationalization. Second, equity financing appears to increase growth. There are also indications that an interaction effect exists between financing and environmental uncertainty, which most firms face in their expansion and internationalization efforts. We now turn our attention to risk.

Venture capitalists must decide if they should invest in projects where the outcome uncertainty is high. In order to reduce outcome uncertainty, a number of risk mitigation strategies are typically implemented. The initial risks associated with financing entrepreneurial ventures are primarily based on asymmetric information, which makes selection and governance issues paramount to venture capital firm success. Principal-agent problems and costs are caused by two primary reasons: conflict alignment and issues surrounding goal verification. Asymmetric information leads to two particular agency related problems known as adverse selection and moral hazard (Osnabrugge 2000). In this study, adverse selection refers to misrepresentation by the entrepreneur and moral hazard refers to the difficulty of aligning the interest of the entrepreneur and venture capitalist.

Gompers (1995) maintains that three control mechanisms are common to many venture capital investments: (1) the use of convertible securities, (2) syndication of investment and (3) incremental financing. Cumming (2006) confirm that the most venture capital transactions include a convertible security. In this study, we are concerned with syndication and incremental financing since it has been shown that nearly 100% of all venture capital transactions (Gompers 1995) use convertible securities. The other two control mechanisms relate primarily to issues surrounding specific investments. Syndication is a common risk mitigation strategy among

venture capitalists (DeClercq and Dimov 2004). Syndication refers to two or more venture capital funds sharing in a single financing round (Brander et al. 2002). Venture Capitalists use syndication to confirm investment risk through the participation of a co-investor, thus decreasing adverse selection problems. Investments are made only if at least two independent observers agree about the prospects of superior returns (Sah and Stiglitz 1986). Another venture capitalist's willingness to invest in a potentially promising firm may be an important factor in the lead venture capitalists' decision to invest. Lerner (1994) argues that syndication can be efficient when high information asymmetry is present in a venture capital financing round, suggesting that syndication is a strategy to mitigate adverse selection problems. This is referred to as the selection hypothesis in the literature (Lerner 1994) and arguably leads to improved venture selection (Brander et al. 2002). It also mitigates opportunistic behavior of the entrepreneur (Wright and Lockett 2003). Empirical research (Cumming 2006; Lerner 1994; and Wright and Lockett 2003) generally supports the argument that syndication mitigates problems relating to adverse selection. Regarding performance and syndication, Casamatta and Haritchabalet (2007) argue that the experience level of the venture capitalist may have a positive influence on performance whereas Brander et al. (2002) results are mixed. While they show a higher return for syndicated firms, they also show higher return volatilities. From the perspective of the Venture Capitalist and without taking into account return volatilities, Mason and Harrison (2002) benchmark investment performance by business angels compared to those achieved by venture capital managers. Their results suggest that investment in SMEs involving multiple investors and incremental financing achieve higher returns compared to lump-sum financed firms. In addition, firm characteristics such as age, size or industry classification do not necessarily explain syndication (Lehmann 2006). Our article contributes to the existing literature by analyzing syndication in relation to performance and other variables.

Financial contracts are used to monitor and mitigate agency costs (e.g., Jensen and Meckling 1976) due to moral hazard problems. In financial and entrepreneurship terms, the principal is primarily concerned with determining the optimal contract structure such as the structure of venture capital equity financing. Reid et al. (1997) suggest that UK based venture capital firms manage risk within a principal-agent framework. Kaplan and Stromberg (2003) also maintain that venture capitalists' primary method of controlling the principal-agent relationship is through financial contracting. Osnabrugge (2000) argue that venture capitalists use different financial contracting mechanisms to reduce agency risks. Gompers (1995) show that research and development intense firms receive greater amounts of financing but in shorter duration suggesting that these firms are more likely to be financed incrementally and therefore more tightly monitored. Thus, extant research is broadly supporting the argument that financial contracting is used by the venture capitalists to manage the principal agency relationship.

