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Julian Michael Munson

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Singapore Venture Capital Industry: A Study of Potential Long Term Challenges

Julian Michael Munson
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ABSTRACT

The Singaporean government has aggressively attempted to build a thriving venture capital industry over the past several years. This paper attempts to explain why venture capitalism is important to Singapore and how the industry has evolved to its current state, and to look at the challenges faced. A Strength, Weakness, Opportunity, Threat (SWOT) analysis was utilized to assess the current integrity and future potential of the industry. During my SWOT analysis, I also sought the advice of regional industry experts to help generate recommendations. Subsequently I investigated the assumptions that Singaporean people are not well-suited to the risk-taking culture associated with the venture capital industry. This paper concludes with the understanding that substantial potential exists within Singapore's venture capital industry, and its success hinges on changes of both its people and its government.

INTRODUCTION

Singapore is a unique modern nation that it has managed to sustain impressive economic growth without a significant source of natural resources. Singapore's government plays an active role in promoting economic growth through many social and economic initiatives. In the last several decades, the Singaporean government has made investments to promote the venture capital industry¹. After witnessing the success of Silicon Valley U.S.A, Singapore was eager to replicate a similar domestic version (Barkoczy & Sandler, 2007). The government was able to grow the industry at a phenomenal rate but critics question whether growth relied on too much subsidy. After fighting through a global credit crisis, Singapore's venture capital industry and domestic entrepreneurs continue to rely on subsidy as they move toward an uncertain future.

1. THE IMPORTANCE OF THE VENTURE CAPITAL INDUSTRY IN SINGAPORE

Venture capitalism has proven to be an important catalyst for economic growth. The success of new ventures creates jobs, supports innovation, and promotes entrepreneurship (Barkoczy & Sandler, 2007). According to a study by Barry, Muscarella, Peavy and Vetsuypens (1990), 30% of the market value of firms going public between 1978 and 1987 had received venture capital financing (Koh & Koh, 2002). This statistic helps emphasize the economic relevance of this industry to any country. When looking at Singapore's unique economy, the importance of venture capital becomes even more important.

¹ Within this paper, the venture capital industry will be referred to as a sub category of the private equity industry with several unique characteristics. The unique characteristics that differentiate the venture capital industry from the more broadly defined private equity industry are:

(i) Investments are made at the early stage of a businesses' life cycle; (ii) the venture receiving financing usually operates within a dynamic industry with potential for rapid growth; (iii) the venture receiving funding must have relatively few assets to support conventional means of funding; (iv) venture capital investors typically seek higher returns while taking on more risk.

In the essay called “The Myth of Asian Miracle”, Krugman (1994) discusses the parallels between economic growth in Singapore and Russia. Although the two countries starkly contrast one another in many ways, both countries had seemingly miraculous growth that can be attributed to the mobilization of resources (Krugman, 1994). From 1966-1990, Singapore raised the employment rate while drastically improving the education of their workforce and made massive investments in physical capital (Krugman, 1994). These all caused Singapore’s economy to grow faster than the most developed economies in the world, however, this type of growth could not be expected to continue. Eventually, economic growth of this nature slows as new capital provides diminishing returns and as more of the potential workforce is utilized and educated. Since Singapore’s prior growth was largely the result of one-time actions, future growth needs to take a new approach. Venture capitalism is one such method countries have adapted as an alternative to capital-intensive growth methods like the ones discussed above.

Developed economies like the United States have managed sustained growth by making capital more efficient through technological advances. The famous MIT professor Robert Solow once concluded that 80% of long-term per capita income growth in the United States can be attributed to technological progress (Krugman, 1994). For Singapore to continue growth at a rate that mirrored more developed nations, they would need to ensure they could continually innovate technology to more efficiently use the nation’s physical capital. From the perspective of the Singaporean government, a healthy venture capital industry could be seen as a way to develop technological innovations and foster a system of sustainable economic growth.

The job-creating potential of a healthy venture capital industry is especially appealing to Singapore. By 1960, in an effort to stimulate the economy, Singapore shaped their policies to attract large multinational firms (Vandenborre, 2003). This action worked well to educate domestic employees and stimulate firms that contracted with multinationals, but there were several problems with having an economy so reliant on supporting multinationals. First, multinationals had limited room for upward movement for domestic employees (Tan & Phang, 2004). Singaporeans found it difficult to move up to upper management positions as the multinationals usually had a well-established upper management. Second, multinationals were helping Singapore mobilize their resources but the strategy did not guarantee any hope for sustained economic growth.

The venture capital industry on the other hand could serve to address these two issues. Domestic ventures would allow Singaporeans access to upper management positions in new firms while innovations in technology could give an opportunity to mimic the more sustainable economic growth of Western nations.

