The Roles of Finance at Different Growth Stages of Startups

By

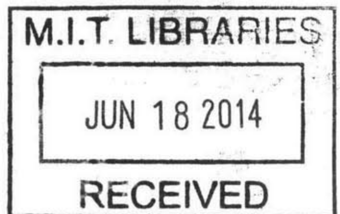
Yue Fu

Bachelor of History
Peking University, 2007

SUBMITTED TO THE MIT SLOAN SCHOOL OF MANAGEMENT IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE IN MANAGEMENT STUDIES
AT THE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

JUNE 2014



© 2014 Yue Fu. All Rights Reserved.

The author hereby grants to MIT permission to reproduce and to distribute publicly paper and electronic copies of this thesis document in whole or in part in any medium now known or hereafter created.

Signature of Author: Signature redacted

MIT Sloan School of Management
May 9, 2014

Certified By: Signature redacted

Michael A. Cusumano
SMR Distinguished Professor of Management and Engineering Systems
Thesis Supervisor

Accepted By: Signature redacted

Michael A. Cusumano
SMR Distinguished Professor of Management and Engineering Systems
Faculty Director, M.S. in Management Studies Program

The Roles of Finance at Different Growth Stages of Startups

By

Yue Fu

Submitted to the MIT Sloan School of Management on May 9, 2014 in partial fulfillment of the requirements for the degree of Master of Science in Management Studies

ABSTRACT

The purpose of this qualitative case study is to develop a framework that summarizes the finance-related problems faced by entrepreneurs at different development stages of their startups, as well as the possible solutions that generated from more than eighty examples. The sources of the examples are 1) author's own experience; 2) the face-to-face interview with two successful serial entrepreneurs at MIT Sloan School of Management; 3) the case studies from past literature (Flamholtz & Randle, 2007; Hess, 2010; Matthews & Dennis, 2003). The study findings and the analysis generated nine finance themes, which might provide insight into understanding the successful/failure factors of startups, and might offer best practices for entrepreneurs to follow. The themes covered the most important areas of financial management including cash, planning, and finance personnel.

Thesis Supervisor: Michael A. Cusumano

Title: SMR Distinguished Professor of Management and Engineering Systems

Page intentionally left blank

ACKNOWLEDGEMENT

I wish to thank and acknowledge my thesis advisor, Prof. Michael Cusumano for his continuous support and guidance. Especially when I decided to change the thesis topic in late February, Prof. Cusumano approved my petition without hesitation and agreed to be my advisor. Prof. Cusumano invested a great deal of time in assisting me throughout the process and provided valuable recommendations and critical insight that helped me move forward.

I would like to acknowledge the startup entrepreneurs, Imran Sayeed and Lucas Tatone, who kindly agreed to participate in the study. Without their participation, this thesis would not have been possible. The many valuable insights they provided made the study more meaningful.

I would like to acknowledge Prof. Roberto Rigobon, who kindly agreed to guide me on the thesis first and then considerately understood my decision on changing the topic.

I would like to acknowledge MSMS program staff Chanh Phan, Julia Sargeaunt, and Christine Bolzan. They have been always extremely supportive and given me great advices on academics, campus life, and job searching even before I met them in person.

I would like to acknowledge my wonderful MSMS classmates. Nine months are short, but the memories are rich. I appreciate the intimacy we share and the diversity that each individual represents. I cannot imagine what this stressful year would be like without their accompaniment and friendship.

Finally, I wish to acknowledge my parents. They are always there when I need them. Without their support, this challenging journey would not have been possible. I wish I had expressed my thankfulness and love to them more.

Page intentionally left blank

TABLE of CONTENTS

ACKNOWLEDGEMENT....................v

TABLE of CONTENTS....................vii

LIST OF TABLES....................viii

LIST OF FIGURES....................viii

1 Introduction....................1

1.1 Background of the Problem....................1

1.2 Statement of the Problem....................1

1.3 Theoretical Framework....................2

1.4 Nature of the Study....................3

1.5 Summary....................4

2 Definition and Literature Review....................5

2.1 Small Business and Startup....................5

2.2 Entrepreneur and Entrepreneurship....................7

2.3 The Success and Failure Factors of Startups....................9

2.4 Statement of the Problem....................11

2.5 The Growth Cycles of Startups....................11

2.6 Summary....................14

3 Financial Management in Startups....................15

3.1 Existence/Survival Period....................17

3.2 Success Period/Preparation for Take Off....................22

3.3 Takeoff Period....................27

4 Conclusion....................32

4.1 Summary....................32

4.2 Scope and Limitations....................32

4.3 Significance of the Study....................33

4.4 Suggestions for Future Research....................33

Reference....................34

Appendix....................38

LIST OF TABLES

Table 1 Standards of SMEs in Different Industries Set by SBA 6
Table 2 The Five Stages of Small Business Growth.. 13
Table 3 Two Integrated Frameworks of Growth Stages for Startups 13
Table 4 The Essential Tasks of the Nine Finance Themes at Different Growth Stages... 17
Table 5 The Correlation between Annual Sales and the Growth Stages for Startups 31

LIST OF FIGURES

Figure 1 The Importance of Management Factors at Different Growth Stages (Churchill & Lewis, 1983) 15
Figure 2 The Importance of Financial Themes at Different Growth Stages of Startups .. 17

1 Introduction

1.1 Background of the Problem

Startup and entrepreneurship are hot topics. Compared to being hired as an employee in a large company, being an entrepreneur and starting your own company are associated with high returns and high risks at the same time. A longitudinal analysis in US showed that 64 percent of new technology ventures failed after four years, and the rate reached 78.1 percent after five years (Song, Podoynitsyna, Van Der Bij, & Halman, 2007).

