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Venture Capitalists, Public Offerings or Strategic Investors?
Financial Liquidation Profiles of Israeli Hi-Tech Firms

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Abstract

The paper presents the concept of Firms' Growth Profiles (FGPs) portraying the idea that the institutional environment confers upon firms a limited set of path-dependent growth options. The FGP concept is demonstrated by examining sequences of financial liquidation actions (raising funds from venture capitalists, through public offerings or from strategic investors) of Israeli Hi-Tech firms. Results show that 89% of firms are classified into one of two most frequent sequences. The choice of the most frequent financial liquidation growth profile (sole venture capitalist based finance) is explained by: duration of financing sequence, year of financing sequence initiation and firm age.

Key words: Firm growth, capability development, institutional environment, financial liquidation.

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Non-technical Summary

In this paper we investigate the financial liquidation profiles of Israeli Hi-Tech firms. Financial liquidation profiles are a special case of what we define as Firms' Growth Profiles (FGPs), representing a similar set of strategic actions taken by firms over time. The FGP concept implies that similar external institutional environments (in economic, political, social and legislation terms) confer upon firms a limited set of growth options. We therefore expect firms operating in similar environmental conditions to take similar actions over time. More specifically we investigate sequences of three types of financial liquidation actions - raising funds from venture capitalists, raising funds through public offerings and raising funds from strategic investors. We have examined liquidation sequences of 329 Israeli Hi-Tech firms over the period 1995-2005. Results show that 89% of firms are classified into one of two most frequent sequences – one sequence is characterized by raising funds solely from venture capitalists (70% of the firms) and the other includes firms that initially raised funds through venture capitalists and then were acquired by a strategic investor (19% of the firms). We also find that over longer liquidation sequences firms prefer other liquidation options other than venture capitalists, that firms starting to raise funds in later years (within the 1995-2005 period) have a lower probability to choose the sole venture capitalist based finance and that older firms are more likely to go public or get acquired by a strategic investor.

Introduction

One of the fundamental issues in organization and strategy research is identifying the factors that influence the development of firms over time. Firm growth has been extensively explored over the last 40 years, following the publication of Penrose's (1959) seminal book: "The Theory of the Growth of the Firm". It is widely agreed that firm capabilities (Barney, 1991; Peteraf, 1993; Wernerfelt, 1984) and the capability to modify these capabilities over time (Eisenhardt & Martin, 2000; Teece, et al. 1997; Winter, 2003; Zollo & Winter, 2002) are the utmost important factors shaping firm growth. The main argument of this line of literature stresses the idiosyncratic way in which firms develop over time due to path-dependent investments in building unique capabilities.

This approach to firm growth has a purely internal focus. As noted by Barney (2001), Porter (1996), Teece (2000) and others, this purely internal focus disregards possible limitations imposed by the external institutional environment on capability development and hence on firms' growth patterns. More attention should therefore be given to the interaction between internal capabilities and the external environments in which firms operate and to this interaction's impact on firm growth.

The current paper contributes to our understanding of the impact the external institutional environment has on firm growth patterns by introducing a new perspective - the *Firm Growth Profile* (FGP). We define an FGP as: *"a pattern of growth common to a cluster of firms that, operating in comparable environments, take similar strategic actions"*. We assert that external factors limit the variance in the way firms grow, hence firm development is not a purely idiosyncratic firm-level process, but rather an evolutionary process influenced by the external environment. Accordingly, we expect to identify groups of firms that operate in a similar way under similar external conditions. In that respect, a specific FGP reflects the common strategic path chosen by a group of firms.

In the next section we link up between the development of capabilities and sequences of strategic actions firms take over time. Then we explain how the external institutional environment moderates the development of capabilities by imposing limitations on actions firms may take in different environmental settings. We demonstrate the applicability of the FGP approach by analyzing firms' choice between

different financial liquidation options via venture capitalists, through public offerings or from strategic investors. This empirical analysis refers to financial liquidation sequences of Israeli Hi-Tech firms over the period of 1995-2005. Finally we conclude and highlight avenues for future research.