2. THE TWO-WAY RELATIONSHIP BETWEEN SUCCESSFUL VENTURES AND THE SUPPLY OF VENTURE CAPITAL FIRMS

A successful domestic venture capital industry relies on two key factors. First, a country needs to be able to promote the kind of entrepreneurship and high-tech innovation characteristic of most ventures. The link between the venture capital firm’s success and innovation is clear. New innovations create the high-growth potential opportunities that venture capital firms thrive on. Second, the country needs to be able to fund new ventures with necessary capital and skilled professionals. Typically, banks do not fund high-risk ventures with high growth potential. Instead, ventures seek funding from venture capital firms who often lend skilled advice and guidance to the ventures they invest with.

The quality of support offered by venture capital firms is partially a function of the quantity and respective specialties of venture capital firms operating in the region. When a venture is conceptualized in a region without a qualified venture capital firm, it will be tempted to leave that region taking with it

many of the associated positive societal contributions. To prevent such a tragedy, it is important to have a sufficient domestic supply of venture capital firms to supply new ventures with the new capital and skilled advice they need to be successful. However, venture capital firms are less eager to enter a region unless it is located in close proximity to a source of new venture opportunities. Here the problem begins. Without ventures, there can be no venture capital firms and vice versa. Keeping this in mind, the Singaporean government’s initiative to support this industry to get it off the ground was started.

Singapore’s small size causes what is known as a “deal flow issue”. In the venture capital industry, deal flow is a term used to describe the number of venture deals coming from a particular region and low deal flow regions will be less appealing to foreign venture capital firms. To lessen the negative effects of weak deal flow, Singapore has made it a top priority to promote the kind of entrepreneurship that venture capital firms seek to invest with.

3. THE FUTURE OF VENTURE CAPITALISM IN SINGAPORE

Predicting the future is problematic at the best of times. After examining the past and present states of the venture capital industry, the future still remains unclear. Problems facing the industry have no clear remedy as some of the nation’s most powerful minds search for solutions. To analyze the future of such a thoroughly studied industry, my conclusions will rely not solely on my analysis and research, but the first-hand knowledge of local subject matter experts as well. To avoid making recommendations that have already been implemented but failed, I documented a history of the industry and its evolution in Singapore. This summary can be found in Appendix 1. Additionally, a summary of incentive schemes currently being used by the Singaporean Government is also included in Appendix 2. I have also undertaken a Strength, Weakness, Opportunity and Threat (SWOT) analysis of Singapore’s Venture Capital Industry.

3.1 SWOT ANALYSIS

SWOT Analysis is a useful tool typically used to assess the strengths, weaknesses, threats, and opportunities facing a firm. Rather than focusing at the firm level, I will use SWOT Analysis on a macro scale to perform a situational analysis on Singapore’s venture capital industry. I have captured my observations in Table 1 and a discussion of each quadrant follows.

Table 1. SWOT Analysis of Singapore’s Venture Capital Industry

Strengths (Internal)	Weaknesses (Internal)
<ul style="list-style-type: none"> -Strong Government incentives aim to attract VC firms and encourage start-ups -Promotion of institutional networks -Attractive domestic business climate -Educated population capable of research -Asian/Western skill sets and proximity to large Asian markets 	<ul style="list-style-type: none"> -Conservative and risk adverse citizens -Misalignment of interests between Government and a healthy venture capital industry: <ul style="list-style-type: none"> - Products vs. intangibles - Divestiture plans and intentions -Key performance indicators and the Governments system of industry control -Existence of a creativity gap. (Debatable)
Opportunities (External)	Threats (External)
<ul style="list-style-type: none"> Use <u>corporate</u> venture capital firms to realign the value-chain -Testing parks -Singaporean perspectives aligning with foreign outlooks on entrepreneurship, risk and failure 	<ul style="list-style-type: none"> -The crowding out of Singapore’s niche by other evolving Asian markets

3.1.1 Strengths

3.1.1.1 Strong Government Incentives Aim to Attract VC Firms and Encourage Start-ups

As mentioned previously, Singapore has made numerous attempts to boost its appeal for venture capital investors and prospective entrepreneurs. Although the net effects of these efforts have been arguably unsuccessful, Singapore has set up the infrastructure to theoretically encourage venture capitalism. The question remains, why, despite heavy incentives relative to other nations, do Singaporeans not participate eagerly in entrepreneurial endeavors?

3.1.1.2 Promotion of Institutional Networks

Within the venture capital industry, financial institutions, professionals, venture capital firms, new businesses and researchers all collaborate to help one another achieve their respective goals. Typically strong networks rely on the existence of a strong supply of venture capital firms. Without access to a healthy supply of venture capital firms, these networks are eroded (Siegfried, 2011). In recent years, the People's Action Party (PAP) has put extra effort into promoting networks to discourage informational asymmetries that occur between institutions in the absence of a solid source of venture capital firms. Specifically, the PAP has used websites and ran marketing campaigns to improve networks (SPRING, 2011). The promotion of networks also helps venture capital firms gain information about their investments limiting their risk exposure (Koh & Koh, 2002).