The high failure rate of startups has triggered scholars' interests. Past literatures covered both indigenous and endogenous factors (Rasheed, 2005). Indigenous factors include leadership style (Swiercz & Lydon, 2002), firm size, human resources (Simmons, 2007), industry experience, patent protection, (Song et al., 2007), formal marketing planning/research integrated with strategy (Roberts, 1991), culture (Choueke & Armstrong, 2000), planning, financial management, and performance monitoring(Collis & Jarvis, 2002). Endogenous factors include government regulations, competition for labor, decline in demand (Wilkinson & Mellahi, 2008), location (Simmons, 2007), business life cycle (Wheatley, 2006), supply chain integration, market scope (Song et al., 2007), etc. Financial management and planning are among the names mentioned most (Beaver, 2003; Collis & Jarvis, 2002; Simmons, 2007; Song et al., 2007).

1.2 Statement of the Problem

Although the importance of financial management is recognized, not many research discussed how to implement good financial practices in startups. Entrepreneurs are rarely born to be finance person. Innovation, alertness, and judgmental decision-making are three pillars for entrepreneurship (Bjørnskov & Foss, 2007; Zhang, 2012). But a good finance manager tends to be fact-driven, risk-reverse, and well organized to follow standardized processes.

Clearly, the personality and the skill sets required by a good entrepreneur and a good finance manager are contradictory to each other. This causes two problems: 1) the startup founders ignore the importance of the finance function; 2) the founders lack the proper knowledge to build an effective finance function or to assess the qualifications of the finance people they need to hire.

The aim of the paper is to fill the gap between the research and the practice, providing a framework with some feasible suggestions for entrepreneurs to follow. The study is not only significant to entrepreneurs, but also helpful to government, venture capitalists, and professors teaching entrepreneurship.

1.3 Theoretical Framework

Based on the past literature, I defined startup as a standalone venture with a scalable business model based on innovations, whose sales growth rate is expected to be above 20 percent for four straight years, and which is likely to influence the market and the industry.

I fine-tuned the growth stages developed by Churchill (Churchill & Lewis, 1983) to fit my discussion:

1) Existence/Survival: the startup at this stage is prototyping its first product/service, targeting the beachhead market, and acquiring its first few paying customers.
2) Success: the product/service has been validated by a niche market; the startup has a sufficient size and enjoys a profit margin usually higher than industry average; the competitors emerge.
3) Takeoff: the startup is developing at very high speed. It needs to acquire sufficient resources (capital, talents, etc.) to build solid infrastructure to support its growth.

I broke down the financial management into nine categories centered on three themes:

1) Cash Flow: cash, working capital, revenue, cost control

2) Plan: planning, process, metrics/measurement
3) Personnel: recruiting finance staff, the role of CEO

My framework is a three by nine matrix combined the growth stages and the themes on financial management.

1.4 Nature of the Study

This is a qualitative study. I choose this methodology because it provides the first-hand experience from entrepreneurs who have gone through the successes/failures of their own startups. Considered the diversity and complexity of natures of startups, qualitative case study research can help researchers understand better the situation and the rationale behind the decisions.

The case studies come from three resources:

1) My own experience. I have been the Chief Financial Officer in an education startup for two years.
2) Two face-to-face interviews with two successful entrepreneurs who have grown at least one company from a small number of people to an established organization. Please refer to Appendix for the interview details.
3) Cases from past literatures: The main three books: *Growing An Entrepreneurial Business* (Hess, 2010) contains 35 cases and focuses on the major management challenges that successful startups encounter when leaders decide to grow and scale their businesses. *Lessons from the Edge* (Matthews & Dennis, 2003) interviewed 50 business owners and entrepreneurs and offered a wealth of real-life stories in first person perspective that provide insights about keeping a company healthy and growing. *Growing Pains* (Flamholtz & Randle, 2007) gave insightful analysis on how startups can make the transition to become large, professionally-managed organizations.

1.5 Summary

In this thesis, chapter 1 contains an introduction of the problem that the thesis plans to analyze, as well as the framework and the methodology the author used. Chapter 2 includes a review of the literature focusing on startups and entrepreneurship. It entails a discussion of success/failure factors of startups and why financial management is an important factor but has been overlooked by entrepreneurs. It also establishes a base for the theoretical scheme. Chapter 3 develops a framework combining the growth stages and the important themes in financial management, and gives detailed recommendation on implementation. Chapter 4 summarizes the findings and provides an opinion on future studies.

2 Definition and Literature Review

(Neuman, 2003) identified four goals for conducting a literature review: (a) to exhibit knowledge in the field of research and to establish credibility; (b) to place the study in context with prior research; (c) to point out where prior researches concur, where they disagree, and whether gaps exist about the direction of future studies in this field; and (d) to learn from others. Due to the limited literature on the roles of finance plays at different stages of startups, the purposes of my literature review are 1) providing clear definition of important terms related to this topic; 2) discussing the factors that have an impact on the success/failure of startups to position the roles of finance; 3) establishing the base of the research framework.

2.1 Small Business and Startup

The importance of small and medium enterprises (SMEs) to economy has been a common perception. According to United States Small Business Association (SBA), the 23 million small businesses in America account for 54 percent of all U.S. sales, and small businesses provide 55 percent of all jobs and 66 percent of all net new jobs since the 1970s ("Small Business Trends | SBA.gov," n.d.). By end of 2012, 98 percent of the employers in Canada were small business ("Key Small Business Statistics - August 2013 —How many businesses are there in Canada? - SME Research and Statistics," n.d.) Early empirical studies have pointed out that SMEs were an important engine of employment growth (Birch, 1981). This perception was reinforced again and again by policymakers: every president since President Reagan has included such statements in major addresses (Haltiwanger, Jarmin, & Miranda, 2012).

To define SME is not easy. SBA sets different standards for two metrics depending on the industry: the average annual sales and the average number of employees. I use some segments in tech industry as an illustration (Table 1).