Capabilities, actions and growth profiles

One of the premises of evolutionary economics literature (Dosi et al., 2000; Nelson & Winter, 1982) is that firm-specific actions lead to the modification of routines. Yet another fundamental premise of evolutionary economics literature is that capabilities are sets of high-order routines (Dosi et al., 2000; Winter, 2003) which *"confer[s] upon an organization's management a set of decision options for producing significant outputs of a particular type"* (Winter, 2003).

This interactive relationship between actions and routines has two major implications. First, it implies that actions taken by firms may modify these firms' routines over time (Cohen & Bacdayan, 1994; Feldman, 2000; Levitt & March, 1992). Since capabilities are based on routines (Winter 2000, 2003), it follows that such actions also modify firm capabilities. These capabilities may produce a given level of a certain outcome, while in subsequent periods they may produce different levels of outcome (Helfat & Peteraf, 2003). Second, it implies that firms' capabilities, which result from the implementation of routines on firm specific assets (Winter, 2000) limit the set of action options a firm can choose from. Taken together, these two implications infer that path dependency may be expected in capability development as a result of specific actions taken in the past.

To facilitate analysis of the linkage between firms' actions and their capabilities, we focus on four major value activities undertaken by firms: Research and Development (R&D), production, marketing and finance. While these value activities clearly do not portray the full range of firm activities as captured, for instance, by Porter's (1985) value chain, for the sake of simplicity, we limit ourselves to these four value activities[1]. In the following sections, we distinguish between firm-

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[1] Clearly, the same sort of analysis could be conducted with any number of value activities that a given firm executes.

specific assets and routines and value activity-specific capabilities, the latter reflecting capabilities that produce a particular type of value activity-specific output.

The stock of assets and routines a firm possesses at a given point of may be tangible (e.g. financial or physical assets), intangible (e.g. technological patents or reputation) or human (e.g. motivation, specialized skills or communication abilities). Based on their assets and routines, firms are required to posses and develop capabilities in each value activity. Thus, assets and routines determine the capabilities to: create and improve technology and turn it into consumable products (an R&D capability), transform inputs into outputs (a production capability), interact with customers through the processes of advertising, sales, distribution and pre- and post-sales services (a marketing capability), and finally, finance the whole operation from product development, through production to marketing and after-sale services (an financial capability). This implies that value activity specific capabilities reflect the utilization of assets and routines in a particular context. For instance, the enrollment of a skillful CEO may improve R&D, production and marketing capabilities if this CEO brings into the organization more efficient operational and managerial routines or raises employees' motivation. In addition, financial capabilities are likely to be developed if investors' confidence in the prospects of the firm under the leadership of said CEO is strengthened.

Value activity specific capabilities comprise a collection of competencies that enables the firm's management to conduct a set of potential value activity specific actions at its discretion. In the context of R&D activities, firms may take actions to determine the type of technology they develop and the product range based on this technology, to upgrade an existing technology or to develop a new one. With respect to production activities, firms may take actions regarding the scope and scale of their production, the location of production activities (Dunning, 1988, 1993; Porter, 1985, 1990) or their choice between "markets and hierarchies" (Williamson, 1975, 1985). In the context of marketing activities, firms may take actions that result in increasing their product range (Rumelt, 1974, 1982), expanding their customer base, or changing their business model in different markets. Finally, with regard to financial activities, firms may choose whether to finance their operations through self–financing, strategic investors, financial investors, public offerings and so forth. The combination of all

types of actions for each of the value activities represents the range of strategic actions available to firms.

The mechanism by which capabilities are developed arises from the interplay between existing assets and routines, value activity specific capabilities and value activity specific actions. At each point of time a given firm's value activity specific capabilities enable a finite range of value activity specific actions to be taken. The selection of a sub-set of these actions, modifies this firm's assets and routines and hence its value activity specific capabilities. This, in turn determines the boundaries of the range of value activity specific actions to be taken in the future. Hence, a given firm's sequence of actions (defined as the firm's FGP), indicates how this firm's capabilities have developed over time.

