AN INVESTMENT FRAMEWORK TO HELP EQUITY FINANCIERS
SELECT TECH SMEs IN MALAYSIA

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Abstract
The research is geared towards understanding the development cycle of technology based
companies especially in the small and medium sized sector and refer to a model to help private
investors in Malaysia evaluate business proposals to make funding decisions. There is always
confusión when technology entrepreneurs want to evaluate the right investors to approach for
fund, becuase not all specialize in funding start-ups and risky ventures. Indept investigation of
past research indicates that not much have been written on venture capital financing of small and
medium sized companies in Malaysia, and this work aims to shed more light and to add to
literature on venture capital. Past research have failed to recommend appropriate and a simplified
framework for growth firms. However, there is need to understand the relationship between
investment evaluation criteria and the development cycle. The research focusses on secondary
sources available from literatures on venture capital activities. Findings from this research will
be of interest to investors, investees, academics and government.

Keywords: Technology SMEs, development cycle, venture capital, business angels, framework,
Malaysia.
1. Introduction

The concept of Venture capital, which is an art of financing high-risk technology businesses came into limelight in 1992 when the government of Malaysia established the Malaysia Technology Development Corporation (MTDC). This organisation was set up with an aim to champion the development of technology businesses in the country. Its initial role was to concentrate on the promotion and commercialization of domestic research and invests in new ventures that can bring in new technology from overseas (MTDC, 2011). Considering MTDC from the various investment activities it has carried out since inception, it has grown to emerge as the leading venture capital outfit in Malaysia. However, several policy makers across the globe including Malaysia are fast realising the need to foster new venture development as a means of rapid economy development. It is very meaningful that the study points out those variables that are significant to the growth stages of small venture creations. The objectives of the survey is to understand the life cycle of new venture creations with particular preference to technology based firms which can be mirrored through their growth stages and shed more light on the linkage to the investment evaluation criteria of fund managers. High technology firms are however, those companies in which their sales revenue is generated through the use of at least 51 percent of technology based operations e.g. internet, telephone, fax companies etc. Meaning that the main trust of their business rely heavily on the use of high technology (Yip et al, 2009). Researchers, investors and owners of high-tech companies however, unanimously agreed that massive external funds are needed to grow these companies fast because high technology ventures involve heavy projects with large front-end costs (Staurt et al, 2007).

The high burn rates of capital, early stage business often require substantial infusion of several rounds of funding (Sapienza and Korsgaard, 1999; Staurt et al., 2007) especially in high technology and growth firms (Hall et al., 2004; Staurt et al., 2007). Mason and Harrison, (1996) reported that the more established technology companies have been found to obtain the right kind (Vyakarman and Jacobs, 1991) of financing more easily from conventional lending institutions than the early stage firms (Modigliani and Miller, 1958 cited in Hamidizadeh and Abdulbaghi, 2011). This is because they are able to provide the required collateral security for securing such loans and partly due to the fact that majority of them have reputable venture capitalists on their board (Bank of England, 1993). Although (Keasey and Watson, 1993), confirmed that a few early stage companies are able to secure significantly reduced interest funding, only if they could provide that kind of guarantee needed by the Banks. Cressy (1993) also found that start ups which provided security where generally charged a lower
margin over base than those which did not provide security. Except in some developed countries such as USA where some banks with locations around Silicon Valley are willing to do so, and other countries whose government provide guaranteed funds to Banks for investments in technology businesses.

Most of them would rather be more comfortable in financing technopreneurs already backed by a reputable venture capital firm. Our attention and more emphasis on technology based organizations is not unconnected also with the fact that majority of emerging economies in Asia such as Malaysia are all seeking to attract investment in technology companies to enhance rapid industrialisation. Motivations for this study came from the fact that up to date researchers have acknowledged that there may be a difference in a venture capitalists decision policy for businesses in different stages of growth. For instance, one can say venture capitalists evaluation policy for a new venture searching for seed capital, start ups or development capital may be different from that of an established company looking for mezzanine capital (Shepherd,1999). Several researchers and authors (McNally,1995; Xu AND Xiaoquig,2001; Dauterive and Fok,2004; Roberts,1991) have written and made mentioned of these terminologies in their various works but none has attempted to depict it in a diagrammatic flowchart and also emphasize on the key role it plays on the decision criteria of venture capitalists. And no researcher has told us that the technology firm’s products/firm can grow to the death stage.