NAICS Codes	NAICS Industry Description	Size Standards in millions of dollars	Size Standards in number of employees
518210	Data Processing, Hosting, and Related	$30.0	

	Services		
541512	Computer Systems Design Services	$25.5	
519130	Internet Publishing and Broadcasting and Web Search Portals		500

Table 1 Standards of SMEs in Different Industries Set by SBA

SMEs can be categorized into different types, and many literatures have opinions on this topic. Due to the extremely centralized decision-making nature of SME, the types of entrepreneurs can represent the types of SMEs. Donegan put SMEs into four types: 1) Mom & Pops: a single-site operation that serves more as a lifestyle endeavor to owners; 2) Family owned: to enrich the lifestyle and culture base for owners and their immediate family; 3) Startup characterized by new product or technology with burgeoning markets; 4) Net Ventures whose business models are based almost exclusively on Internet (Donegan, 2002). Price identified seven types of entrepreneurs: 1) Small Business, Lifestyle, and Family Entrepreneurs; 2) Franchise Entrepreneurs; 3) Professional Fast-Growth and Serial Entrepreneurs; 4) Corporate Entrepreneurs and Intrapreneurs; 5) Creative Disrupters and Innovators; 6) Extreme Entrepreneurs; 7) Social and Nonprofit Entrepreneurs (Price, 2004). Aulet simply used two categories: 1) SME Entrepreneurship: the type of business started by one person to serve a local market and grows to be an SME that serves this local market. 2) Innovation-Driven Enterprise (IDE) Entrepreneurship: the company is based on some sort of innovation (technology, business process, model) and potential competitive advantage; it focuses on global/regional markets (Aulet, 2013).

All the above categorization methods share a few common criteria: 1) the scalability of the business; 2) the risks that the owner takes; 3) the potentials and the speed of growth; 4) the deployment of new product, new technology or new business model; 5) the impact on the industry and economy.

A more quantitative research provides more information on the speed of growth of startups. When Roberts defined the degrees of success for 21 Greater-Boston-based startups ranging from five to 20 years old in high-technology industry, he divided them into four categories using annual average compound growth rate of revenues (CAGR) and return on equity (ROE): 1) most successful, average CAGR at 60 percent, average ROE at 25 percent, 2) reasonably successful type A, average CAGR at 57 percent, average ROE at 10 percent, 3) reasonably successful type B, average CAGR at 23 percent, average ROE at 21 percent, 4) not successful, average CAGR at 20 percent, average ROE at minus 9 percent (Roberts, 1991). According to his framework, 20 percent annual growth rate of revenues is the bottom line for a successful startup.

Based on the above discussion, **I define "startup" that will be analyzed in this thesis as a standalone venture with a scalable business model based on innovations, whose sales growth rate is expected to be above 20 percent for four straight years, and which is likely to influence the market and the industry.**

2.2 Entrepreneur and Entrepreneurship

Since the startup is extremely closely related to its owner – the entrepreneur, it worth a detailed analysis on entrepreneur and entrepreneurship. Many scholars regarded three main elements to be characteristics of entrepreneurship from past literature: innovation, alertness, and judgmental decision making (Bjørnskov & Foss, 2007; Zhang, 2012).

First, entrepreneurs must be innovators. Schumpeter defined entrepreneur as the individual who carries out the new combination of means of production and financing (Schumpeter, 1934). As he put it clearly: "*The slow and continuous increase in time of the national supply of productive means and of savings is obviously an important factor in explaining the course of economic history through the centuries, but it is completely overshadowed by the fact that development consists primarily in employing existing resources in a different way, in doing new things with them, irrespective of whether those resources increase or not.*" In Schumpeter's conception, the entrepreneur don't need capital, or even work within the confines of a business firm at all

(Bjørnskov & Foss, 2007). And the innovation can be on product, or process, or technology, or market, or business model, etc. However, "*people act as entrepreneurs only when they actually carry out new combinations, and lose the character of entrepreneurs as soon as they have built up their business, after which they settle down to running it as other people run their businesses*" (Ekelund & Hebert, 2007). The only exception is people who exist the venture after the business is established and go on to create a new startup. That's what Price called "Professional Fast-Growth and Serial Entrepreneurs".

Second, entrepreneur is alter to profit opportunities and is able to create a venture to pursue them. The profit source is from the disequilibrium in the market, and entrepreneurs are able to discover the disequilibrium and fill the gap before other market participants (Kirzner, 1978). An extreme example is a broker who benefits from matching the demand that hasn't been fulfilled with the supply that hasn't found a customer in the market. And establishing his own firm as the vehicle to realize the gains should be a normal conduct for an entrepreneur (Zhang, 2012). What's the relationship between innovation and alertness? When we generally don't regard a street shop selling ordinary goods (a typical example of lifestyle business) as innovative, what if this street shop successfully identify the emerging demands of the local community and adapt its business model to meet this demand? I would say that sometimes alertness is understood as a byproduct of the innovative idea of entrepreneurship (Parker, 2009).

Third, entrepreneurs are judgmental decision makers under conditions of uncertainty (Bjørnskov & Foss, 2007). They have the power to decide the most crucial strategies in business: which product to develop, which market to enter, which investment to make, etc. A big difference between an entrepreneur and a CEO of a Fortune 500 company is the average uncertainty level they are facing when making decisions. Entrepreneur makes decision when the range of possible future outcomes, let alone the likelihood of individual outcomes, is generally unknown, i.e., he faces uncertainty rather than probabilistic risk (Knight, 1921). Because judgment in this perspective is entirely idiosyncratic to the entrepreneur, the transaction costs of judgment are very high (Foss & Klein, 2004). However, only by making those judgmental decisions proactively, can entrepreneurs grab the profit chance that they have identified.