For instance a given firm's R&D capability enables it to take measures to upgrade its current technology. Similarly, its marketing capability to introduce the technology into the marketplace allows it to penetrate new markets, and its financial capability to raise funds based on its patent enables it to issue a public offering. By upgrading its technology, penetrating into new markets and issuing a public offering this firm will now have a more advanced technological capability (an R&D capability) resulting from the investment in new technology, from a better acquaintance with various market needs and from the increased availability of funds. For the same reasons, it will also be able to penetrate additional markets or enlarge its share in existing markets (marketing capabilities). Finally, it will be able to build upon its superior technology, improved marketing presence and existing funds to further leverage its financial capabilities (a financial capability). The above example demonstrates that actions taken in a specific context do not only affect the firm's capabilities in this context but may also affect capabilities in other contexts. Moreover, had all these actions not taken place, this firm's new assets and routines and hence its new value activity specific capabilities would have been totally different. Inferior R&D capabilities might render the upgrading of current technology quite ineffective, thus leading such a firm to possibly decide to use appropriate technology under license. If a firm's marketing capabilities are not strong enough, its ability to penetrate new markets will be hampered despite any potential technological advantage it may have, and therefore it may prefer to expand its existing markets.

Similarly, poor past financial performance may exclude the possibility of issuing a public offering and alternative financial leverage measures (e.g. bank loans) will need to be sought. The value activity specific capabilities resulting from the actions taken in the latter case are clearly more limited than the value activity specific capabilities in the former case.

Two points are noteworthy at this stage. First, at their inception value activity specific capabilities are expected to result from a firm's entrepreneurs' *initial resource endowment* (Helfat & Lieberman, 2002; Helfat & Peteraf, 2003). Variance in initial resource endowment is likely to lead to heterogeneity in assets and routines (Barney, 1991; Wernerfelt, 1984) and hence to different value activity specific capabilities. Second, a firm's choice of a specific strategic action sequence (namely a specific FGP) may be irreversible, since each choice will likely lead to the development of a different collection of assets and routines. This point of view is consistent with Arthur's (1990) and David's (1989) concept of path dependency and actually implies that firms that chose the "correct" sequence of actions are expected to develop a competitive advantage due to capabilities that attain a higher level of functionality (Helfat & Peteraf, 2003). Since the FGP of a firm that attains a competitive advantage is revealed only *ex-post* (Peteraf, 1993) firms that did not choose the "correct" sequence of action sets may find it impossible to imitate such an FGP. This, in turn, is likely to make assets and routines unique and inimitable (Barney, 1991) and can thus lead to the creation of a sustainable competitive advantage.

Growth profiles – the moderating role of the external institutional environment

The previous section has portrayed a dynamic process of capability development through an interaction between a firm's capabilities and actions. In fact, the sets of possible actions available to a firm are not only shaped by value activity specific capabilities, but also by the external institutional environment. Since a firm's actions and capabilities are inter-related this implies that the external institutional environment affects the development of capabilities.

By "institutional environment" we refer to a broad set of country specific variables affecting multiple aspects of business activity. Hence an institutional

environment may be characterized by multiple factors including: economic stability and growth (Porter, 1990), legal systems, costs of contracting factors of production or marketing (Nee, 1992), the level of specialized research institutions and that of transport and communications infrastructure (Porter, 1990), the protection of intellectual property rights, tax burden (Grubert & Mutti, 1991), and the prevalence of corruption (Wei, 2000).