2. DEVELOPMENT CYCLE

Growth is an unavoidable fact of successful businesses. Growth due to an increase in sales requires product; in turn, additional product requires inputs like labour, inventory, raw materials, plant, property and equipment. Some internally generated funds typically will not meet all expansion needs; most start ups depend on outside capital to finance growth. In some instances, the entrepreneur may find that the new business does not begin to earn a profit until two to three years down the road (Ismail et al.2011).

Financing the fast growing venture tends to be time consuming, complex task to the entrepreneur-who is most likely also to be working on the daily needs. Typically financing a new venture employs a combination of debt and equity financing; we shall not go into details of the former in this study. Due to the fast growth age we are now, technology based firm’s products life cycle is very short compared to conventional product and service life cycle. New technology
based products are being consistently spun off to replace old or improve on existing technology. Growth can therefore be defined in this context as the developmental cycle which occurs in a new venture which leads to the complete transformation of the firm from the pre-start up stage through all or some of the eight stages of the technology based firm model (Ismail et al. 2011). Growth as we all know is not only limited or restricted to this subject alone but also applies to some other endeavor, for example in animals, humans, plants and economy of a nation.

3. VENTURE CAPITAL COMPANIES

Venture capital companies generally are private partnerships or closely held corporations funded by private or public pension funds, endowment funds, foundations, corporations, wealthy individuals, foreign investors and venture capitalists themselves (Price, 2006). The venture capital market comprises more than just the institutional venture capital industry, however, there is an informal venture capital market, an invincible market place comprising private individuals referred to as “Business Angels” who provide risk capital directly to new and growing businesses in which they have no family connections (Mason and Harrison, 1996).

A major study funded by the Economics and Social Research council indicates that this is a much more significant source of capital for the small business sector (Mason and Harrison, 1994). It is very exciting that this class of investor’s market is substantially larger than the independent venture capital market, and also they provide and invest in those areas that independent venture capitalists don’t like to invest in (Mason and Harrison, 1996), although their fund is smaller but they are useful in filling the so-called equity financing gap. Hence, and most importantly they finance early stage firms in terms of more Dollars and number of ventures they fund especially in the USA (Wetzel and Freear, 1996). Business Angels are value added investors. They do normally take a seat on the board and, in addition, will often provide consulting help and may even work part time or full time for the business (Mason and Harrison, 1994; Mason and Harrison, 1996) contributing their commercial skills, entrepreneurial experience, business know-how and contacts in a wide range of support, monitoring and strategic role. Entrepreneurs regard angels roles as a sounding board for the management team as been their most valuable “hands on” contribution (Harrison and Mason, 1992; Mason and Harrison, 1996). Eventhough informal investors actively involve in investee companies which the fund they dont normally want to take up controlling stakes in those companies.
Related to venture capitalists are business angels who bring not only external capital but have vast experience, learning curves, contacts, wisdom and maturity to the fledgling Enterprise in which the fund because they are retired professionals who are successful in there various career. As directors and advisers, they function as coaches, confidants, mentors and cheer leaders (Timmons and Spinelli, 2007). According to (Sapienza, 1992) and (Black and Gilson, 1998) venture capitalists in the west not only provide money to the venture but also add value by providing management assistance, recruiting key executives, sitting on firm’s board of directors, and providing access to their existing networks and contacts (Megginson and Weiss, 1991). The classic expression of high technology firm is the fresh early stage company, an innovative idea that develops into high growth company. The most outstanding and successful of these innovators are perceived as the legends of the techno world such as Pagatech, Microsoft, Netscape, Face book, Amazon.com, Sun Microsystems, etc (Timmons and Spinelli, 2007; 2009).