3.1.1.3 Attractive Domestic Business Climate

Singapore is regarded as having a highly efficient business environment. Singapore finds itself in a stage of transition as it switches from an efficiency driven model of economic growth to an innovation driven growth model (Tan & Phang, 2004). Since inception in 1960, Singapore's government (PAP) has recognized its comparative disadvantage as a minute economy with a low population and small domestic markets (Ibid). To compete globally, the nation's leaders tried to promote efficiency at every turn in an effort to transform Singapore into an efficient business center. The nation's land planning, transportation, logistics, energy, water use, Internet, telecommunications, and education were all developed with great care to promote efficiency (Vandenborre, 2003).

Many of these efficient sectors/areas translate into strong points for Singapore's venture capital industry. By improving local business conditions, foreign venture capital firms along with prospective entrepreneurs and ventures are attracted to Singapore. Singapore has had a stable institutional regime for decades and this is unlikely to change in the foreseeable future. The PAP has always been an uncorrupt government keen on attracting foreign business. Strong intellectual property laws and a predictable legal system, has made Singapore the kind of business climate that should theoretically be well-suited to new ventures.

3.1.1.4 Educated Population Capable of Research

Education and research promote innovation in a general sense but are especially critical to high-tech innovations. Singapore has an extremely educated population and research intensity has been rising in recent years (Ministry of Trade and Industry, 2010).

3.1.1.5 Asian/Western Skill Sets and Proximity to Large Asian Markets

In addition to education, Singaporeans are culturally in tune with both China and Indian cultures offering foreign ventures a strong stock of suitable professionals to expand into these large economies.

3.1.2 Weaknesses

3.1.2.1 Conservative and Risk-adverse Citizens

Despite having many positive aspects, Singapore's venture capital industry has a number of weaknesses, many of which, are problematic to correct over the short-term. Singapore's ranking as an entrepreneurial society lacks consistency. On one hand, the Economist Intelligence Unit has ranked the nation as the most entrepreneurial society in Asia and twelfth globally (Vandenborre, 2003). Contrastingly, the Global Entrepreneurial Monitor gave a more modest appraisal as Singapore was ranked twenty-first out of thirty-seven nations. The roots of Singapore's entrepreneurial problems seem to be societal (Vandenborre, 2003).

Each year, as the number of PhDs and Masters degrees continually rise along with the country's research intensity, another trend seems to be limiting the potential of Singapore's venture capital industry. Singaporeans seem to have developed a fear of failing and prefer the security of non-entrepreneurial careers (Vandedborren, 2003). Many researchers and policy makers point their fingers at society and Singapore's culturally engrained social values.

Singapore's venture capital industry was modeled after Silicon Valley of the United States and one of the main success factors within Silicon Valley was the existence to a risk-taking culture (Koh & Koh, 2004). Despite extensive planning and funding, incentive structures have not been able to sufficiently mobilize Singaporeans to accept the risks associated with entrepreneurial pursuits. As Singaporean policy advisor Alain Vandenborre puts it, "at the fundamental level, we need to inculcate a culture in which Singaporeans want to be entrepreneurs." He later argues that the societal values of Singaporeans directly encumber entrepreneurial pursuits as they discourage risk taking and free thinking.

3.1.2.2 Misalignment of Interests between Government and a Healthy Venture Capital Industry

In a face-to-face meeting with local venture capital expert Frank Siegfried, I was able to investigate new aspects of the Singapore's venture industry that had previously been a mystery to me. Mr. Siegfried has experience working for privately run venture capital firms and acts as an advisor for the Monetary Authority of Singapore. Additionally, he has experience working for government-run venture capital departments all over the world including The National Venture Capital Association in the United States.

It was Mr. Siegfried's opinion that Singapore's Government, keeping with its character, has been getting involved in an industry that should be free from many types of state interference. Both issues discussed here arise from poor alignment of interests between the government and the rest of the venture capital industry. The misalignment of interests caused from Government interference creates problems in two key areas:

- The Singaporean government has made incentives and policy to promote services and knowledge-based growth in the venture capital industry but venture firms have a strong "hardware bias" toward investing in tangible products. Additionally, while the Singaporean Government is mostly interested in promoting domestic start-ups, the majority of big global venture capital funds are more interested

in the international market potential of start-ups. The misalignment of interests only widens when one looks at how conventional venture capital exit strategies affect the domestic economy of Singapore (Siegfried, 2011).