Differences between institutional environments strongly affect the ability of firms to employ specific industrial arrangements and organizational strategies (Guillen, 2000; Hamilton & Biggart, 1998) as well as the learning capabilities of firms (Filatotchev, et al., 1996). Moreover, the existence or absence of specialized market-intermediating institutions in the realms of technological, labor, financial and product markets, determines by and large the range of value specific actions available to firms. The degree of intellectual property protection (Lee & Mansfield, 1996; Oaxley, 1999) determines whether firms can license-in or license-out technology, form technological alliances or use wholly owned R&D subsidiaries. Per country social conditions affect the innovative capabilities of firms (Lazonick, 1999). Differences in relative factor costs affect the ability of firms to engage in either innovative or production activities as well as their ability to contract marketing activities (Granovetter, 1995; Khanna & Palepu, 1998; 2000). Likewise, the protection afforded to shareholders versus creditors or to minority investors (Klapper & Love, 2004; La Porta et al., 1998, 1999) has a strong impact on financial actions taken by firms, while the absence of strong financial markets lead firms to pursue internal financial mechanisms (Chang & Hong, 2000; Khanna & Palepu, 2000; Kogut & Spicer, 2002) rather than to leverage their activities by using external sources of capital.

The fact that the institutional environment has such a substantial impact on the variety of actions available to firms implies that the whole discussion on capability development must also relate to external factors. We should therefore not treat the concept of FGP as a general one, but rather as a concept that is bounded by the external institutional environment of the firm. At any given time, external conditions may allow or preclude a firm from taking specific actions. Hence, we expect external environmental conditions to impose a degree of conformity on the growth profiles of

firms, as these firms face similar opportunities and constrains in their potential choice of actions and, subsequently, in the nature of their capabilities.

While variance in firm specific capabilities may still allow firms to differ in their FGPs, operation within similar institutional settings is expected to limit the number of FGPs pursued by the majority of firms in a given population. Our central hypothesis is therefore:

Hypothesis 1: *Within a given institutional setting, the number of firms belonging to a few specific FGPs is significantly larger than the number of firms belonging to all other FGPs.*

It is noteworthy that country-specific institutional environments are hardly ever static (Henisz, 2005; Porter, 1990). Changes in the political system, in economic conditions, in legislation and in the social surrounding are expected to make the impact of the external environment time dependent. We therefore hypothesize that:

Hypothesis 2: *Within a given institutional setting, there is a significant relationship between time and the probability of choosing a specific FGP.*

Empirical analysis

In the current paper we focus on a particular type of action sequence taken by firms – financial liquidation. We also focus on a particular type of firms, namely fairly young and small knowledge intensive firms. Following Teubal et al. (2002) and Hellmann (2002) we analyze such firm's choices between three particular types of financial liquidation: raising funds from venture capitalists, issuing a public offering and getting (partly or fully) acquired by a strategic investor[2]. More specifically we have empirically examined sequences of liquidation taken by a sample of Israeli-based Hi-Tech firms during the period 1995-2005. This allows us referring to a single country's institutional setting and to a specific sector in this country, hence controlling for the variance in the institutional setting in which firms operate.

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[2] While financial literature has dealt extensively with such liquidation actions, it is often more concerned with the point of view of the investor rather than that of the funds acquirer (e.g. Hellmann, 2002; Gompers, 1996; Gompers & Lerner, 2001;Kaplan & Stromberg, 2003).

Israel's Hi-Tech sector has become a major locomotive leading Israel's economical development. The contribution of the Hi-Tech sector exceeded $11 billion (2004 figures) in exports, a figure reflecting 50% of the volume of the industrial exports of Israel (Central Bureau of Statistics, 2005). Numerous explanations are suggested to the rapid growth of this sector since the early 1990s, among which are: high governmental expenditures on technology based security projects, abundance of technological manpower in Israel as a result of the existence of specialized research intuitions, a massive immigration wave of skilled labor from former soviet union, R&D subsidies and governmental funded technological incubators as well as governmental involvement in the establishment of a strong venture capital industry in the country (Teubal et al., 2002; Teubal & Avnimelech, 2003; Breznitz, 2005).