To conclude, innovation, alertness, and judgmental decision-making are three pillars for entrepreneurship. A qualified entrepreneur should possess all the three characteristics, and the different combinations determine the different type of entrepreneurs and the startup he/she creates. For example, Steve Jobs and Bill Gates: in the early stage of their career, Jobs was more innovative and created Macintosh, a masterpiece in PC industry; while Gates was more alert to profit opportunity and bought the rights to 86-DOS to modify it to MS-DOS to supply to IBM.

2.3 The Success and Failure Factors of Startups

The risk of initiating a startup is well recognized. A study by SBA cited by Rogers (Rogers, 2002) showed the following failure rates for small businesses: 23.7 percent within two years after initiation; 51.7 percent after four years; 62.7 percent after six years; 80 percent after ten years. The survival rate of startups is even lower. A longitudinal analysis in US showed that 64 percent of new technology ventures failed after four years, and the rate reached 78.1 percent after five years (Song, Podoynitsyna, Van Der Bij, & Halman, 2007).

The high failure rate of startups triggered scholars' interests, but the ultimate causes have not yet identified. The difficulty here is that the solutions developed from the general organizations do not address the appropriate areas relating to small businesses (Simpson, Tuck, & Bellamy, 2004). Compared with large firms, startups generally have loose organization structures with highly centralized decision-making process, limited resources (Carrier, 1994), minimal planning processes (Atkins & Lowe, 1997), great uncertainty, and high dependency upon business partners (Raymond & St-pierre, 2005).

There are general two approaches trying to address this problem: indigenous and endogenous (Rasheed, 2005). Indigenous factors focus largely on leadership and management. (Swiercz & Lydon, 2002) investigated the entrepreneurial leadership in high-tech firms; (Aguirre, 2008) studied small business leadership in Mexico; (McKinney, 2009) explored the leadership

characteristics of small business owner-founders in the United States; and (Niselovitch, 2011) did a phenomenological study on the technology startups in Israel. It worth noting that managing small businesses is a unique endeavor, as it requires leaders to work on short-term survivals while investing in long-term strategic goals (Beaver & Jennings, 2005). The new and unpredictable market requires leaders to be able to adapt quickly to changing demands (Beaver & Jennings, 2005).

Besides leadership, other indigenous factors identified include: firm size, human resources, management skills, blind optimism (Simmons, 2007), industry experience, innovation, patent protection, size of funding team (Song et al., 2007), formal marketing planning/research integrated with strategy (Roberts, 1991), culture (Choueke & Armstrong, 2000), planning, financial management, and performance monitoring(Collis & Jarvis, 2002). Financial management and planning are among the names mentioned most (Beaver, 2003; Collis & Jarvis, 2002; Simmons, 2007; Song et al., 2007).

Identified endogenous factors include government regulations, competition for labor, decline in demand (Wilkinson & Mellahi, 2008), location (Simmons, 2007), business life cycle (Wheatley, 2006), supply chain integration, market scope (Song et al., 2007), etc. And funding is considered one of the most critical factors (Maital, Ravid, Seshadri, & Dumanis, 2008; Song et al., 2007).

(Song et al., 2007) point out that empirical results about success/failure factors for startups are controversial and contradictory due to different methodologies, study designs, variables used in statistics, and non-comparable samples. However, finance related topics, no matter indigenous (financial management) or endogenous (funding), are widely recognized as the essential factors influencing success and failure of startups.

2.4 Statement of the Problem

We identified that the three pillars for entrepreneurship are innovation, alertness to profit opportunities, and judgmental decision-making with uncertainties. They are contradictory to what make a good finance manager: the analytical capability based on data and facts, the risk-reverse attitude, the passion for standardized and controlled process, etc. In short, the skill sets required by a good entrepreneur and a good finance manager are very different. What makes the issue more serious is that entrepreneurs tend to ignore the job they are not capable to do or they are not passionate about. Growth is more exciting than implementing processes.

Therefore, the problem is severe because 1) the startup founders do not understand the importance of the finance function; 2) the founders are lack of the proper knowledge to build an effective finance function or to assess the qualifications of the finance people they want to hire.

The past studies have recognized the key impact of finance on startups. However, it's hard to find any literature on the detailed analysis of the roles of finance played in startup or the practical solutions to avoid the mistakes related to finance. This thesis is aimed to fill this gap, providing a framework with some feasible suggestions for entrepreneurs to develop an adequate finance function from the beginning.

2.5 The Growth Cycles of Startups

A large number of literatures have developed theories to characterize the growth stages of startup. Most of them use a biological model to follow life cycle of human development from conception through multiple steps finally reaching maturity and decline (Churchill & Lewis, 1983, cited in Niselovitch, 2011). For example: a four-stage model: 1) birth, 2) growth, 3) decline, and 4) death (Jones, 2012).

Other models have slightly different perspectives. Focusing on the specific startup phase, (Price, 2004) gave a seven-stage framework: 1) opportunity recognition, 2) opportunity focusing, 3)

commitment of resources, 4) market entry, 5) full launch and growth, 6) maturity and expansion, 7) liquidity events. (Schein, 2010) identified three stages from a culture perspective: 1) founding and early growth, focusing on attaining resources; 2) midlife, focusing on changing the conservative beliefs and stimulating cultural change; and 3) maturity, focusing on staff and broaden the range of the firm's products.

A popular perspective is financing. Berger and Udell established the widely acclaimed financial growth cycle model (Berger & Udell, 1998): 1) Initial insider finance: provided by the startup team, family and friends; 2) Intermediated finance: provided by venture capital (on the equity side) and banks, finance companies, etc. (on the debt side); 3) Public finance: provided by stock markets and debt markets. (Fuerst & Geiger, 2002) presents a five-stage model: 1) pre-seed financing - an immature idea with an incomplete management team and unproven feasibility; 2) seed financing - a company has been formed with basic management and typically a business plan and demo; 3) first-stage financing - a functioning company with good market understanding and working prototype or product; 4) second - and third-stage Financing - solid management team with functional marketing and sales system and existing or pending sales; 5) pre-IPO financing - 12 to 18 months before an IPO.