- Generally speaking, a venture capital firm will invest with a business and actively try to grow that business with an intention to divest its ownership shares at a later date. During the phase of divestiture, Singapore faces another perplexing problem. The nation's own domestic exchange (the SGX) and foreign exchanges (like the NYSE) value divesting ventures at different values and almost always offer higher returns to sellers if sold on foreign exchanges (Ibid). The reasons for exchange pricing discrepancies are complex but partially have to do with the existence of foreign infrastructure like testing parks². With higher pricing being offered outside the SGX, divesting venture capitalists will sell for the higher price on foreign exchanges and money will shift offshore from the domestic economy. In a highly subsidized industry this trend becomes especially problematic because the initial economic growth was not a result of the free market (Ibid).

3.1.2.3 Key Performance Indicators and the Government's System of Industry Control

Singapore's publically operated venture capital firms operate differently than conventional privately run venture capital firms. Instead of being motivated through profits, Singapore's state-operated venture capital firms are motivated through what are referred to as Key Performance Indicators (KPIs) (SPRING, 2011). With different goals driving public and private venture capital firms, the two types of firms behave differently in many regards. For example, state-run venture capital firms are focused on domestic effects of growth while privately run venture capital firms are more keen to grow globally without excessive care for domestic effects on host nations (Siegfried, 2011).

3.1.2.4 Existence of a Creativity Gap

Singapore has a highly educated population and dumps billions of dollars into research projects designed to stimulate innovation. In light of these efforts, when one thinks in terms of the marketable products coming from Singapore, the results are not very impressive.

Following these results, one may think Singaporeans are suffering from an innovation drought. Whether walking down the street or through the halls of domestic academic institutions, anecdotal observation suggests there has been a tremendous effort to boost the innovative capacity of Singaporean citizens. Classes, clubs, workshops, and seminars designed to foster innovative thought are offered to all who are interested. Such classes, clubs, and seminars exist in many countries but the prominence and frequency in Singapore is notably high.

3.1.3 Opportunities

3.1.3.1 Use Corporate Venture Capital Firms to Realign the Value-chain

Corporate venture capitalism³ has taken off in the United States and Europe and involves a different kind of value-chain than conventional venture capitalism. The traditional venture capital industry

² Test parks are places where venture capitalists can test the "street application" of their products on real sample target audiences. The data is valuable in the eyes of potential investors and can often influence selling prices of ventures. Singapore has no such facility but facilities exist in the U.S.A and Europe.

³ Corporate venture capitalism uses businesses in the place of venture capital firms. This trend has picked up in the U.S.A where businesses like Google and Cisco use their skills and investing power to coach and nurture new start-ups operating in their respective industries. In Singapore, this style of venture capitalism could help give new start-ups alternatives to state-run venture capital firms.

involves a close link between institutions like venture capital firms, banks, and new businesses. In Singapore, Government involvement has disrupted the ordinary system in which venture capital firms and investors provide each other value. One way to restore a more classic venture capital industry would be to introduce what is known as corporate venture capitalism. With a corporate venture capital system, businesses play the role ordinarily played by venture capital firms and seek to invest in and grow new ventures that spring up in their respective industries. Corporate venture capitalism has a proven track record in other countries and coexists well with a more traditional venture capital industry (Siegfried, 2011). Singapore has not sufficiently utilized “corporate venture capitalism” and this method of venture growth could potentially coexist well with Singapore’s unique venture capital industry.

3.1.3.2 Testing Parks

Testing parks help ventures raise capital by allowing them to test the street applications of their products and gain value in the eyes of investors. Currently, Singapore has no such facility. In the United States, testing parks allow venture owners to test the “street” application of their products and develop a case for profitability. The existence of value adding infrastructure like test parks in foreign countries is one of the reasons Singaporean domestic ventures are divested for a higher price when listed on foreign exchanges (Siegfried, 2011). The introduction of test parks in Singapore may give ventures trading on the SGX more internationally competitive prices.

3.1.3.3 Singaporean Perspectives Aligning with Foreign Outlooks on Entrepreneurship, Risk and Failure

In this age of globalization, an opportunity arises as Singaporean societal values shift from their current state, to a more global perspective. When it comes to having the kind of society-wide risk taking attitude that is attributed to the success of Silicon Valley, Singapore has a long way to go. However, this country has changed tremendously in a very short period and its people have proven to be adaptable. Opportunities could unfold as Singapore shifts from a risk-averse society to adopt a more globalized outlook on entrepreneurial risk.