4. HISTORICAL PERSPECTIVES OF EQUITY CAPITAL

The American history is deeply rooted in Venture capital activities and the evolution to today’s industry is truly American. This private risk capital fuel Americas entrepreneurial engine (Timmons and Spinelli, 2007). Classic venture capitalists work like coaches and partners with entrepreneurs and innovators at a very early stage to help shape and accelerate the development of the company. The fast growth highly successful backed by venture capital investors read like "Who is Who of the economy" Staples, EBay, Cisco, YouTube, Google, Blackberry, Face book, Jupiter networks, Yahoo, Compact Computers etc and a thousand of others (Bygrave and Timmons, 1992). Investors can add value, small firms particularly those in high technology sector lack the necessary competencies and an active investor could be a way of acquiring it. The right investor can offer a new firm a substantial competitive advantage, meaning that from whom you raise capital is often more important than the terms (Sahlman, 1997; Staurt et al., 2007). The well publicised literatures indicates that profesional investors try to address the difficulties inherent in asymmetric informations by partaking effectively in the board of companies the invest in (Mason and Harrison, 2000; Paul et al., 2003).

As most entrepreneurial managers view it, debt obtained from traditional fund managers is construed as a liability because it requires to be gauranteed with their personal properties. Hence securing external finance will help limit the extent to which technopreneurs are required to mortgage their assets. Inadequate initial business capital is usually the main problem some
businesses fail (Hall, 1992; Staurt et al., 2007), external finance provides a convenient and long-term capital flow and there is no fear of shortage of working capital and pressure of having to mortgage ones assets in case of business failure. The volume of cash usually provided by informal venture capitalists is most often Little but the aim is specifically to finance technologies at their initial stage of development. Informal venture capitalists therefore are a very key source to raise financing for new ventures because it is less capital intensive to do so (Timmons and Spinelli, 2007; 2009). Another important advantage of obtaining financing from professional venture capitalists is that their expertise is highly valuable in preparing for the public offering.

5. KEY DECISION CRITERIA

The literature review of venture capitalists decision making shows that important criteria when considering investing in a company are the qualifications, general impressions of the company top management team coupled with the stage of development (Timmons and Spinelli, 2007). It is important that the entrepreneur has motivation and ambition that aligned with the people behind a business proposal. However, there is confession that it is to certain extent also a matter of where the investment opportunities are on their growth cycle. In very early phases of high technology ventures, key individuals are important but somewhat less so if the activity has gone on for some time and is more established.

Literature review exposed that the most important issue when venture capitalist evaluates potential investments is the experience and competence of the management of the company in question (Tybejee and Bruno, 1984) However, some studies indicate that in the very early phase of screening, management qualifications may not be an important issue as in later phases of the screening.

6. IMPORTANT INVESTMENT VARIABLES

At any point when venture capitalists need to take a decision about whether to finance or not, certain criteria are adopted to prune down their several proposals; deal origination, deal screening, deal evaluation, deal structuring and post investment activities. Hence, in this study the researcher chose to analyse the deal evaluation criteria using the model of (Tybejee and Bruno, 1984) with slight adjustment because it’s the most comprehensive of all previous study and current research revolves around it. In the diagram in “fig. 1” ability of the venture capitalists to weigh expected returns (positives) against the perceived risk factors (negatives)
depending on the stage of growth that the investor prefers to invest in determines their final decisióñ, which in this case is positive (invest). Since one of the major factors venture capitalists consider to reduce several hundreds of proposals on their table at the deal origination stage is the stage of investment.

5.1. Market attractiveness: depends on size, growth and accessibility of the market and existence of product need.

5.2. Product differentiation: This is determined by the ability of the entrepreneur to apply his technical skills in creating a product which is unique and can deter competition through patents and enjoy a high rate of margin.

5.3. Managerial capabilities: of the ventures founders. This capability results from skills in managing several business functional areas and is associated with favorable references given to entrepreneurs, management skills, marketing skills, financial skills of entrepreneurs and the managers.

