Technology Based Firm’s Financing: How Venture Capital Nurture Firms

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Abstract: Universally, Venture Capital Firms (VCFs) have been identified as important innovation financing companies supporting Research and Development (R & D) operations, from boosting elementary scientific research to technology advancement and commercialization. The main objective of this study is to investigate how VCFs groom Technology Based Firms (TBFs) to successful exit through equity and or board participation. This research is a face to face interview of 47 respondents which comprise of both TBFs and VCFs in Malaysia. Interview responses were transcribed and coded for the items that emerged were used for the theme development required for the discussions of findings. This research concludes that the involvement of venture capital firms on board of portfolio companies is vital for the performance of technology based firms in Malaysia.

Key words: Innovation Financing - High Technology Firms - Commercialization - Equity Investors - Firm Performance - Malaysia

INTRODUCTION

Venture Capital has been recognized globally as being among the most important financing mechanism for Technology Based Firms (TBFs) assisting Research and Development (R & D) activities, from encouragement of rudimentary scientific research to technology development and commercialization [1, 2, 3]. Venture Capital is defined as an independently managed, dedicated pools of capital that focus on equity and equity linked investments in privately held, high-growth firms [4]. They play a key role in the emergence of new industries by establishing and assisting technology firms which later dominate these industries. While there is an emphasis that VC investments accelerates the growth of firms, enabling them to transform ideas quickly into marketable products and become industry leaders through first-mover advantages [1]. The concept of modern VC is defined by [5] as a professionally managed pool of money raised for the purpose of making equity investments in growing private firms with well defined cash out strategy. It is further accepted as a practical means of linking research to marketable innovations. Past researchers have acknowledged that health biotech innovations in China though more developed [6, 7] but still depend on VC funds from Europe and America, this assertion shows that the VC industry in Asia is less developed than that of the Western countries. Hence, 37% of new capital in Asia comes from outside investors whilst in Europe the figure is 29% and in the America less than 10% [8]. However, in view of the recognition that VC plays a key role in nurturing young firms to succeed, Malaysian government have emphasized on two focal point; how to sparkle private investment growth and build innovative economy. Cooper [9] outlined the features of an innovation economy as: (i) end of "big win" mentality empowers entrepreneurs (ii) faster innovation (iii) more big wins (iv) increased productivity through better product-market fit (v) higher employment stability [8, 10]. The main policy trust of the policy makers in Malaysia at the moment is hinged on how to rise out of the “middle income” trap by pursuing economic policies that succeed in the knowledge industries of the future, encourage technological innovation to grow and build more innovative firms, supporting them to grow to a global scale, attracting foreign direct investment inform of VC from within and abroad. The development of the economy would largely depend on growth in sectors based on
knowledge and technology. The growth of these sectors would also depend on availability of funding from sources such as debt, venture capital and private equity. As a result of these expectations, several agencies have been established to promote and encourage innovative activities in the country. Agencies like Multimedia Development Corporation (MDEC), Biotechnology Corporation (BIOCORP), Malaysian Venture Capital Management Berhad (MAVCAP), Malaysian Life Sciences Capital Fund (MLSCF) and the Malaysia Technology Development Corporation (MTDC) amongst others. Government supported VCFs such as (MTDC, MAVCAP, BIOCORP, MDEC, MLSCF) have made several investments in selected and qualified high technology ventures in Malaysia either directly by making investments in early stage technology based small businesses or indirectly through second party outsourced investors (VCFs) who then decide on which TBFs to invest in [2]. The bottom-line of this is that they take a seat on the board of investee companies and provide coaching and act as cheer-leaders to the management squad. The emphasis of government-backed VCFs is on Table 1: The Responsibilities of Equity Investors