3.1.4 Threats

3.1.4.1 The Crowding Out of Singapore’s Niche by Other Evolving Asian Markets

Singapore is dwarfed in size by the surrounding mega economies of India, China and Japan. Close proximity to these large economies has been long considered a gift as western firms have used Singapore to get a foothold in Asian markets before further expansion. Singapore’s proximity to these large economies has also helped generate informational advantages that have helped the development of its financial sector. However, as China and India become more developed, Singapore’s position as an attractive entry point into Asian markets becomes weakened. Maturing nearby economies directly affect the venture capital industry when international venture capital firms overlook Singapore in favor of growing their ventures in China and India where markets have more growth potential.

4. ANALYSIS AND RECOMMENDATIONS

After carrying out a SWOT Analysis, it is clear that Singapore’s venture capital industry is in trouble. Based on my SWOT, I suggest three ways Singapore could utilize its strengths and avoid its weaknesses while seeking opportunity and warding off threats.

First, the government of Singapore needs to encourage citizens to develop a stronger entrepreneurial thirst. However, this first suggestion is already being implemented to some degree. From my own anecdotal observations, it seems clear that the government has made attempts to spawn innovation and entrepreneurship in society. Within academic institutions like Singapore Management University (SMU), the message could not be stronger as students are encouraged to think entrepreneurially and innovatively. Tax incentives and loan schemes are also aligned to promote entrepreneurial pursuits. After assessing all the incentives and pondering the absence of entrepreneurship, one begs the question, how quickly can a society shift? Improved innovation would help the venture capital industry along with the rest of the economy.

Second, it is important to maintain Singapore's position as a "stepping-stone" into Asian markets. This boosts the country's appeal in the eyes of international venture capital firms and could help attract expanding ventures developed elsewhere. To enhance the country's positioning, Singapore could utilize its educated workforce with a cultural aptitude for Western, Indian, and Chinese cultures. Building these cross-country networks now will help ensure Singapore's future venture capital industry is not forgotten when the surrounding mega markets develop to be more accommodating to expanding ventures.

My third suggestion is perhaps the most important as it addresses what may be the main issues facing Singapore's venture capital industry. Firstly, the Government's interference with the venture capital industry has led to a misalignment of interests between new ventures and venture capital firms. To realign interests to resemble those typically found in a healthy venture capital industry, I suggest Singapore utilizes corporate venture capitalism. In the United States, corporate venture capitalism has proven to work well alongside a traditional venture capital industry. For Singapore, the benefits are numerous. Corporate venture capital would introduce more alternatives to new ventures seeking funding. It would improve the growth potential of established businesses and new ventures by connecting established businesses and their skilled professionals with new fresh ideas within the industry.

Another major issue arises from not being able to keep foreign venture firms from divesting their investments in foreign markets. To counter this issue, Singapore needs to be able to generate value in the eyes of investors trading new ventures on the SGX. One way to test the potential real value of a venture and improve investor impressions is to test the products of a venture in a test facility. Test facilities like this already exist in the United States and Europe. These tests can determine the value of products to consumers and the data can be used to generate more accurate profitability forecasts. Test facilities could focus on consumers in Singapore as well as other nearby Asian mega economies and would ideally raise the value of ventures on the SGX.

After completing the SWOT analysis, one issue facing Singaporean society appears especially important going into the future. Specifically, how are Singaporean societal perspectives going to change to better suit the risk-taking attitude essential to a successful venture capital industry? Before concluding this paper, I will present the results of my test of the assumptions made about Singaporeans' risk-taking attitudes.

5. CONSERVATIVE AND RISK-AVERSE CULTURES AND ENTREPRENEURSHIP

According to SMU professor and venture capital industry specialist Winston TH Koh, thriving innovation relies on an economy open to trade and investment, a sound infrastructure, sensible approach to intellectual property rights, a culture open to risk-taking and achievement, an open-door policy toward global talent, as well as a robust financial system which includes private equity and venture capital (Koh & Koh, 2002). This list of criteria is largely present in Singapore but a culture of risk-taking is certainly

absent. As Singapore tries to promote a culture of innovation and entrepreneurship, how are the perspectives of their citizens changing? I decided to test Singaporean business student’s outlooks on accepting risk and pursuing entrepreneurial careers.

5.1 MY TEST

Hypothesis: When compared to foreign exchange business students, I suspect Singaporean Business students will be less interested in entrepreneurial pursuits and more risk-averse.

Process: I designed a five-question survey and surveyed 25 male and 25 female Singaporean students. I then surveyed 25 male and 25 female exchange students. I repeated this process for two universities and surveyed a total of 200 students. My survey questionnaire can be found in Appendix 3.

Methods: My test compares Singaporean students with foreign exchange students and examines their perspectives on risk-aversion and entrepreneurship. Samples were limited to business students from Singapore Management University and National University of Singapore. My samples represent both genders and schools equally.

Findings: The findings are given in Table 2 below.