Principal-agent theory specifically suggests that optimal contracting requires that the principal considers foreseeable future contingencies. In managing the risks resulting from foreseeable and unforeseeable contingencies, complex contracts are formulated to influence agents' behavior or the outcome probability of a specific event. Incremental financing can reduce the agency costs related to financing small-

to medium-sized enterprises since it artificially creates a multi-period financial relationship (Duffner 2003). It mitigates agency problems by revealing information about the project over time, which is not normally observable in a single financing round. Staging means that the investor first invests a pre-agreed amount of capital and adds further capital when certain milestones are met. In using incremental financing, which has a number of implications for both parties, a venture capitalist defines goals that the firm has to meet before any subsequent payouts take place. The venture capitalist maintains the option to abandon a venture if it is not developing according to expectations, thus limiting losses. To the entrepreneur, incremental financing provides an incentive to reach predetermined goals. In doing so, it conserves capital and creates value. However, incremental financing may have negative implications, as well. Relevant to this study, using incremental financing may slow down the venture's development according to Duffner (2003), as the focus is on short-term firm growth needed to meet a specific milestone, which triggers an additional payout. A short-term focus may be detrimental to long-term firm success.

To summarize, extant research is primarily concerned with how non-financial factors affect growth and internationalization. The few studies that have been published dealing with financing issues suggest that venture financing issues play an important role in internationalization and firm growth for small- to medium-sized firms. Evidence also supports the argument that the type of financing used limits agency related risks and affects firm performance. While existing studies have focused on comparing debt and equity financing, we focus on how the type or method of equity-based venture financing affects performance and internationalization. In this study, we estimate the impact of method of financing on performance and internationalization through the use of proxies, which measures performance and internationalization. We also test interaction effects if syndication and incremental financing proxies. We will now discuss the methodology and sample.

Survey data

A survey instrument was used to collect the relevant data.[1] The population consisted of 186 Swedish firms that obtained venture financing and met our size criteria. This represents the entire population of Swedish firms that had received venture capital finance. Only firms with 100 employees or less were included in the sample. We excluded larger firms, which might have access to multiple types of financing. Data was obtained from the Swedish Private Equity and Venture Capital Association data base of active members. The survey included questions about industry classification, revenue, number of external investors, method of financing, sales growth, number of customers, and export sales. The survey took place in 2002. Forty-three firms responded in a single mailing representing a 23% response rate. We obtained audited financial statements from the Swedish Government as all incorporated firms are required to have their financial statements audited. This step is an improvement compared to the many studies that either use unaudited or self-reported financial

[1] We wish to thank Anna Husman and Lotta Rahm for their research assistance, especially in the area of data collection.

information. In addition to the data obtained from the survey and the audited financial statements, all responding firms were contacted via telephone to verify the method and type of financing. Due to a time lag between the availability of financial data, including turnover (revenue), sales growth and export ratio, we filtered the data to only include the small- to medium-sized firms that received their first financing within the relevant time period. We retained 36 firms in our sample representing a 19.35% response rate. We used the variable Export Ratio as a measure of internationalization and a variable called Sales Growth and Turnover (Revenue) to measure performance. We also included the binary variables Incremental Financing and Syndication. Finally, we defined a binary variable called Synd*Incremental, which represents small- to -medium-sized firms that received both syndicated and incremental financing. This allowed us to estimate the combined effect across performance (sales growth and turnover) and exporting activity. Incremental financing was defined as receiving multiple payouts from a single financing round. The single financing round requirement was imposed to avoid contamination of multiple financing rounds within a calendar year. We define syndication as having two or more external investors taking part in a financing round. The final version of the data is presented in Table 1. Figure 1 compares the information along different dimensions.

We use descriptive statistics to present general information and categorization of the data depending on the variables of interest. As previously discussed, we included both "yes" and "no" responses and also responses based on interval values. Ordered response models are more relevant in analyzing the index nature of various response variables. The nature of our study requires a detailed analysis of the data using different intervals, which requires scoring and ordering to fit the Ordered PROBIT model.[2] The Ordered PROBIT circumvents a number of common problems encountered when attempting to use regression analysis. The variables are transformed from ratio values to weights, resulting in a linear relationship between the variables (Blydenburgh 1971). We regress the transformed variable on the independent variable using Huber-White Quasi Maximum Likelihood Method. The Huber-White method is appropriate for small samples (>30) such as ours (Maas and Hox 2004). The performance measures (sales growth and turnover) and exporting ratios were regressed against syndication, incremental financing, R&D intensity, export ratio, number of customers and Synd*Incremental. R&D intensity was included based on Gompers' 1995 results, which showed a syndication effect in research intensive firms.