<table>
<thead>
<tr>
<th>Venture Capital</th>
<th>Business Angel</th>
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<td>VCFs raise their finance predominantly from large financial institutions such as pension funds, insurance companies, banks and have a duty of care when investing this money. So their investment decision is based purely on economic considerations.</td>
<td>BA in contrast are investing their own money and so are not responsible to anyone else for how it is invested and for what reasons. The return on investment is a major motivation to BA but it is not the sole motivation. They also want to have fun while making money.</td>
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<td>The approaches to investment appraisal, due diligence and contracting. VC funds contracts are more comprehensive and more likely to include restrictive covenants. They are also more concerned about exit routes and investment stage. They decide on the worth of a potential investment as principals, rather than as agents or employee.</td>
<td>BA do not care much about investment appraisal, due diligence and contracting. They are less concerned about financial projections and are less likely to calculate rates of return. They do less detailed due diligence, have fewer meetings with entrepreneurs, are less likely to take up references on the entrepreneurs and are less likely to consult other people about the investment. They spend less time negotiating and care less about exit routes and investment stage.</td>
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<td>VC fund managers in terms of their investment capacity. They have deeper pockets and are able to provide further rounds of funding necessary for growth. And this puts them in a more comfortable position as equity owners of the business because of their capacity to negotiate for stakes in the investee companies.</td>
<td>BA maybe unable or unwilling to provide investee companies with further rounds of financing necessary for growth. This has two implications for the performance of their investment. (a). if they are unable to provide follow-on finance to an investee business that needs further rounds of funding that puts them in a weak negotiating position vis-à-vis incoming investor regarding the valuation of their equity stake and may result in a significant dilution of their initial investment. (b). if the investee business is unable to raise additional finance, it may become undercapitalized, with adverse consequences for their investor.</td>
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<td>VC fund managers are much more exposed in terms of investment experience than business angels considering the study carried out by past authors.</td>
<td>BA have significantly more entrepreneurial experiences than venture capital fund managers, although this experience is likely to be confined to a particular industry or market segment. Also their detailed market/industry knowledge enables them to reduce their exposure to market risk.</td>
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<td>The economies of VC fund managers are different from that of BA. The cost of their time encourages VC fund managers to economise on the time they give to their investee businesses in favour of seeking out and appraising new investment opportunities.</td>
<td>Businesses at their start-ups and early growth stages typically require considerable support. BA is actively involved in the businesses in which they fund. Their involvement is greater than that of VC fund managers. This is partly related to differences in investment motivation. BA invests in part because they want to be involved with entrepreneurial ventures. In addition, they are able to devote more time to their investment than VC fund managers because their portfolio of investee companies is smaller because they do not cost their time the same way VC fund managers do.</td>
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<td>In contrast the amount of value added contribution by VC fund managers to their investee firms is limited because they still have to look after other portfolio they invested in or are still seeking out for further investment in other companies.</td>
<td>There is considerable evidence that the value added contribution that BA makes to their investee businesses through their hands-on involvement is greater than that of VC fund managers.</td>
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<td>Conversely, because of the high fixed cost involved in organizing for an IPO, they are only practicable for larger companies that are able to justify a significant market capitalization, hence, it is only in most cases VC fund managers that suits this definition.</td>
<td>For BA in most of the cases, trade sales will be the only exit option available to those wishing to harvest a successful investment. IPO are restricted to the “cream of the crop”. Trade sales are used for both high-performing investments as well as those that have performed less well or only break-even.</td>
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early stage or start up technology firms because they find it almost impossible to raise adequate financing from banks and other conventional avenues. They also invest in a few later stage companies both locally and internationally. Venture Capitalists help TBFs by focusing on value creation. Value Creation is realized through a concerted effort that leads to accelerated growth of innovative product and services either with technology or greater market penetration ability. Venture Capitalists also share their wealth of expertise and knowledge and provide advice on vital issues in order to advance the firms performance. Venture Capitalists are able to harness the inherent strengths of TBFs because they are people who are determined to empower entrepreneurs to create new wealth. Following from the Resource Based Theory [11] argued that physical, social and knowledge resources of particular investor categories influence the nature and worth of the value-added that they are able to provide to their investee firms. Defining the term ‘resource’ in the concept of the “Resource Based-View”, [11] refer resource to ‘all assets, capabilities, organizational processes, firm attributes, information, knowledge controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness. However, for the value added provided by investors on the basis of their knowledge resources [12, 13]. The knowledge-based literature considers knowledge as the strategically most significant asset of the firm. Proponents of the knowledge-based view have argued that heterogeneous knowledge bases, such as; knowledge of markets, knowledge on competition, knowledge of technology and knowledge of organizing which both contribute to and are sustained by unique capabilities among firms, are the main determinants of sustained competitive advantage and superior corporate performance. Table 1 shows the roles of venture capital and business angels as found in previous literature.