Some findings correspond with the hypothesis. For example, Singaporean business students expressed a 62% preference toward conventional employment and only 38% were interested in a career in entrepreneurship. The results are nearly reversed when looking at foreign exchange students with only 32% preferring conventional employment to entrepreneurial careers.

Table 2. Aggregated survey results from SMU and NUS

	SINGAPOREANS			FOREIGN EXCHANGE STUDENTS		
	Female	Male	Combined	Female	Male	Combined
Preference to conventional employment over entrepreneurial pursuits	62%	44%	53%	34%	30%	32%
Scale of risk-aversion. (1=risk averse) (5=not risk averse)	1=12%	1=10%	1=11%	1=20%	1=12%	1=16%
	2=34%	2=36%	2=28%	2=22%	2=18%	2=20%
	3=28%	3=24%	3=22%	3=38%	3=48%	3=43%
	4=16%	4=16%	4=27%	4=12%	4=12%	4=12%
	5=10%	5=14%	5=12%	5=8%	5=10%	5=9%
Mean risk-aversion score	Mean=2.78	Mean=2.88	Mean=2.83	Mean=2.66	Mean=2.92	Mean=2.78
Biggest hurdle preventing entrepreneurial career	A=42%	A=38%	A=40%	A=28%	A=38%	A=33%
	B=22%	B=40%	B=31%	B=54%	B=36%	B=45%
	C=36%	C=22%	C=29%	C=18%	C=26%	C=22%

When testing risk aversion, Singaporeans scores surprisingly indicate they are more willing to accept risk than exchange students as given in Table 3. However, when scores are separated by gender, foreign male exchange students are more willing to accept risk than Singaporean male students. The reverse trend exists for women, with Singaporean women having a higher tolerance for risk.

Table 3. Mean scores on risk aversion survey.

Risk-averse=1 Accepting of risk=5	SINGAPOREANS			EXCHANGE STUDENTS		
	Female	Male	Combined	Female	Male	Combined
Risk aversion mean score between (1-5).	2.78	2.88	2.83	2.66	2.92	2.78

I tried to determine what students considered the biggest obstacles blocking an entrepreneurial career. Singaporeans appear to consider the biggest obstacle getting sufficient knowledge of an industry to be a successful entrepreneur. Exchange students viewed a lack of quality ideas as the biggest hurdle. Lastly, Singaporeans considered the fear of failing to be a more significant problem than foreign exchange students did. The scores are displayed in Table 4 below.

Table 4. Biggest obstacles preventing entrepreneurial pursuits where:

- a=Lack of knowledge about industry.
- b=Lack of relevant entrepreneurial idea
- c=A fear of failing

	SINGAPOREANS									EXCHANGE STUDENTS								
	Female			Male			Combined			Female			Male			Combined		
Biggest obstacle preventing entrepreneurial goals	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c
Percentage	42	22	36	38	40	22	40	31	29	28	54	18	38	36	26	33	45	22

CONCLUSION

The nature of Singapore’s venture capital industry is unique. Heavy government interference has helped get the industry off the ground but it now faces a number of complex problems. Change is needed for the industry to ever live up to its once dreamed potential. The first change needs to come from the Singaporean people. The Singaporean venture capital industry was modeled after Silicon Valley U.S.A, which relied heavily on the entrepreneurial spirit of Americans. The people of Singapore need to adopt an entrepreneurial spirit that resembles that of western societies.

My survey showed that even in business schools, the Singaporean interest in entrepreneurship lags considerably behind that of exchange students. As the government places effort on innovation and idea generation, Singaporean’s unwillingness to take ideas to market is hurting the venture capital industry.

Other major changes need to come from the government. PAP has recognized the complex implications that can arise from having an over involvement in the industry. Singapore's venture capital industry is no exception, as the interests of state-run venture capital firms don't always align with the interests of new ventures. Furthermore, private and state-run venture capital firms often have different agendas with regard to exit strategy and investment interests.

Despite these numerous problems, the future of the industry does have hope. Building domestic infrastructure, like test parks, could help boost the value of new ventures in the eyes of investors trading on the SGX and prevent divestiture on foreign exchanges. To address the misalignment of interests within the industry, corporate venture capitalism could be introduced and promoted on a large scale. Corporate venture capitalism has proven to work well alongside conventional venture capital models and could realign the interests of institutions within Singapore's industry. With these changes in place, Singapore may better utilize its strengths to help grow a strong venture capital industry.

REFERENCES

Barkoczy, S. and Sandler, D. (2007). 'Government Venture Capital Incentives, A Multi-Jurisdiction Comparative Analysis,' *Australian Tax Research Foundation*. Southwood Press Pty Ltd, pp. 1-5. Retrieved from

<http://www.law.monash.edu.au.ezproxy.library.uvic.ca/units/law5153/2007/semester2/additional-materials/5153-2007-s2-add-material-barkoczys-and-sandlers-govt-venture-capital-incentives.pdf>

Bartzokas, A. and Mani, S. (2004). *Financial Systems, Corporate Investment in Innovation, and Venture Capital*.