The most relevant frameworks to this thesis are those integrated with management factors, such as managerial style, organizational structure, extent of formal systems, major strategic goals, and the owner's involvement (Churchill & Lewis, 1983). I chose the model developed by Churchill and summarized it in Table 2 below:

Stage	Characteristics	Challenges	System and Process
Existence	- Focus on obtaining customer - Deliver product/service contracted for	- Expand customer base - Have enough money to cover the cash demands of startup phase	Minimal to nonexistent
Survival	Satisfy a number of customers sufficiently with its product/service to	- Generate enough cash to breakeven	Formal planning is, at best, cash forecasting

	keep them	- Generate enough cash to finance growth if the owner wants to grow	
Success	- Attain true economic health, sufficient size and product market penetration to ensure economic success, and earn average or above-average profits	- Decide whether to use the company as a platform for growth - Avoid cash drain in prosperous periods - Establish borrowing power	- Functional management and operational budgets in place - First professional staff on board - Strategic planning is crucial to move to next stage
Take-off	Grow at high speed	- How to grow rapidly and how to finance the growth	- Decentralized - Operational & strategic planning in place
Resource Maturity	The company now has the advantage of size, financial resources, and managerial talents.	- Consolidate and control the financial gains - Retain the advantages of small size; eliminate the inefficiency	- Dedicated planning, standardized cost system - Capable and experienced managers on board

Table 2 The Five Stages of Small Business Growth

Actually, the frameworks of (Fuerst & Geiger, 2002) and (Churchill & Lewis, 1983) can be integrated perfectly.

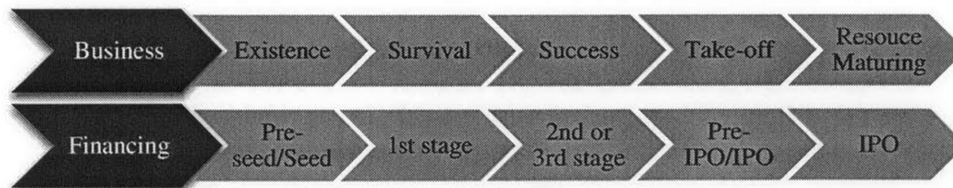


Table 3 Two Integrated Frameworks of Growth Stages for Startups

According to the definition of startup stated in 1.1, the following analysis will focus on the Existence, Survival, Success and Take-off periods, and I will put Existence and Survival together since there are not many differences of the financial management between these two periods. At Resourcing Maturing period, the company is much more like an established enterprise rather than a startup, so it's out of the scope of this thesis.

2.6 Summary

The purpose of this chapter is to,

1. Define the scope of this thesis: startup is a standalone venture that is established within five years with a scalable business model based on innovations, whose sales growth rate is expected to be above 20 percent for four straight years, and which is likely to influence the market and the industry;
2. State the problem that will be analyzed in the thesis:
   a. Financial management is one of the essential factors to impact the success or failure of startups
   b. However, the skill sets required by financial management and by entrepreneurship are very different. Entrepreneurs tend to ignore the part that they are not familiar with.
3. Provide the framework for discussion: I will analyze the financial management in startups and the essential tasks that need to be prioritized at each growth stage based on the framework illustrated in Table 2.

In the next chapter, I will develop a framework on the different themes of finance function in startups based on the different characteristics of growth stages, and provide feasible practice recommendations.

3 Financial Management in Startups

When people think about finance in startups, they often only mean "financing" or "funding". Interestingly, after investigating more than 50 entrepreneurs who have made serious mistakes in their startup experience, Matthews concluded: *Getting the money is the easy part. Spending it wisely, planning, hiring the right people, building an organization to support growth, and placing your bests on products, services, and market niches – that's the hard part* (Matthews & Dennis, 2003). I hope my thesis could provide some insight to this hard part.

When discussing the growth stages of startups, (Churchill & Lewis, 1983) also illustrated the importance of different management factors at different stages, as shown in Figure 1.

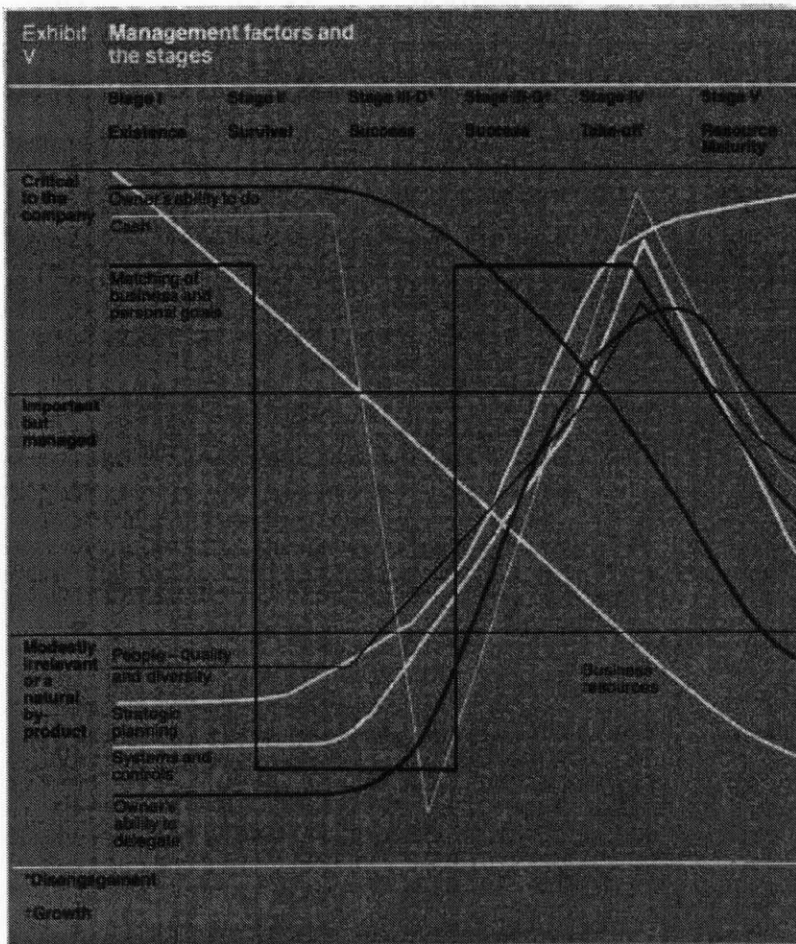


Figure 1 The Importance of Management Factors at Different Growth Stages (Churchill & Lewis, 1983)