**MATERIALS AND METHODS**

The researcher has carried out interviews with 47 TBFs and VCFs in Malaysia. This work was approached through a multiple case (cross case analysis) study methodology to tackle these questions. Sample representatives which include Academic and Conventional Technopreneurs who have gone through VC involvement and investors (VCFs, BA, Banks), who have recently made investment in TBFs were chosen in Malaysia through a semi-structured interview. Among the forty seven participants interviewed, 42 (89%) respondents mentioned that VCFs are very important in nurturing TBFs to successful growth of technologies. The results of the interview schedule are presented in detail in the next section with the aid of bar charts. Interview transcript was transcribed and analyzed following Miles and Huberman Model of qualitative data analysis. After the responses were coded, they coded responses where further converted to quantitative figures which help to illustrate the results and sample charts to put the results into graphical format. The charts show figures for the responses to the questions, thus making it a lot easier to analyze and read the data. The study’s design is predicated on the principles of [14]. For example, this study employs purposeful sampling, uses the case study as a reporting mechanism and employs analogous means to establish the positivist concepts of validity, reliability and objectivity as the researcher moves through the phenomenon under study. This is because naturalistic inquiry will employ other, analogous means to establish the positivist concepts of internal and external validity, reliability and objectivity (namely credibility, transferability, dependability and confirmability).

Based on the main objective of this study as mentioned earlier and the main research question, which is:

- How does the Venture Capital Firms Nurture Technology Based Firms?

**RESULTS AND DISCUSSIONS**

The basics of this discussion will commence by understanding the themes that have emerged from the literature survey before delving into the sub-themes from the interview schedule and then finally we present the emerging themes as grounded in the interview data. However, this section is organized by focusing on the themes that have emerged from the literature review that serve as a guide for the researcher to dive deep into the participants world such as how the nurturing roles of VCFs help in the sustenance of technology businesses in Malaysia.

**The Financing of High Technology Companies in Malaysia:** Financial system is a key component of economic development in any country and this ensures that funds mobilization to cover the financial requirements of business organizations is sourced. Efficient and well stable financial system expresses good and efficient resources allocation and provides base for boosting the
financial performance of organizations. Venture Capital Firms, as peripheral of financial system and as a component of non-banking finance companies, act as stakeholder for economic development. Venture Capital Firms and other government innovation financing agencies have been acknowledged to play vital role in the financial sector of Malaysian Economy. However, the findings from this study supports the earlier reports of [15] who posits that when individual investors make investment privately in public and private companies then this type of investment known in public parlance as equity investment is to ensure that TBFs are adequately nurtured to grow as independent firms. In view of this assertion, the following section of this paper presents the findings from this study to expose the nurturing roles of VCFs and how the help in the sustenance of TBFs.

The Responsibilities of Equity Investors in Malaysia: Venture Capitalists help TBFs by focusing on value creation. Value creation is realized through a concerted effort that lead to accelerated growth of innovative products and services either with technology or greater market penetration ability [1]. They also share their wealth of expertise and knowledge and provide advice on vital issues in order to advance the firm’s performance. VC’s are able to harness the inherent strengths of TBFs because they are people who are determined to empower entrepreneurs to explore new markets and create new wealth. Following from the resource based theory [2, 11], argued that physical, social and knowledge resources of particular investor categories influence the nature and worth of the value-added that VCs are able to provide to their investee technology based firms. Defining the term ‘resource’ in the concept of the RBV, [1, 11] refer resource to ‘all assets, capabilities, organizational processes, firm attributes, information, knowledge controlled by a firm that enables the firm to conceive of and implement strategies that improve its efficiency and effectiveness’.