Goliath. (2008). *Business Knowledge On Demand* http://goliath.ecnext.com/coms2/gi_0199-839793/Transborder-business-the-capital-input.html, Accessed March 30, 2011

Koh, W. and Koh F. (2002). *Venture Capital and Economic Growth: An Industry Overview and Singapore's Experience*.

Krugman, P. (1994) *The Myth of Asia's Miracle* Vol. 73, No. 6, pp 62-78, from <http://www.jstor.org/stable/20046929>

Ministry of trade and Industry (2010) *Economic Survey of Singapore 2010*, from http://app.mti.gov.sg/data/article/24221/doc/Chpt3_AES_2010.pdf

Silicon India (2010). *Now Investors Willing To Invest On Early Stage Deals*, from http://www.siliconindia.com/shownews/Now_investors_willing_to_bet_on_early_stage_deals-nid-66457.html, Accessed March 30, 2011

SPRING (2011) <http://www.spring.gov.sg/Pages/Homepage.aspx>, Accessed March 30, 2011

Tan, K. and Phang, S. (2004) 'Research Collection School of Economics. Paper 788.' *From Efficiency-Driven to Innovation-Driven Economic Growth: Perspectives from Singapore* from http://ink.library.smu.edu.sg/soe_research/788

Vandenborre, A. (2003). *Proudly Singaporean, My Passport To A Challenging Future*.

Yusuf, S., Altaf, M. and Nabeeshima, K. (2004) *Global Change and East Asian Policy Initiatives*.

APPENDIX 1

Evolution of the Venture Capitalism in Singapore

Today, Singapore is recognized as being heavily involved in the promotion of venture capitalism (Bartzokas & Mani, 2004). However, this was not always the case. Before 1980, Singapore was uninvolved in the world of venture capitalism. With the entry of the South East Asia Venture Investment (SEAVI) and the construction of the Singapore Science Park, the country's journey into venture capitalism began. In an effort to replicate the economic success of Silicon Valley U.S.A, Singapore's Economic Development Board (EDB) created the Singapore Science Park to promote R&D in the region. Almost simultaneously, the SEAVI started up Singapore's first venture capital fund focusing on investments in small to medium sized ventures with high growth potential. Venture capitalism was off to a booming start as the new fund's capital under management, and Singapore's total venture capitalism pool at the time grew from S14 million to S94 million in just two years (Bartzokas & Mani, 2004). After 1985, the EDB's subsequent nurturing of the venture capitalism industry helped to grow the country's venture capitalism pool to more than S1 billion. The EDB influenced growth of the venture capital industry by making direct investments in ventures and by setting up strategic programs designed to grow the industry (Bartzokas & Mani, 2004).

During the 1990s, venture capitalism in Singapore continued to boom. During this time, the government continually directly invested in new ventures with the intention to promote new industries and develop innovative technologies. During the 1997 Asian financial crisis, growth slowed only to rapidly increase in 1999. New venture capital investments in Singapore grew from S100 million in the year of 1992 to over S1000 million of new investment in 1999. Consequently, Singapore's venture capitalism pool grew at an average rate of 28% per annum from 1992-2000. In 1999, venture capitalism in Singapore underwent its biggest year of growth. This growth can be largely attributed to government promotion of information technology and biotechnology (Bartzokas & Mani, 2004).

By the beginning of year 2000, Singapore's position as a global financial hub allowed it to easily transition to become a hotspot for absorbing overseas venture capital funding. By 2001, Singapore-based venture capital funds were only invested in 16 % ventures operating out of Singapore. Other Asian countries and non-Asian countries accounted for the other 67% and 17% respectively (Bartzokas & Mani, 2004). Venture capital firms continued to invest in nearby markets when faced with a drying supply of domestic new ventures. The venture capital industries domestic investing drought would prove to be a problem in the years to come.

By 2004, the Singapore venture capital industry was suffering at the seed level. That is to say the venture capital firms were reluctant to invest in firms at the earliest stages of development and preferred to invest with more established ventures. The industry was also hampered by an insufficient supply of local venture deals. Entrepreneurship was on the decline in Singapore as evidence showed Singaporeans preferred conventional employment over entrepreneurial pursuits (Goliath, 2008). With a lack of domestic investment opportunity, venture capital firms increasingly looked to invest in nearby non-domestic markets.