Analysis and results

In this section, we analyze the impact that the methods of financing and syndication have on growth and internationalization. We first present the data and related analysis for the descriptive statistics (Table 2). This is followed by the results from the PROBIT regressions where we report LR Index pseudo R-squared for the regressions.

[2] The random error in the ordered PROBIT regression is assumed to follow a normal distribution.

Table 1 Summary of questionnaire data from 43 portfolio companies. (The names of the companies are confidential information and coded with numbers. The data refers to the year 2002. Annual growth in sales is estimated for the last 3 years)

Company	Turnover	External investors	Method of finance	Annual growth in sales	Customers	R&D	Exports	Export ratio
1	2–4	>3	Lump sum	15–19%	>500	0–9%	Yes	1–9%
2	100–199	>3	Lump sum	35–39%	10–49	20–29%	Yes	70–79%
3	5–24	3	Lump sum	>100%	0–9	60–69%	Yes	80–89%
4	5–24	3	Lump sum	15–19%	100–499	10–19%	Yes	20–29%
5	100–199	>3	Lump sum	50–54%	100–499	0–9%	Yes	70–79%
6	5–24	1	Lump sum	10–14%	50–99	10–19%	Yes	90–100%
7	0–1	>3	Lump sum	0–4%	0–9	90–100%	Yes	90–100%
8	5–24	>3	Lump sum	>100%	0–9	60–69%	Yes	90–100%
9	0–1	3	Lump sum	5–9%	0–9	80–89%	Yes	90–100%
10	25–49	2	Lump sum	>100%	10–49	0–9%	Yes	60–69%
11	25–49	3	Lump sum	>100%	10–49	20–29%	Yes	90–100%
12	0–1	1	Lump sum	0–4%	0–9	70–79%	No	0%
13	5–24	3	Lump sum	45–49%	10–49	30–39%	Yes	80–89%
14	2–4	>3	Lump sum	50–54%	0–9	30–39%	Yes	60–69%
15	0–1	2	Lump sum	0–4%	0–9	70–79%	No	0.00%
16	50–99	>3	Lump sum	40–44%	100–499	20–29%	Yes	80–89%

17	2–4	2	Lump sum	>100%	10–49	20–29%	Yes	1–9%
18	0–1	1	Lump sum	0–4%	0–9	90–100%	No	0%
19	5–24	>3	Lump sum	>100%	0–9	30–39%	Yes	80–89%
20	2–4	3	Lump sum	>100%	0–9	70–79%	Yes	90–100%
21	5–24	1	Lump sum	20–24%	50–99	10–19%	No	0%
22	5–24	1	Incrementally	30–34%	0–9	10–19%	Yes	40–49%
23	0–1	>3	Incrementally	>100%	0–9	10–19%	Yes	50–59%
24	2–4	>3	Incrementally	>100%	10–49	50–69%	Yes	10–19%
25	0–1	3	Incrementally	0–4%	0–9	70–79%	No	0%
26	0–1	2	Incrementally	>100%	0–9	90–100%	Yes	90–100%
27	<300	1	Incrementally	>100%	10–49	80–99%	Yes	50–59%
28	25–49	3	Incrementally	40–44%	>500	10–19%	Yes	20–29%
29	5–24	1	Incrementally	>100%	0–9	10–19%	Yes	90–100%
30	2–4	2	Incrementally	10–14%	50–99	30–39%	No	0%
31	5–24	2	Incrementally	>100%	0–9	20–39%	Yes	80–89%
32	0–1	1	Incrementally	>100%	0–9	20–39%	Yes	80–89%
33	50–99	>3	Incrementally	35–39%	>500	20–29%	Yes	50–59%
34	5–24	2.3	Incrementally	>100%	10–49	90–100%	Yes	90–100%
35	5–24	3	Incrementally	50–54%	100–499	70–79%	Yes	60–69%
36	0–1	2	Incrementally	>100%	0–9	90–100%	No	0%