Prior research on the value-added of both independent VCs [1, 4, 16] and the majority of the value-added of independent and corporate VCs is linked to their membership of valuable networks (Social Capital) or their ownership of private and not easily imitable knowledge and experience (Knowledge-Based View). The Knowledge-Based literature considers knowledge as the strategically most significant asset of the firm. Proponents of the Knowledge-Based View have argued that heterogeneous knowledge bases, such as; knowledge of markets, knowledge on competition, knowledge of technology and knowledge of organizing which both contribute to and are sustained by unique capabilities among firms, are the main determinants of sustained competitive advantage and superior corporate performance. However, this section seeks to reveal that in Malaysia the roles of VCFs are sub-grouped into two main categories; financial responsibility and value add/non financial responsibility [17, 2].

Monetary Responsibilities of Equity Investors in Malaysia: From this research, the authors unveil that there are different types of financing possibilities available to technology based small and medium sized firms. This group of companies may rely on family funding, loan from friends, overdrafts, commercial banks loans, financial bootstrapping and current suppliers. For other projects with high growth potentials, a venture owner can access funds from private investors known as VCs and BA. This finding is in line with what [18] reported that through FB firms are able to source more than 90% of their initial capital and that more than 60% of the start-up capital is financed by business founders. He reported an interesting note that substantial number of studies pay more attention to the supply of formal sources of finance, mainly in the area of equity and further in the area of debt finance [19]. Hisrich et al identified that, debt financing is a financing technique that involves an interest bearing instrument, usually a loan, the repayment of which is only indirectly related to the sales and profits of the venture [20]. Mostly, debt financing requires that some asset of the borrower be used as collateral security. In Malaysia, as found in this study, through debt financing, a technology based firms owner repays his loan as well as a fee expressed in terms of the interest rate. Some technopreneurs in Malaysia at certain stage of development of their firm adopt short term debt financing to provide working capital to finance inventory, accounts receivable, or the operations of the business. While long term debt financing is frequently used to purchase some asset such as a piece of machinery, land, or a building, with part of the value of the asset being used as collateral security for the long term loan, this is in cases when government is not supporting in this regards. Ismail et al., identified that raising capital in Malaysia through share issues is a significant source of finance for potentially strong entrepreneur-based companies [17, 21]. According to [20, 1], equity financing is an alternative method of financing growth firms without the use of collateral security and it offers the investor some form of ownership position in the venture. In this type of financing, Malaysian VCs expect to take a board position in the firm,
monitor their investments in the firm and share in the profits of the venture, as well as any disposition of its assets on a pro-rata basis based on the percentage of ownership of the company. The suitability of a particular funding source is dependent on the availability of adequate funds, the assets of the venture and the prevailing interest rates. Majority of entrepreneurs are found to adopt a combination of debt and equity sources of financing, this was found also to be applicable among Malaysian TBFs.

Knowledge Responsibilities of Equity Investors in Malaysia: In this study, findings show that VCFs in Malaysia act as promoters to potential TBFs by helping to create high level network. This is mostly the case because many of the buoyant VCFs in the country are wholly owned and or partly supported by the government. So their main roles are to help promote and accelerate the VC concept through the provision of needed capital and value support to technology growth firms. Key agencies of government in the forefront of these activities are such as MTDC, MAVCAP, SIRIM, MLSCF, MDEC, BIOTECH CORP and others. Further revelations was made that it is typical of Malaysian GVCFs such as MTDC to help TBFs build their initial sales figure by selling first to public owned organizations for test marketing before selling to other outside customers; this is for confidence building and track record purpose. This is because MTDC help to introduce TBFs to available business opportunity through the government. They understand that university inventors are Academic Entrepreneurs; they have the problem of identifying what is obtainable in the outside world of business unlike the MTDC and other VCFs that have enough professionals and work like private companies.