All the factors shown in Figure 1 are directly or indirectly related to financial management. I breakdown the finance function into nine themes centered on three core factors:

1) Cash Flow: cash, working capital, revenue, cost control
2) Plan: planning, process, metrics/measurement
3) Personnel: recruiting finance staff, the role of CEO

I listed the essential tasks for each theme at each stage in Table 4 below.

Theme	Existence/Survival	Success	Take-off
Cash	Tight	Relatively loose	Very Tight
Working Capital	Analyze the credit status of customers; Recognize unearned revenues for software companies	Diversify the customer base; Inventory management	Analyze the credit status of the quickly expanding customer basis
Revenue	Establish pricing structure	Revenue recognition	Pricing Segmentation
Cost Control	Balance between marketing & sales costs and R&D costs	Focus on administration cost; Make the cost structure agile with new technologies	Increase R&D investment; Generate synergy by integrating back office;
Planning	Long-term organizational chart; Cash flow projection	Consider worst scenario when planning	Improve operational planning; Begin strategic planning
Process	Establish basic accountant/cashier disciplines; Do background check for employees	Establish annual operational planning process, accounting system, performance appraisal & compensation system	Continue to improve process implementation; Reconciliation among different systems
Metrics/Measurement	Track data for later use	Adopt traditional but relevant metrics	Adopt new metrics for new business model
Hiring Finance People	Outsource bookkeeping, and hire a part time CFO	Finance controller on board	CFO on board
The Role of CEO	Control every detail;	Learn to delegate;	Delegate and Trust;

	Balance between short-term goal and long-term strategy	Support process implementation; Respect the established processes	Understand the key metrics

Table 4 The Essential Tasks of the Finance Themes at Different Growth Stages

I also use a similar graph as Churchill did to demonstrate the evolvement of the importance of the nine themes at different stages. Please note that the graph may be different for a cash-rich industry such as software.

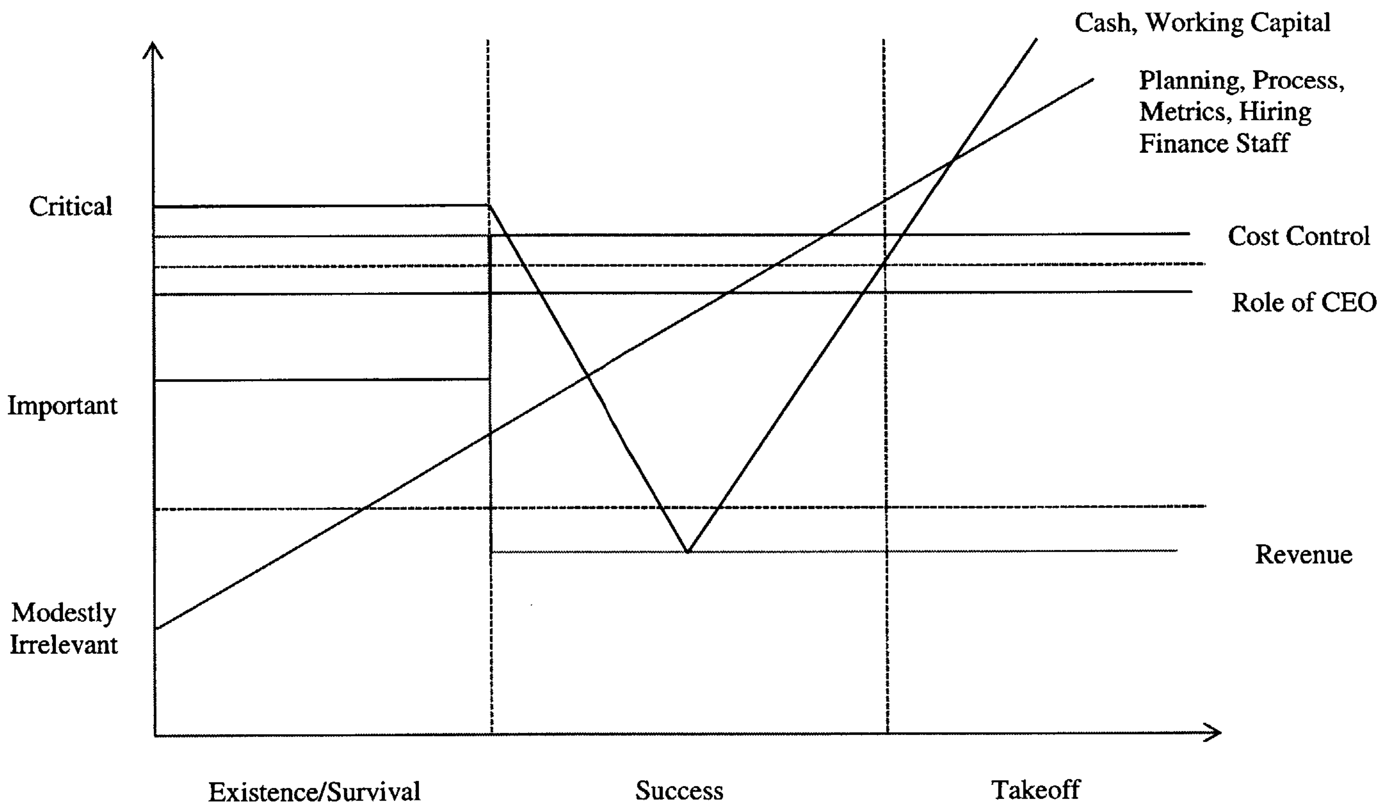


Figure 2 The Importance of Financial Themes at Different Growth Stages of Startups

3.1 Existence/Survival Period

The main tasks of these periods are 1) market exploration: segment the market, choose one as the beachhead, and build an end-user profile; 2) product development: define the core competence of your innovation and prototype the product/service; 3) sales: find the first paying customer and

then expand to the next ten customers, map the sales process to acquire a customer (Aulet, 2013) Finance is involved in these activities but not an independent part requiring special attention.