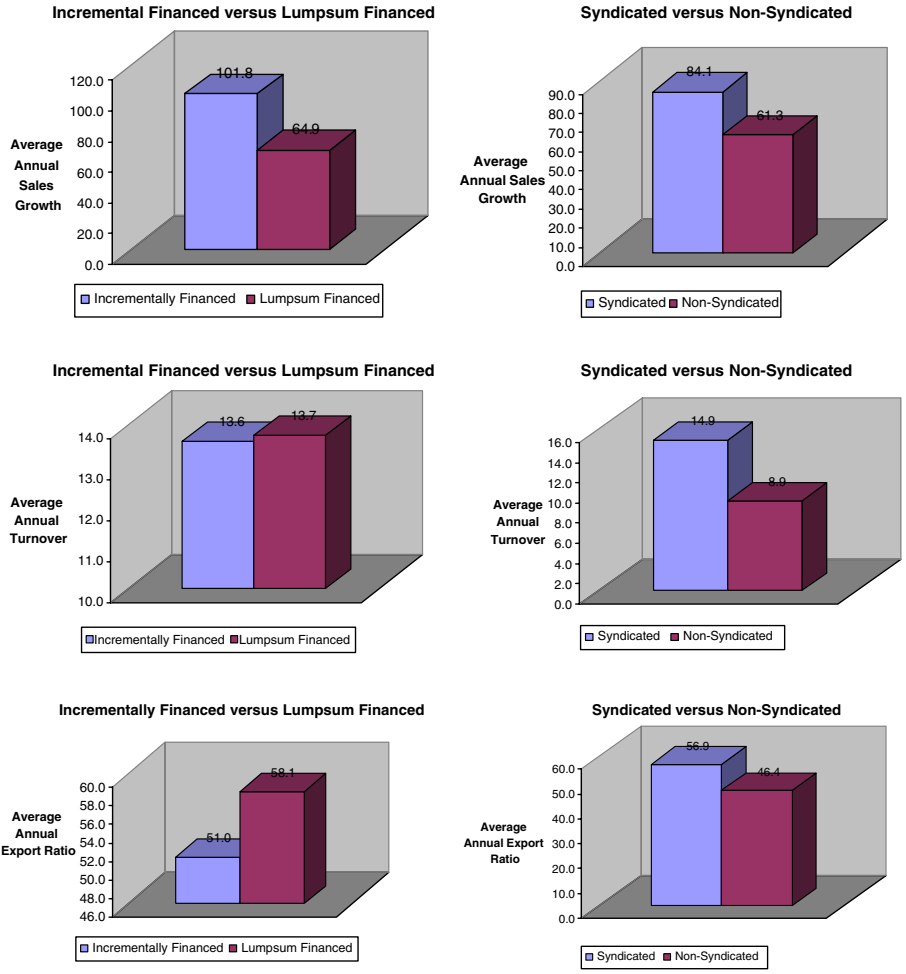

Fig. 1 Sample characteristics

Descriptive statistics

The responses to the continuous variables in our data are mostly given in intervals and we therefore we convert them in to numerical data by taking the mean of upper and lower bounds of the intervals. In doing so, we are able to present the mean and standard deviation of each variable in general and within different groups. We compare the mean values of the performance variables and internationalization activity under different groups (venture financing type and syndication). On average, syndicated firms reported higher annual sales growth, turnover and export ratio compared with the non-syndicated group. Thus, our study supports Lehmann (2006) who found that syndicated investments show significantly higher growth rates in a sample of pre- and post-IPO German firms. The incrementally financed firms had higher annual sales growth but lower turnover and export ratio compared to lump-sum financed firms. In Table 2, we present the descriptive statistics. Panel A reports

Table 2 Descriptive statistics of survey data

Panel A: General statistics of continuous variables in survey data

	N	Mean	Standard deviation
Annual turnover	36	24.12	41.57
Annual sales growth	36	80.28	64.81
Annual exportratio	36	55.14	38.00
R&D	36	45.29	32.69
Customers	36	94.13	166.59

Panel B: Descriptive statistics under group type "Syndication"

	Syndicated SMEs			Non-syndicated SMEs		
Variable	N	Mean	Standard deviation	N	Mean	Standard deviation
Annual turnover	28[a]	14.92	22.07	5[a]	8.90	7.67
Annual sales growth	30	84.07	64.42	6	61.33	69.41
Annual exportratio	30	56.88	37.97	6	46.42	40.47
R&D	30	49.59	32.85	6	24.50	24.49
Customers	30	32.14	20.12	6	34.50	24.49