Our data was obtained from a database constructed by Dolev & Abramovitz Ltd. consulting firm. Initially, the database included data on the financial liquidation actions taken by 1016 firms in the period 1995-2005. Three different financial liquidation actions were recorded: raising funds from venture capitalists (denoted as VC), issuing a public offering (denoted as PO) and getting acquired by a strategic investor (denoted as M&A). Since we are interested in sequences of financial liquidation actions, we decided to analyze only firms with n≥3 actions. This has resulted with a sample of 329 firms. Comparisons between the 329 firms included in the final sample and the 687 non-included firms did not show evidence of any selection bias in terms of firm sales, number of employees, firm age, or industrial classification.

Descriptive statistics of our sample are detailed in Table 1. Table 1 indicates that the firms in our sample are fairly small (average sales are $15M and average number of employees is about 100) and young (mean age is less than 7 years). The firms in our sample belong to 16 different industries, the largest of which are: Internet applications, Enterprise software, Cellular application and Medical devices. The average duration of a financial liquidation sequence was 3.5 years. Basic correlations between the continuous variables are presented in Appendix Table 1. The major correlations are observed between the different size measures (sales and number of employees) and between these size measures and firm age, indicating that in our

sample larger firms are also older. Other correlations are observed between firm age, duration of liquidation sequence and first and last years of liquidation sequence.

[Insert Table 1 about here]

Each firm in the sample was classified into a specific financial liquidation sequence following the procedure bellow. We have grouped together subsequent actions of the same type (either VC, PO or M&A). For instance the sequence "VC,VC,VC,M&A,M&A,VC" is recorded as a "VC,M&A,VC" sequence. Then we have classified firms into different liquidation sequences (for instance "VC,M&A,VC" is one sequence and "VC,PO" in another). All together this procedure has resulted with only 11 different liquidation sequences out of 180 possible ones[3].

Our first hypothesis implies that we do not expect the distribution of firms within these 11 sequences to be uniform. The null hypothesis is that this distribution equals 1/11=0.09. We have used the Bonferroni multiple proportions test to verify whether this null hypothesis is rejected or not. The Bonferroni test allows adjustment for multiple compression, i.e. conduct multiple tests for a specific hypothesis within a given error probability (in this case $\alpha=0.05$). In other words it allows us to check whether there is a significant difference in the number of firms belonging to each sequence. The Bonferroni test requires that such difference will be significant within an error term of $\alpha = 0.05/11 \approx 0.004$. Table 2, details the frequency and percentage of firms in each sequence as well as T-value of the Bonferroni test for each sequence.

[Insert Table 2 about here]

Table 2 clearly depicts the fact that most of the firms either chose the "sole VC" finance sequence (about 70%) or the "VC, M&A" sequence (about 19%). All other sequences contained a fairly low number of firms. Since the critical value for the Bonferroni test with 329-1=328 degrees of freedom is about 3.3 ($\alpha =0.004$), we can see that there is a significant difference in the number of firms belonging to each sequence for all sequences. Hypothesis 1 is therefore supported.

Next, we wanted to establish what the explanatory variables that explain firms' sequence of liquidation actions are. Starting with the sequence of "sole VC" finance we used the following binomial logistic regression:

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[3] Since the longest sequence contained 6 actions, there are $3*(2^2+2^3+2^{4+}2^5)=180$ possible actions.

$$\Pr(VC = 1 / X) = \frac{1}{1 + \exp(-X\beta)} =$$

$$(1 + \exp[-(\alpha + \beta_1 seqstart + \beta_2 length + \beta_3 age + \beta_4 industry + \beta_5 sales + \beta_6 emp])^{-1}$$