The earlier assertion agrees with [22] who declared that a very significant contribution of Venture Capitalists that has been talked about by practitioners is the role VCs play in helping young firms create value in the product market, by helping them develop high quality management teams, contacts and credibility with suppliers and customers and in improving their deficiency overall. More studies supports his views that significant evidence have been developed recently indicating that VCs indeed help to strengthen firm’s management teams and to improve on their operating efficiency. What VCFs generally do in Malaysia that distinguishes them from that of their Western counterpart is that they first of all, identify potential TBFs that need funding, then follow up by identifying what is needed to train those entrepreneurs to qualify for funding, this they do by organizing different workshops, seminars, exhibitions, pitching programs on how to build up their technology and write business proposal that meet up the requirements of potential financial institutions. They also move to the next stage by organizing events that bring the potential financial investors (VCFs & BAs) both from local and overseas for potential TBFs to pitch their innovation for funding. As compared to previous studies from other countries, the roles VCFs in Malaysia play in grooming young technology entrepreneurs in the country until they are able to obtain expansion and growth capital from external investors and stand on their own is widely recognized. This strategy has been acknowledged to be the best form of nurturing that young start ups need to develop. This is because previous authors reported that once an investment has been made it is in the interests of the investors to do everything they can to ensure that their investee companies succeed in order to maximize their financial returns. Various forms of managerial activity on the part of the equity investor can help to add value to a firm. This is particularly important in the case of TBFs where the entrepreneurs’ technical competence seldom matched with commercial acumen [12]. Another factor that distinguishes Western VCs from that of Malaysian VCs is that of their ability to deal with prevailing uncertainties of commercialization through the value added skills and knowledge they bring to their portfolio companies. Referring to the US VCs as an example, they typically have a number of role contribution such as interpersonal (CEO as mentor/coach, friend/confidant), strategic (sounding board, business advisor, financier) and networking (source of industry contacts, professional contacts, management recruiter).

The VCFs in Malaysia add value to firms they invest in for example they have different modalities they adopt to finance potential investee firms. First of all, they have certain amount of fund allocated to public research institutes and universities who have any innovation to commercialize. Secondly, they help both public university technopreneurs and conventional technopreneurs by grooming them through the early growth stage to qualify for external equity, during these stages they are not directly involved in the management of the firms and do not take a board sit, but at times help them recruit capable CEOs to temporarily manage they firm. Thirdly, they invest in later stage firms and some good early stage firms while they take a board sit and contribute in making key decisions. In specific terms when they invest in a firm, they look at managing that firm from a different
perspective from that of the promoters, by giving different ideas of businesses based on their wide experience. This respondent who is a senior director of a VCF put his opinion this way:

*Usually between 2 to 5 years with the first 12 months focused on fund utilization and development. The subsequent years are where we add value and monitor the start-ups and furthermore, we believe that by giving meaningful value add to these start-ups, their chances of survival and growth are improved considerably. The rule of thumb is that out of 10 companies funded, 7 to 8 companies will fail. At Cradle our commercialization rate stands at 55% to date. This means that 1 out of 2 companies that we fund, survives beyond the first year.*

**Essential Responsibilities of Equity Investors:**

- Venture Capital Firms bring into the board of TBFs a wide range of industry experience and serves as a booster to the image of the company. This is because of the knowledge that many of world renowned innovators started at their early twenties and majority do not have a business degree, hence, are highly inexperienced in entrepreneurial management.
- VCFs help provide follow on and other knowledge capital.
- They help build initial sales figure/traction/track record.
- Venture Capital Firms help TBFs recruit qualified personnel.
- Through the contribution of equity investors TBFs are able to expand to global audience.
- TBFs are made to understand that developing a credible financial capability is important for firm’s growth.
- The confidence of commercial banks and other future investors increase because profit generation improves with VC backed firms.
- The involvement of VCFs on board of TBFs is another way of providing mentorship and trainings to the team members.
- With their global contacts VCFs help firms acquire needed technology from overseas.