Panel C: Descriptive statistics under group type "Incremental"

	Incrementally financed SMEs			Lumpsum financed SMEs		
	N	Mean	Standard deviation	N	Mean rank	Standard deviation
Annual turnover	14[a]	13.59	21.38	19[a]	13.73	19.52
Annual sales growth	15	101.80	62.14	21	64.90	63.66
Annual exportratio	15	51.03	36.01	21	58.07	39.97
R&D	15	48.27	34.81	21	43.06	31.75
Customers	15	106.57	195.06	21	85.24	147.42

Table 2 presents mean and standard deviation of continuos variables; turnover, growth and export ratio under different groups. The response data is converted to continuous variables by taking the mean of the interval of values given in responding. Panel A reports the general statistics of all variables. Panel B reports statistics under syndication class. Panel C reports the statistics under type of financing class

[a] Outliers in response data are removed for the estimation of mean and standard deviation

the general statistics of overall survey data. Panel B reports the comparison of syndicated and non-syndicated firms. The results suggest that the mean annual sales growth, annual turnover, annual export ratio and annual R&D activity are much higher for syndicated firms (84.07, 14.92, 56.88 and 49.59 respectively) compared to non-syndicated group. Non-syndicated firms show a slightly higher mean for number of customers (34.50) compared to syndicated group. Panel C presents the comparison of incrementally financed and lump-sum financed firms. The descriptive statistics suggest that the lump-sum financed group have higher mean for turnover (13.73) and export ratio (58.07). The incrementally financed firms had higher mean for annual sales growth (101.80), for R&D (48.27) and for number of customers (106.57) compared to lump-sum financed SMEs.

Before controlling for the interaction effect of Syndication and Incremental financing, the descriptive statistics suggest that syndicated SMEs have higher annual sales growth and export activity but lower turnover compared to non-syndicated firms. This is consistent with the notion that small firms are financed by a syndicate

compared to larger firms. The incrementally financed firms have higher annual sales growth but lower turnover and exporting activity compared to lump-sum financed firms. The results are directional and we need to analyze the impact of financing type and syndication over performance in order to draw further conclusions.

Regressions on performance measures and exporting activity

The data for several variables were composed of different interval values and the intervals were therefore scored and ordered. Binary variables were scored as 1 or 0, ordinal variables assigned values between 1 and 6. We used ordinal variables such as Sales Growth, Turnover, Export Ratio and Number of Customers. The generic ordering of continuous variables in our survey data for the ordered PROBIT regression tests are given in Table 3. Table 4 presents the results from ordered PROBIT regressions where we test the impact of venture capital financing type and syndication over performance measures and exporting activity. The dependent variables are turnover, sales growth and export ratio. The explanatory variables are number of customers and research and development intensity (R&D intensity). Dummy variables are used to measure the impact of Syndication and Incremental (staged) financing separately, as well as the interaction effect between the two variables. This is accomplished by adding the dummy Syndication*Incremental. We defined the default category as non-syndicated and lump-financed.

Sales growth variable

The coefficients for the Syndication and Incremental Financing dummies display positive and high values (1.50 and 2.01 respectively) and are highly significant at the 5% percent level. Customers and R&D variable coefficients show negative but lower values (−0.35 and −0.15 respectively). Only the customer coefficient is significant at the 5% percent level. The coefficient for the Synd*Incremental

Table 3 Survey responses and generic ordering for ordered probit regressions

Annual sales growth		Annual turnover		Annual export ratio		Research and development		Customers	
Intervals	Generic ordering	Intervals	Generic ordering	Intervals	Generic ordering	Intervals	Generic ordering	Intervals	Generic ordering
0-19%	1	0–4	1	0–19%	1	0–19%	1	0–9	1
20–39%	2	5–24	2	20–39%	2	20–39%	2	10–49	2
40–59%	3	25–49	3	40–59%	3	40–59%	3	50–99	3
60–79%	4	50–99	4	60–79%	4	60–79%	4	100–499	4
80–99%	5	100–199	5	80–99%	5	80–99%	5	>500	5
> 100%	6	>200	6	> 100%	6	> 100%	6		