Fig 1; Evaluation Criteria of Venture Capitalist-adapted from (Tybejee and Bruno, 1984; Ismail et al. 2011)
5.4. Environmental threat resistance: This factor represents the extent to which the venture is resistant to uncontrollable pressures from the environment. This pressure may result from obsolescence due to changing technology, downside risk, sensitivity to economic conditions or from low barriers to entry by competition.

5.5. Cash-Out Potential: This represents the extent to which the venture capitalists feel that the investment can be liquidated, harvested, exited in order that they could realize profits to their shareholders. Harvesting an investment can be through any of the following: initial public offering, management buy-out or buy in, trade sales or mergers and acquisitions.

6. GROWTH CYCLE OF YOUNG FIRMS

The model in “fig 2” is a product of previous studies (Tybjeje and Bruno, 1984; McNally, 1995; Xu and Xiaoqiang, 2001; Roberts, 1991; Dauterive and Fok, 2004; Ismail et al. 2011) which highlight that investors decision criteria is in most cases based on stage of development of the entrepreneurial venture.

![Growth Cycle Diagram](image)

**FIG 2. TBFs GROWTH MODEL (Ismail et al., 2011)**
6.1 Stage 1 - Pre-Start Up

This period can also be called the idea stage that is when the conceptualization of the product idea is being made by the inventor. This stage belongs to that category of the early life of a product i.e. the concept state. When successful entrepreneurs start out with an idea, a concept or an urge and combine it with persistence. Sourcing of funding at this stage is mostly from personal savings.

At this stage, you are convinced that you have a viable business idea, what you then need to do as an entrepreneur is go ahead and develop a comprehensive business plan that will be acceptable to venture capitalists. Herein, as much care need to be taken to avoid fundamental flaws in your business plan. However, your ability to be able to improve chances of securing financing and launching a successful venture is essential at this stage. The concept you start with initially should be looked at as a seed idea, a seed from which you hope to make something grow, even though you haven’t the faintest idea of what that tree or flower will look like. However, it is most unlikely that the raw concept, in exactly its original form will end up being the final version which will find its place in the market and be manufactured on the production floor.

6.2 Stage 2 – Seeding

At this period the concept of research and development is being carried out on the new product or rather innovation. It is also an era of high risk taken by the venture capitalists. During this period a lot of capital is needed to be committed into the new venture, as was found out by previous researchers only few investors with big heart are willing to take that courageous risk. This they say is because, at this stage it is not certain whether the product will succeed or fail, they also ask the question of how the product will look like? Since the prototype has not been developed. At the seeding stage, innovators invest mostly their personal savings, selling off their properties or sourcing funds from their family and friends to experiment on the project.

6.3 Stage 3 - Start Up

A period of initial product development and marketing, it is also regarded as the late early stage of the product on the growth cycle. At this stage, the innovation has found its way from the research and development laboratory into the wider organization where they can be commercialized as a new or improved product.
6.4 Stage 4 – Expansion

When there is a sustained growth witnessed on the TBF cycle by the new product, the company is said to experience growth and expansion in production capacity, market and product development. Technology based companies, especially in its expansion stage need sufficiently large financial base to support the research and development need, capital equipment purchase and marketing activities. During this period the company is witnessing steady growth in both sales and revenue because products are gaining market acceptability. Notwithstanding, there is need to inject more funding to expand by braking into new market, expand capacity to cater for new demand, carry out promotional and marketing activities to create product awareness and customer sensitization. In the event of this, customers are made to understand product content, product qualities and applicability.

6.5 Stage 5 – Mezzanine

When the new venture has grown and developed to bypass many of the initial stage risks, the company may be willing to secure mezzanine capital (Remey, 1993; Timmons and Spinelli, 2007). This term refers to “capital that is between senior debt financing and common stock”. This is an interest paying debt loan which required that the interest and the principal be repaid if not converted to equity; it’s also referred to as that stage when financing is required for a company to go public. However, the new venture has been established in terms of sales revenue and profitability and also is experiencing sustainable growth potentials.