The dependent variable represents the probability of a firm to select the "sole VC" sequence. This is a binary variable indicating if a firm belongs to the "sole VC" sequence or not. The first independent variable is *seqstart*. This variable aims to control for possible time specific effects on the probability to select the "sole VC" sequence. Following Hypothesis 2, the institutional setting within a country is time dependent and hence we expect an either positive or negative significant relationship between the probability to choose a specific liquidation sequence and the specific time where the sequence has begun. The rest independent variables are control variables. The second variable in the regression equation is duration of liquidation sequence (year where the sequence ended minus year where sequence begun). Longer sequence durations are expected to allow firms to establish themselves in the market and are therefore expected to be negatively correlated with the probability of liquidation only through the VC channel (Teubal et al., 2002; Teubal & Avnimelech, 2003). The third explanatory variable represents firms' age. Younger firms are expected to have a higher probability to select VCs as their sole liquidation strategy while the probability of issuing a public offering or of getting acquired is larger as firms become more mature (Gompers, 1996; Teubal et al., 2002). The fourth variable is the industrial classification of each firm. This variable was constructed of 15 dummy variables representing the relative impact of industrial classification relative to industry 1. Following the reasoning of Porter (1980), industry specific characteristics (e.g. entry barriers, rivalry intensity, suppliers and customers bargaining power) are expected to create variance in the competitiveness level of each industry and hence to contribute differently to the probability of selecting the "sole VC" liquidation sequence. Moreover, controlling for the industrial classification of firms allows us to capture possible effects of variance in industry life cycles (Dosi, 1982; Klepper, 1996) on the choice of a specific FGP. The last two variables were "sales" and "employees". The higher these variables the lower the probability of selecting the "sole VC" sequence, since once a firm passes a certain size threshold, the more prone it is to issue a public offering. The normal distribution of all independent variables was confirmed by the Shapiro-Wilk test.

We have used a stepwise binomial logistic regression to test the model specified above. The results of the regression analysis are presented in Table 3 below.

[Insert Table 3 about here]

Table 3 indicates that there is a negative significant relationship between the year in which a firm started its liquidation sequence and the choice of the sole VC sequence. The existence of a significant relation supports Hypothesis 2 and indicates that over time the probability of the firms in our sample to issue a public offering or to get acquired by a strategic investor increases. This indicates a change in the Israeli environmental context over the concerned period making it easier for firms to issue a public offering or to get acquired. In fact, the negative sign of the relation is somewhat surprising taken the rapid growth of the venture capital industry in Israeli since the early 1990s (Teubal et al., 2002). Still, other external factors may have counter balanced the effect of such growth. For instance, Israel's attractiveness to foreign investors has increased in the concerned period resulting with record high incoming foreign direct investments (Bank of Israel, 2005) and with more Israeli firms going public on NASDAQ and becoming the second largest group of foreign firms traded on this stock exchange. However it is noteworthy that a specific time variable also captures the impact of global changes rather than local ones. Such changes may be technological revolutions (e.g. the introduction of the Internet) or high or low periods on global stock exchanges. Hence, in the current study we are limited in our ability to deduce regarding the exact impact of country specific changes in the institutional environment on firms chosen liquidation sequences.

Duration of liquidation sequence came also significant, where as expected it was negatively correlated with the probability to choose the sole VC sequence. Firm age was also negatively correlated with the probability to choose the sole VC sequence, confirming our expectation that the younger firms are the higher is their probability to choose this sequence. Industry classification was just above the required norm of significance (p=0.052), indicating that the industry affiliation of firms affects their probability to choose the sole VC liquidation sequence. While most industry specific variables came out insignificant, Table 3 indicates that under an error probability of α<0.1, the probability of Information technology and Biotechnology

firms to choose this sequence is lower than that of Telecom equipment firms. The two size proxies (sales and number of employees) came out insignificant. Overall the results are consistent with our expectations and yield binary logistic regressions with a fairly high explanatory power as indicated by the -2 log likelihood test, the Cox & Snell and Nagelkerke pseudo R squares[4] and the percentage of correct predicted estimates.

Finally, we have tried to use the same binomial logistic regression model to test the variables that affect the choice of the second frequent sequence (VC, M&A). Results of this regression where poor and we were not able to link up between the aforementioned independent variables and the selection of this liquidation sequence.

Discussion and conclusion

The FGP concept presented in this paper accounts for the moderating impact of the external environment on the sequences of strategic actions firms take and hence for the impact of the external environment on these firms' capability development. We assert that firm specific capabilities and actions are expected to converge to some extent as a result of the external intuitional environment in which firms operate.