Table 4 Ordered probit regression results

Explanatory variables	Impact of venture capital financing type and syndication over performance and internationlization					
	Sales growth		Turnover		Export ratio	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Syndication	1.50	**0.01**	0.68	0.13	1.64	**0.09**
Incremental financing	2.01	**0.03**	1.65	**0.04**	1.56	0.13
R&D	−0.17	0.33	−0.02	0.91	−0.004	0.98
Customers	−0.35	**0.02**	0.51	**0.03**	−0.11	0.35
Syndication*incremental	−1.37	0.21	−2.34	**0.04**	−2.28	**0.05**
Pseudo R-squared	0.13		0.14		0.07	

Table 4 presents the results from ordered probit regressions. The Impact of VC Financing type and existence of external investors over performance and internationalization activity is measured using a probit model. Dependent variables like Sales Growth, Turnover and Export Ratio are measured as ordinal variables. Explanatory variables like Syndication, Incrementally Financing and Syndication*Incremental is measured using an indicator variable equal to one if the corresponding event occured otherwise is equal to zero. Explanatory variables R&D and Customers are also measured as ordinal variables. The model uses Huber-White quasimaximum likelihood standard errors.The estimated coefficients are presented for each explanatory variable alongside corresponding p-values LR Index Pesudo R-squared is reported

dummy is negative (−0.17) but insignificant. The pseudo R2 square displays low fit with a value of 0.13.

The results suggest that Incremental Financing and Syndication may increase the probability of reaching higher growth levels when they are used as separate risk management tools. We did not observe any interaction effects. R&D intensity doesn't seem to have a significant impact on growth. Firms with higher number of customers appear to have a lower probability of growth. There are at least two plausible explanations. First, firms with initial significant growth may need to consolidate suggesting a higher probability of slower future growth. Second, the variable number of customers may serve as a proxy showing if a firm is active in the business-to-business or business-to-consumer segment. If the second explanation is correct, it indicates that business-to-business firms grow faster than business-to-consumer firms, on average. We were unable to confirm if this was the case but additional results (see below) cast doubt on this explanation.

Turnover variable

The incremental financing dummy coefficient shows a positive and significant value, which indicates that the probability of higher turnover increases with incremental financing (1.65 at 5% significance level). The coefficient for the syndication dummy is positive and almost significant at the 10% percent level. The R&D coefficient is insignificant. The number of customers increases the probability of higher turnover. (0.51 is significant at 5% level). The last result is not unexpected. Firms with more

customers are more likely to show a higher turnover. Note that this is not inconsistent with the previous discussion of business-to-business and business-to-consumer firms. The effect of the combined variable is measured by Synd*Incremental. The results suggests that it decreases the probability of high turnover (−2.34 with significance level of 0.04). Pseudo R2 is reported as 0.14.

We interpret this finding as follows. Syndication and Incremental financing seem to increase the probability of higher turnover when imposed separately. The interaction effect decreases this probability suggesting that using both Syndication and Incremental financing restrict firm operations too much. We argue that firms that operate in highly uncertain environments need flexibility in dealing with operational and strategic issues. Imposing some restrictions on firm decision making appear to be beneficial but imposing too many restrictions have a detrimental effect as it does not allow firms to deal with unforeseen issues.

Export ratio

Both Syndication and Incremental Finance have positive coefficients (1.63 and 1.56 with p-values of 0.09 and 0.13, respectively) on the Export ratio suggesting that the increase in both variables results in an increase in the probability of a higher export ratio. The result from the Customers variable is inconclusive. Syndication*Incremental has a strong negative effect (−2.28) at the 5% significance level suggesting that combining stage financing and syndication as a risk mitigation strategy significantly lowers firms' export potential. We find a positive impact of incremental financing and syndication when they were applied as separate risk mitigation strategies but when they are used simultaneously, we observe a negative impact on exporting activity. The result is tempered by a low R2 value at .07 indicating that other variables explain the performance and exporting activity to a larger extent.

Conclusions, implications and future research

We have applied standard principal-agent theory within an entrepreneurship framework in order to develop testable hypotheses arguing that method of equity financing affects firm performance and internationalization. We present the results by using descriptive statistics and ordered PROBIT regressions.