Figure 1a (views of VCFs) and b (views of TBFs) represent some of the ways venture capital firms in Malaysia help to nurture technology based firms after VCF involvement in their businesses. As found in this study, there are many ways VCFs help TBFs grow their firms but only the most important five are mentioned here. The researchers also discovered that the opinion of TBFs interviewed is almost similar as that of the counterpart TBFs on this subject of discussion. However, among 19 VCFs interviewed, 18 mentioned follow on capital and networking and contacts as among the areas VCFs helps them in growing their firms, 16 mentioned mentoring and training, 15 of the participants mentioned building traction and 13 mentioned corporate governance. Whereas for the 28 TBFs interviewed on this study, all of them (28) mentioned that VCFs help them source follow on capital, 24 mentioned that they help them build traction, 23 said that they help them in corporate governance, 20 mentioned mentorship and training as important areas VCFs come in to improve their business performance and finally 18 said they support in areas of networking and global contacts.

**TBFs Improvement after Equity Participation:** The size of any organization is a reflection of its operating capability. The operating performance of any organization can be determined by the total assets of that organization. Total assets were also used as a representation of organization size. Koasmidou found a negative relation between organization size and operating performance [23]. He further highlighted that capital composition of an organization is beneficial for organization size, portfolio composition and hence possibility of a high operational performance. Profitability of an organization is a reflection of how efficient and effective the management of company is in adopting financial resources to earn high profit in present and future to shareholders wealth, earning per share performance of firms overall. Many evidence have been presented where equity investors involvement in the operation of TBFs have direct impact on performance such as syndication, industry competition, investment environment, exit conditions, age of VC, cumulative investment and number of investment and governance characteristics. Peneder [24] finds that VC-backed companies grow faster than other companies not backed by VC funds. He maintains that they are highly selective in the types of firms in which they will invest. Particularly VCFs want firms that have the potential to yield huge returns in five to seven years through IPO or trade sale to a corporate buyer. However, there is evidence from many studies that TBFs consist of mostly inexperienced team members. Hence, the desire to engage capable equity investors that could help mentor
Fig. 1(a): Bar Charts for the Responsibilities of Equity Investors

Fig. 1(b): Bar Charts for the Responsibilities of Equity Investors

and coach the management team of the new firms to success. This assertion is consistent with findings in Malaysia that funded firms improved tremendously after VC infusion and equity participation taken up by the VCs. This greatly help TBFs move up the next level in terms of growth, because funds allocated and board position taken help in two main ways; financial and non-financial improvement.

**Research Implications:** This paper explores the salient questions the researchers seek to study in this investigative work that is aimed at finding out how the Nurturing Roles of VCFs help in the sustenance of technology businesses in Malaysia. It highlights the background of the problem which then leads to the problem statement, research questions and the objectives of the study in order to understand the studied context. Relevant research frameworks, models and concept related to the studied phenomenon are reviewed along with the overview of VC in Malaysia. This is a field of research that academics have not really delved into in this region of the continent especially the South East Asia and in particular Malaysia. Hence, the researchers believe practitioners are seeking for a lot of recommendations in this regards because academic literature is very sparse. Despite this, little study have been carried out to understand the mindset of financial institutions in Malaysia (VCFs, BA, Banks, etc) and at the same time know how TBFs perceive this issue. The interview analysis identifies themes that emerged from the interview data according to the grounded theory approach to data analysis. The results from the analysis of findings provided answers to earlier questions put forward at the commencement of this study. Several TBFs have not been able to achieve the much desired success in growing their technologies mainly because they do not posses enough management or commercial acumen and could not secure external equity finance which helps to attract capable VC investors into their company. The themes that have emerged from this study can help VCFs to understand the capabilities of TBFs and as such help them to nurture their technologies to be a successful and global company.

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