6.6 Stage 6 - BuyOut/In

This is classified as the venture capital financing provided to enable the existing management of the company or an outside investor to acquire a product line or the whole business (Dauterive and Fok, 2004). This is when a start up company decide to sell out to a more larger organization because it could not gather enough capital to go public. Hence, its entire product line is sold out to a bigger firm with a much wider and established distribution structure and customer base. Researchers like Vivek Mehra found out the reasons most start-ups prefer been bought over by larger firms nowadays is due to:

- The impatient to grow to IPO.
- The difficulty of raising venture capital fund.
• Mostly large firms have now discovered the need to buy into smaller start ups with product ideas relevant to their existing line of business and what customers need them to improve on.

• Again, it was realized that most cost effective ways to bring in new talents and fund R & D is simply to buy up innovators and their ideas.

This strategy is an attempt to buy a company for the purpose of financial engineering, restructuring and selling it off in pieces or whole to the highest bidder, and it is usually financed by over 90 percent of high yield debt. Finally, the major objective of MBO is to enable the current managers and employees have an opportunity to buy into the stake of the company.

6.7 Stage 7 – Turnaround

This is a very critical stage for the growth firm. The technopreneur is rallying round venture capitalists to help in providing funding to enable him restructure and reposition the company. This is basically because the firm is encountering performance difficulties (Dauterive and Fok, 2004) and if not properly managed at this stage may lead to extinction of the firm. The sales and revenue is noose diving, probably due to so many reasons. Dowdy and Nikolchev in their paper mentioned three basic factors that can lead to this problematic stage for the technology based firms; (1) Maturity Symptoms, (2) Senility Evidence, (3) Measures.

However, they also considered possible ways out of the problems which led to this inevitable growth stage as; (i) Acquisitions (ii) Internal research and development (iii) Joint ventures (iv) Venture Capital Investment and Nurturing (v) Strategic and Innovative Alliances. Lastly, however, considerations can be given to divestment, closure of unproductive activities otherwise known as DEATH.

6.8 Stage 8 – Death Stage

This is considered as a point of no remedy to the idea and or product of the company. At this point on the growth cycle, there is no other option to product revitalization, all effort to salvage the product from decline was unsuccessful and the entrepreneur has finally agreed to close down unprofitable activities. This stage is very crucial because as we all know even to the life of animals, plants and we human improper management of our health can lead to death as argued on mortality of innovation ideas (Bruce, 1989). Although, this stage is very inevitable in the life
of anything that has a growth cycle, because it can occur not only because of health, also due to old age i.e. when that element in question has exhausted its main purpose of existence. There are basically a few reasons here when products of High-tech companies can go into extinction:

- Venture owner could not muster enough funds from investors to recapitalize.
- Product has exhausted its life span on the life cycle curve.
- Competition from new technology.

In conventional firms they talk of product life cycle, service life cycle, whereas in High-TECH industries we make use of the terminology TBF growth cycle. There is need for us to note at this point that a TBF can approach this 8th stage of the cycle at any point in time. It is never a rule of thumb that it has to go through all the stages before it can be phased-out. Likewise, as living things can die at any stage in its life too. We can conclude this by looking at this phrase from Associated Press--"THE WALKMAN DIES AT AGE 31" The walkman, the Sony cassette device that forever changed music listening before becoming outdated by digital MP3 players, IPODS, has died. It was 31 years old. Sony announced that it has ceased the production of the classic cassette tape in Japan, effectively sounding the "DEATH" Knell of the once iconic, now obsolete device (StayDailyNews, 2010).

7. RELEVANCE OF THE FRAMEWORK TO INTEREST PARTIES.

7.1. To venture capitalists and business angels to carry out business evaluation and or due diligence. Some ventures are not companies, but rather products that are not sustainable as independent businesses (Sahlman, 1997). What we are saying here is that using this model venture capitalists considering also what is embedded in the entrepreneurs business plan can easily determine what the end process of the venture will be. How will the investor eventually get his money back assuming the venture is successful even if only marginally so? This is because when investors invest they particularly like companies with a wide range of exit options. They like companies that work hard to preserve and enhance those options along the way, companies that don’t for e.g. unthinkingly form alliances with large corporations that could someday actually buy them.