The results from the descriptive statistics without controlling for interaction effects of syndication and incremental financing displayed varying results. The results from the PROBIT regressions show that syndication appears to have a positive effect on both performance measures and exporting activity. We also confirm that stage financing increases the probability of both performance measures and exporting activity. This is in line with the findings that the incremental financing conserves capital and creates value (Duffner 2003). Our results also conform to the findings by Carpenter et al. (2003) in which the presence of Venture Capitalists using control or risk management mechanisms has a positive impact on the internationalization of small- to medium-sized firms. The Syndication*Incremental variable is defined as receiving financing in stages from a syndicate of investors. Our

results suggest that receiving staged financing from a syndicate appears to have a negative effect on both performance and exporting activity. We argue that too restrictive monitoring and controlling could lead to the negative effect on the performance and internationalization activity.

The negative impact on internationalization is understandable since small- to medium-sized firms need to be flexible in their movements in international markets. In general, our results show that, on average, only incrementally financed and only syndicated firms increased the probability of higher sales growth, turnover and export ratio compared to firms financed through the lump-sum approach. When these risk management tools are used separately, they affect the probability of high performance and internationalization positively. Our study suggests that venture capitalists can increase efficiency by selecting the correct financing method. In establishing goals and objectives, funds should evaluate the firm, its business and environmental conditions. Only then can effective and relevant risk mitigation strategies and control mechanisms be designed. Performance is controlled by controlling contingent cash flow rights.

If performance targets are unfulfilled, venture capitalists using incremental financing may withhold future cash infusions. In doing so, incremental financing effectively aligns the goals of the entrepreneur with that of the venture capitalist suggesting that firms with effective monitoring outperform firms with less effective monitoring regimes. Firms subject to both stage financing and syndication showed lower performance metrics compared to firms that were subject to either staged or syndicated finance but not both. Greater uncertainties surrounding international expansion may require that firms need greater operational flexibility to cope with a variety of uncertainties. Firms in the internationalization phase may benefit from efficient monitoring and risk management but could be negatively affected by having too many restrictions.

Policy implications from our results are preliminary and require further study. First, venture capitalists and other financiers may increase the overall efficiencies in their operations by carefully selecting the most appropriate equity financing program for small- to-medium sized firms. Venture capitalists should attempt to achieve goal congruence between the need to align the goals of the fund with the firm and the degree of business and environmental uncertainty in the firm's operating environment. Similarly, governments, non-governmental organizations and other quasi-government institutions will be able to design and implement better policies in the area of entrepreneurship finance, which may result in improved outcomes. The results of the study also provide an opportunity for interested parties such as governments, lending institutions and venture capitalists to tailor their financing programs and offerings to firm specific situations.

There are several limitations with our research. On the positive side, we were able to survey all Swedish firms that received venture financing over the given time period resulting in the study being free from some statistical problems normally associated with taking a sample of a larger population. The downside of such an approach is a narrow geographic scope and a small number of firms in the final sample. This certainly affects the generalizability of the study. Another issue is that of selection bias. A recent study by Cook et al. (2008) argue that "most, if not all studies fail to recognize that firms or individuals might make the choice to do or not

to do something for different reasons, i.e. they ignore selection bias." In our case, this means that our sample may be tainted by a specific form of selection bias in the sense that firms in the sample chose to obtain venture capital financing or they may not have any other financing option. If this is the case, it may or may not affect the results of the study since venture capital financing decisions are deliberate decisions on the part of the entrepreneur and venture manager to self-select their preferred choice (Li and Prabhala 2005). We are unable to confirm if our study is tainted or untainted by this specific selection bias issue but our approach is consistent with prior studies. The lack of time series data does not allow us to study equity finance across time. In addition, our study ignores culture and other variables that may have an effect on the outcome of the study. Finally, our sample does not include start-up ventures so our results may not apply to all firm stages, only to seasoned firms. Future research should incorporate culture and other variables, which may help explain firm, entrepreneur and venture capitalist behavior. We believe that research dealing with start-up firms and firms financed via micro-financing schemes is important. Finally, a wider geographic focus is a fruitful avenue of future research as are trends over time.

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