The fact that the external business environment is likely to moderate the development of a firm's capabilities implies that the RBV and dynamic capabilities literature should become more integrated with the emerging institutional theory literature. In this respect, our approach differs from traditional RBV and dynamic capabilities approaches, which essentially argues that the firm development process is idiosyncratic. According to the FGP approach, firm development does not stem solely from firms' idiosyncratic characteristics, but rather from a combination of internal and external factors. Thus we attenuate the purely internal focus of the RBV by incorporation of what might be called a Market Based View, which essentially refers to the impact of both country and industry specific external factors on the development of capabilities.

We have demonstrated the FGP concept through an empirical analysis of sequences of financial liquidation actions taken by Hi-Tech firms from a single

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[4] Which are the equivalents of an adjusted R square in binary logistic regressions.

country over a period of 10 years. Our results show that as expected only a limited number of liquidation sequences exist within a given population of firms, where two major sequences attract the vast majority of firms in the population. Moreover, time specific changes in the institutional environment were also shown to contribute to the probability of selecting specific liquidation sequences.

Certainly, considerably more empirical work needs to be undertaken to refine the FGP concept and to better evaluate the impact of external factors on firm development. The current study has not directly measures specific institutional environmental variables and their impact. It has also not controlled for the possible impact of variance in each liquidation strategy (i.e. the impact of VC-specific, stock exchange specific and strategic investor-specific differences). Such refinement may enhance our understating of the factors leading firms to choose specific liquidation sequences. Moreover, we have analyzed only a special case of actions where further empirical work should refer to additional value specific actions. The combined effect of multiple value activity specific actions taken in parallel should also be investigated since, as noted from our conceptual framework and from other studies (Teubal & et al., 2003) actions in a specific context (e.g. liquidation strategy) may also affect other firm capabilities (e.g. R&D, marketing etc.). In a similar vein the examination of multiple institution environments and their impact on the selection of specific FGPs is certainly required. Addiitonal external factors that may affect firm capabilities should also be controlled for. One such factor is firm network. Firm networks affect the development of firms by providing them with opportunities to leverage their resources (Ahuja, 2000; Baum et al., 2000; Gulati, 1995, 1999; Lavie, 2005; Lee et al., 2001; Nohria, 1992). However, they also confine the development of capabilities and lead to less adaptability and to competitive disadvantage because of the inability of firms to safeguard the leakage of valuable resources and differentiated structural positions within networks (Lavie, 2005; Gnyawali & Madhavan, 2001).

Naturally, the present framework is just a first step in improving understanding and modeling of capability development. The FGP concept raises various issues regarding the development of firms that are clearly left unanswered in the current paper. One question is whether FGPs that are more "successful" can be identified *ex-ante* so that prescriptions for superior FGPs could be given to firms

operating in similar external environments or whether such "successful" FGPs can be only identified *ex-post*. Here our expectation is that a chosen FGP should also correlate with a certain "window of opportunity" in the marketplace in order to lead to superior performance. Other questions include: To what extent can FGPs explain variance in the performance of different firms? What exactly are the external factors that lead different firms to choose a similar growth profile? Can two different FGPs lead to sustainable competitive advantage, or is there one superior FGP for firms operating within a given context? How do competitors' moves affect the strategic action choices facing firms with a given set of capabilities? How does managerial-bounded rationality affect such choices of actions?

Getting answers to these questions is extremely important in order to enhance our understanding of the external and internal sources that shape firm development.