Cash: Cash is tight at the moment. These two phases are cash consuming, and the funding is moderate. Entrepreneurs should pay close attention to cash.

Working Capital: these items are not cash, but have large impacts on cash. The most important three items in working capital are account receivables, account payables, and inventory, as well as unearned revenue specific to software companies. Entrepreneurs often have a vague idea about working capital. They understand that revenue doesn't equal to cash in bank due to account receivables, but they don't know how to manage them.

- Account Receivables: The best scenario is not to have any accounts receivables, in another word not to give any credit to customers. Receivable collecting is a tough task. It consumes time, energy and resources, and adds risk to your own company. If you have to give credits, be cautious to the credit history of the customers. Don't sell to the customers with bad record or risky finance shape. A number of examples have demonstrated the temporary sales do not worth it.
- Account Payables: Extend the time to pay suppliers as long as possible, but respect the contract and build a good record for you yourself. The secret to have plenty cash in hand is: your customer pay you before you pay your employees and you pay your employees before you pay your suppliers.
- Inventory is not a big problem here, since most productions are made to orders.
- Unearned revenue: It's common in software industry. When a software company sells a multiple year license to one customer, the customer usually pays for the entire amount of the contract. However, the company can only recognize the revenue when the use of license really happens. Unearned revenue is an important reason for software companies to hold more cash than other companies.

Revenue: The single most important element for revenue at this stage is pricing. The business is business only when you find the first paying customer. Pricing is misunderstood by many tech startups. They often overestimate the network effects of their products, and use this excuse to distribute their products for free to penetrate the market. This is deteriorated by the generous venture capitalists, who provide the startups with too much money for operation. However, free is not a business model (Aulet, 2013), and "patient for growth and impatient for profit" (Christensen, Raynor, & Van Bever, 2013) should be the merit here. Besides the specific pricing level, who to charge, how often to charge, and what unit to charge are all important elements in pricing. And customers hate changes in fee structures more than they do changes in price levels (cited from class notes of Catherine Tucker, 2014)

Cost Control: The key to control cost in any period is to make the fixed part as small as possible. The two main types of cost at this stage are R&D expense and marketing & sales costs. (Roberts, 1991) has pointed out that an early transition from internal technical inventiveness to more balanced operation, especially more focus on sales & marketing, would result in ultimate success for high tech startups.

- R&D costs: Many entrepreneurs with technology background are extremely passionate to develop an incredible product. Although product quality and technology advantage are important, validating your idea on market is crucial as well. And incurring too much R&D costs in P&L without revenue is dangerous. A good solution is to find the Minimum Viable Business Product (Aulet, 2013).
- Marketing & Sales expense: A large portion of startups relies solely on the founders' personal contacts to sell for the first six months (Roberts, 1991), so they often underestimate the real cost in this area. The sales at the beginning generally take a longer time to achieve. The real cost should include the expenses associated with reaching to all the potential customers/leads who did not buy your product.

Planning: After seeing so many examples, I believe a good plan from the beginning is essential. When the entrepreneur has succeeded in selling the first product, which means he has a good enough understanding of both the market and the product, this is the proper time to spend

sufficient time in constructing the long-term plan. Draw an organizational chart at different size (Hess, 2010) and decide the essential infrastructure elements to support the size: office space, number of employees, management structure, investment in IT systems, and processes to be outsourced. Specifically to finance, the chart should cover the number of finance staff, the finance process that should be established or outsourced, and the IT enabled system that should be invested at each size. Schultz, the Chairman and CEO of Starbucks said: "We could not have gotten where we are today if we had not had the commitment to build a national company with a national brand from the beginning. If you are going to build a 100-story building, you've got to build a foundation for 100 stories." (Flamholtz & Randle, 2007)

Besides this long-term plan, cash flow projection should start from Day 1. A one-year cash flow statement with monthly breakdown is a minimum requirement.

Process: It's more common than I expected for an entrepreneur to meet an embezzler, and it can be a friend he trusted or someone he employed outside. Usually the story is like this: the entrepreneur was completely occupied by the sales and product development, and he did not like paper work. So he hired someone and asked this person to take care of all the finance stuff for him. Until a large enough gap between the sales and the bank balance appeared, had he realized the person embezzled in the company fund. David Schulhof was the founder and managing partner of Envisions, a direct marketing company that sold computer products. He did not discover his accounting manager has stolen $200,000 from the company bank account, until his suppliers complained not getting paid (Matthews & Dennis, 2003).

I suggest entrepreneur take care of all the revenue and spending himself at this stage. It should not take more than 20 percent of his time. In Roberts' survey for high tech startups, the efforts allocated on finance and administration by founders during the first six months is on average 16 percent (Roberts, 1991). If it is not feasible, I strongly recommend the founder to sign every check he/she needs to pay, and review the bank balance on a weekly basis. If this is still too much, separate the accounting work between an accountant and a cashier to make the cheating

more difficult. Conduct background check on every employee especially the finance staff. Set a threshold for the highest amount the cashier can pay on behalf of the company.