7.2. Investors can determine the amount of capital required at each growth stage; it is not same amount of funding that is required at each growth stage of the TBF and not also same financing round is required. However, critical analysis of the model will help any
interested business financier sourcing for investee firm to have an understanding of what is needed i.e. (cash) at a particular stage hence, enabling him take a decision of, at what stage to get involved.

7.3. An indebt understanding of this model helps venture capitalists determine if the company is IPO able (Sahlman, 1997), meaning can the new venture at some point in the future be taken public? Some businesses are inherently difficult to take public because doing so will reveal certain information that might eventually harm its competitive standing. For instance, suppliers and customers may get angered with some of these information, competitors discovering the profitability of the new venture may be encouraged to develop similar products.

7.4. Since potential investor companies evaluate business funding proposals from a hundred of investee firms. They will be able to also understand the value added services that will be required from investee companies at a predetermined stage of the cycle. They can know if they have the expertise to provide those services from the current management team or employee.

7.5. By looking at this chart venture capitalists can evaluate the current performance of the investee company and come out with a convincing reason why they need to get involved at the particular stage to be chosen and with a particular firm. The performances mentioned thus, will be determined by the current management team of the new venture and the expertise of the team is a reflection of their performance.

7.6. By making use of this model you as a venture capitalist or professional investor can also be able to know the holding period that is required at each growth stage of the TBF. By “holding period” we mean the number of years or how long your money and or expertise will be required before thinking of an exit.

7.7. The model is not only useful to potential investor companies but also to investee companies because through the chart they can determine the percentage of equity to relinquish and the amount of control to retain.

7.8. The TBF owner will be able to determine at what growth stage the innovation or idea will be patented.

7.9. The model gives professional investment companies and the academic researchers an understanding of the industry characteristics and trends, i.e. where the company is on the growth cycle and what is embedded in it.
7.10. Since venture capitalists are too particular about the word “risk”. They model can help them evaluate the level of risk they would be involved in, considering the growth stage of the firm at that point in time. However, according to (Sapienza et al., 1996; Bruton et al., 2004) the riskier a firm is perceived to be, the more time the venture capitalists will devote to monitor his investment and hence, the higher the likelihood of greater profit.

8. **IMPLICATIONS FOR POLICY MAKERS**

From literature survey there is an understanding that stage of investment is very significant to fund managers (Banks, venture capitalists, angels) when screening hundreds of business proposals from entrepreneurial managers looking for fundings, also a relationship exist between investment decision criteria and the stages of development of technology-based firms. There is no doubt however, that conventional money lenders such as banks and other financial institutions only finance growth firms at the later stage unless the fund is guaranteed by government. Venture capitalists strictly see the growth stage as a priority in screening business proposals during the deal origination stage. It was reported that, the staff strength of a typical venture capital company is small, so they may not have that luxury of time to examine all hundreds of proposals on their table. That is the reason, the first thing they do is throw out any proposal which does not meet their specific requirement i.e. does not fall within the category of growth stage they are looking out to. And will go for firms that they are very sure will lead to quick and easiest cash-out possibilities, although they provide funds to a limited number of investee companies but, in huge amount of dollars. The only lenient and liberal of all investors is the informal venture capitalists (business angels) who technopreneurs find as succor to finance their early stage ventures. The business angels have been known to provide majority of financing help to early stage ventures (although in bits of dollars but severally) in the United States of America, some European countries and maybe recently in Asia and Africa.

The challenges confronted by innovative entrepreneurs and potential fund managers in Malaysia in seeking out for each other are enormous. Several authors reported that the problem is not really of non availability of investible capital, but of how to match up suitable investors and investee companies considering what stage and criteria to use in evaluating firms. In lieu of this it will not be out of place to emphatically state that this model is very significant to investment companies, policy makers and the academics. This study have been able to discover that developmental stages of technology based firms can be presented using this model as described in this paper and also that TBF’s or their products can grow to decline, death or extinction.
marking the end of that product/firm in the manufacturing floor and the market place. This findings go further to corroborate the earlier research by (Ismail et al. 2011).

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