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Table 1 – Descriptive statistics

Variable	N	Min.	Max.	Mean	Std. Deviation
Sales ($M, 2004)	323	0	1810	15.2	103.9
Employees	323	5	9700	102	556
Age	323	2	220	6.7	3.0
Duration of liquidation sequence	329	0	10	3.5	1.8
First year of sequence	328	1995	2005	1999	1.8
Last year of sequence	329	1995	2005	2002	1.7

Industry Distribution

Industry	Frequency	Percent
Telecom Equipment	30	9.1
Homeland Security	5	1.5
Components	25	7.6
Storage & Data Centers	20	6.0
Internet applications	47	14.8
Enterprise Software	35	10.6
Home Networking	9	2.7
Cellular applications	34	10.3
Telecommunications	14	4.2
Information Technology	14	4.2
Biotechnology	13	3.9
Medical Devices	33	10.0
Multimedia & Broadcasting	9	2.7
Security applications	18	5.4
Semiconductors	5	1.5
Capital Equipment	18	5.4
Total	**329**	**100.0**

Table 2 –Distribution of liquidation sequences (Bonferroni multiple proportions test)

	Sequence Type	Frequency	Percent	T-Value (df=328, α =0.004)
1	Sole VC	231	70.2%	-24.28
2	VC, M&A	62	18.8%	-4.57
3	M&A, VC	3	0.9%	15.43
4	VC, PO, M&A	5	1.6%	11.09
5	VC, PO	16	4.9%	3.48
6	Sole PO	4	1.2%	4.02
7	PO,VC,PO	1	0.3%	28.65
8	VC,M&A,VC,M&A	1	0.3%	28.65
9	PO, VC	2	0.6%	19.58
10	VC, M&A, VC	4	1.2%	4.02
11	**Total**	**329**	**100%**	

Legend: VC= venture capitalists funding, PO= public offering, M&A= getting partly or fully acquired by a strategic investor.

Table 3 – Binomial logistic regression analysis – selection of the "sole VC"
liquidation sequence

Dependent Variable	Coefficient	d.f.	Significance
Industry		**15**	**.052**
Homeland Security	.016	1	.981
Components	2.481	1	.128
Storage & Data Centers	.767	1	.341
Internet	.577	1	.513
Enterprise Software	-.585	1	.358
Home Networking	.360	1	.593
Cellular	1.315	1	.304
Telecommunications	1.178	1	.118
Information Technology	-1.457	1	.068
Biotechnology	-1.480	1	.078
Medical Devices	4.701	1	.172
Multimedia & Broadcasting	.342	1	.623
Security	-.160	1	.871
Semiconductors	.179	1	.828
Capital Equipment	-7.669	1	.669
Duration	**-.310**	**1**	**.001**
Startseq	**-.238**	**1**	**.032**
Age	**-.187**	**1**	**.002**
Constant	**478.451**	**1**	**.031**
-2 Log likelihood		307.14	
Cox & Snell R Square		0.22	
Nagelkerke R Square		0.32	
percentage of estimates predicted correctly		78.8	

Appendix Table 1 – Correlation matrix

		Sales	Employees	Age	Duration	first year	last year
Sales	Correlation	1	.976**	.353**	-.061	-.056	-.150*
	Sig. (2-tailed)	.	.000	.000	.279	.317	.007
	N	323	323	323	322	322	323
Employees	Correlation		1	.319**	-.081	-.035	-.123*
	Sig. (2-tailed)		.	.000	.149	.530	.027
	N		323	323	322	322	323
Age	Correlation			1	.205**	-.521**	-.330*
	Sig. (2-tailed)			.	.000	.000	.000
	N			323	322	322	323
Duration	Correlation				1	-.480**	.581*
	Sig. (2-tailed)				.	.000	.000
	N				330	330	330
first year	Correlation					1	.206*
	Sig. (2-tailed)					.	.000
	N					330	330
last year	**Correlation						1
	Sig. (2-tailed)						.
	N						331

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

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1) Lach, S., "Do R&D Subsidies Stimulate or Displace Private R&D? Evidence from Israel", Science, Technology and the Economy Program (STE) – Working Papers Series, March 2001.

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31) Niron Hashai and Jonathan Menuhim, "Venture Capitalists, Public Offerings or Strategic Investors? Financial Liquidation Profiles of Israeli Hi-Tech Firms" Science, Technology and The Economy Program (STE) Working Papers Series STE-WP-31-2006, January 2006.

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