Significant public funding had pushed the venture capital industry to grow at a phenomenal rate. Singapore now had to find a way to grow and support this industry without such heavy government subsidy. By 2008 the government had not made significant progress cutting back on subsidizing the venture capital industry (Goliath, 2008). Furthermore, despite government-run promotions and

incentives designed to entice entrepreneurs, entrepreneurial spirit was down in Singapore. The global credit crunch of 2008 did not help the industry and deals slowed only to begin to rise in 2009 when venture capital firms were becoming more willing to invest in higher risk seed staged ventures (Silicon India, 2010). Currently Singapore has to re-evaluate the sustainability of their venture capital industry.

APPENDIX 2

Government Incentives In Singapore's Venture Capital Industry

Currently, Singapore has many tax incentives, loan schemes, grants, and programs aimed to promote a healthy venture capital industry. In an effort to attract foreign venture capital firms, encourage entrepreneurship, and promote innovation, the Singaporean Government has made a number of catered tax incentives. Some of the major tax incentives affecting the venture capital industry are: the pioneer industries incentive, the pioneer service companies' incentive, the development and expansion incentive, the investment allowance incentive, the enterprise investment incentive, and the venture company tax incentive (Barkoczy & Sandler, 2007). The "pioneer industries incentive" aims to promote the growth of important pioneer industries by allowing a fifteen-year income tax free period. To qualify for this incentive, a firm has to prove that it is both producing a pioneer product and operating in an industry that is not yet meeting the country's economic needs. The "pioneer service companies' incentive" has similar tax incentives as the "pioneer industries incentive" but applies to pioneer service companies. Companies waiting to qualify for one of the above tax incentives may apply for a "development and expansion incentive" pending approval of a Minister. The "development and expansion incentive" gives a tax reduction on income tax down to a minimum of 5% for a maximum of 10 years. Other tax incentives aim to protect those who invest in new ventures. The "enterprise investment incentive" allows investors to deduct losses accrued from the investment in or liquidation of qualifying shares from approved start-up companies.

Another tax incentive aimed at attracting venture capital firms is the "venture company incentive." This tax incentive gives a reduced tax rate (between 0% and 10%) to approved venture capital firms. In 2010, the productivity and innovation tax credit (P.I.C) was introduced. The P.I.C was geared to promote innovation by giving a tax rebate of 25% on all expenditures classified by the minister as innovative. Lastly, the "investment allowance incentive" further improves a new venture's ability to access capital by allowing companies to deduct up to 100% of capital expenditures on projects approved by the Minister. In addition to tax incentives, the Singaporean Government also offers other subsidy aimed to promote new ventures (Barkoczy & Sandler, 2007).

Singapore's economic development agency, known as SPRING, has developed a series of loan schemes to promote the growth of new ventures. SPRING offers several loan schemes through a network of financial institutions that may be used to fund the growth of qualifying SMEs. Other loan schemes offer funding to SMEs trying to internationalize. All loans are subject to approval and firms must meet specific criteria to qualify. To limit the risk exposure of lenders, both the borrowing companies and the Government evenly pay a risk premium to participating financial institutions (SPRING, 2011).

Singapore also subsidizes growth of the venture capital industry through programs such as the SPRING Seeds Program, the Growth-Financing Program, and the EDB Investment Funds. The SPRING Seeds program basically funds new start-ups by matching every dollar of equity raised by a third party for a new start-up. Similar to the SPRING Seeds program, the growth financing program funds start-up ventures but focuses on new ventures intending to expand overseas. Lastly, the EDB operates several venture capital funds through EDB Investments Pte Ltd. These funds frequently invest in high-tech

biotechnology ventures, pharmaceutical ventures, and medical technology ventures (Barkoczy & Sandler, 2007).

There are more than six grants aimed to further promote the industry and many have similar effects as the already mentioned subsidies. The “Local Venture Technical Assistance Scheme” reimburses ventures that seek help from external experts. The “Training Assistance Scheme” assists ventures needing to train their employees with specialized skills. Other unique grants include patent protection grants and grants designed to fast track the commercialization process (Barkoczy & Sandler, 2007).

The Singaporean Government has set up Enterprise Development Centers to consult new ventures with their financing, growth or marketing needs. Additional support has also been given through the Government’s website called DEALS where new ventures are matched with venture capital firms for investment funding. Despite Singapore’s venture capital industry’s growth, many argue it has been over-subsidized (Barkoczy & Sandler, 2007).

APPENDIX 3

Sample Survey for Students

i) Your gender?

Male Female

ii) Please state your nationality: _____

1.) Are you currently or have you been a student in the past 3 years?

- a) Yes
- b) No

2.) When it comes to your career path, what choice do you prefer?

- a) You aspire to follow entrepreneurial pursuits?
- b) You aspire to follow traditional employment streams?

3.) With respect to entrepreneurial endeavors, which of the following is a greater concern?

- a) A lack of necessary knowledge about the industry in which you plan to operate
- b) A lack of good business ideas for a business
- c) A fear of failing