Metrics/Measurement: Before understanding the drivers of the business, it is very difficult to develop effective metrics to measure the performance. This is not the priority at this stage. Track data for later use, including Cost of Acquiring a Customer, Account Receivables/Payables/Inventory Turnover, gross margin, operating margin, and churn rate if you are using a subscription model.

Hiring Finance People: There is no need to hire a full time finance people at this stage. Outsourcing the bookkeeping work is a common practice. If capital permitted, you can hire an accountant, and the entrepreneur plays the role of cashier; or you can hire an accountant and a cashier, and the entrepreneur acts as the controller. It would be great beneficial to work with a part-time CFO from the beginning, as Sayeed did in his first startup (Please refer to Appendix for details). The part-time CFO can add lots of value to the company, helping with the budgeting, establishing basic processes, securing the line of credit from the bank, raising funds, etc. He can be a senior manager or a partner from an accounting firm, which is affordable for most startups.

The Role of CEO: This is the time that the CEO should fight at the front line in every aspect, no matter the sales, the product development, or the finance job. This is not the time to delegate, when the process has not yet established. The CEO should understand every detail of the business and control it in his hand. However, the CEO should balance the time spending on short-term crisis and long-term plan. Only in this way, can he prepare for the high growth happening at the later stage.

(Hess, 2010) cited some words from the CEOs of startups: *One CEO told me the only way he got time to think was to leave for an hour some days and take a drive in the country. Another CEO told me he took a day a week and went elsewhere to think about the five most important challenges the company was facing.*

3.2 Success Period/Preparation for Take Off

A startup at this stage has sufficient size and product market penetration (Churchill & Lewis, 1983). It has developed a good base of customers. The manufacturing and sales processes are simple but function well. The profit is satisfying or even above the industry average. The company can stay at this stage indefinitely, and lots of lifestyle entrepreneurs choose to do so. However, if the entrepreneur is more ambitious, the two main tasks in this period are to acquire sufficient resources (capital, talents, technology, etc.) and to develop proper infrastructure to prepare for the growth that might happen in the near future.

The ambition can bring more wealth as well as more risk. Nobody can predict precisely how long it will take for the takeoff period to come. And during this uncertain time, lots of bad things may happen: new competitors may emerge, the market may turn to a substitute, and the macroeconomics may experience a downturn, just like in 2001 when the dot com bubble burst. Therefore, if you invest too much and result in a large overhead, the headwind can easily blow you down. But if you invest too little, you will regret missing lots of growth opportunities when your company takes off, because you don't have sufficient capacity to deliver.

A key solution to this dilemma is to make the cost structure as agile as possible. However, it's almost impossible to make the entire costs variable. For example, R&D and management salaries are generally fixed. Therefore, my opinion is being slow is better than being dead. It's OK to miss some opportunities and grow slower, but unmanaged growth at breakneck speed can easily kill you. A good example about growing slow, Eyebobs Eyewear is a startup selling stylish reading glasses. The founder, Julie Allinston, used her life's savings as seed capital and funded growth entirely out of cash flow. She didn't take any loans or venture capital (VC) funds. It took her six years to earn $1 million in sales. But the next year, the company hit $4.5 million revenues (Hess, 2010). Unfortunately, this idea may not apply to many tech startups, because they have to take VC funds to finance their business model. And the VC will urge them to grow as fast as possible.

Cash: This is the only period in startup phase that cash is not so tight. But this brings another risk, overspending.

Working Capital:

- Account Receivables: The key point is to diversify the customer base. Never let any customer account for over 20 percent of your total revenue. I have seen a bunch of cases that the startups got into trouble because of their customers' credit problem. For example, a startup named FuturePages in media planning and placement industry has suffered from its biggest customer, who was about to file an IPO but filed for bankruptcy instead, and left FuturePages a quarter million dollars in receivables (Matthews & Dennis, 2003).
- Account Payables: Same as account receivables, diversify the supplier base.
- Inventory: It's good time to establish some inventory process. Install inventory management software, but only buy the economic version. Use the historical data and industry average data to set a target inventory turnover.

Revenue: A big challenge for companies that collect payments long time before/after delivering product/service is the timing to recognize the revenues. Software industry especially has this problem due to the complex deliverable arrangements, including software products, upgrades/enhancements, post-contract customer support or services, and elements deliverable only on a when-and-if-available basis (Ernst&Young, 2012). For startups that do not have the qualified personnel to do the job, the best solution is to outsource it. Management should also be aware this situation creates a good base for fraud. If the management pushes too hard on revenue growth, the responsible manager has the pressure to fake the revenue.

Cost Control: We have stated earlier that a key solution to solve the dilemma between overspending and under development is to keep the cost structure as agile as possible. We can achieve this goal to a large extent with the help of new technologies and new services. A SaaS company doesn't need to construct networking infrastructure itself, instead it can rent Amazon's public cloud service, and it is charged by usage. This turns a fixed cost into a 100 percent

variable cost. The same is for CRM costs or marketing costs. Now the startups can subscribe the service at Salesforce.com or Hubspot, which provide great flexibility for the company to adjust the cost according to the business shape.

However, the above solution cannot solve the problem of administration expenses. They can easily go out of control, since you don't feel the cash pressure as much as before. Remember to be critical to every spending, and make sure it can bring back more profits.

- Marketing & Sales expenses: The cost of acquiring a customer should decrease with time, except you depend exclusively on direct sales. Direct sales are expensive and difficult to scale. World of mouth is the cheapest distribution channel.
- Administration expenses: You need to rent new office space, bring more people to the management team, invest in IT infrastructure, etc. Don't sign anything long-term to lock yourself into the obligation to pay. It may seem cheaper at the beginning but you will pay back the cost later.
- Salary is to some extent a long-term obligation and part of fixed cost. You can design the salary into a performance incentive scheme: the base is low, and the bonus is correlated with the company performance. So you can align the payroll schedule with the cash flow schedule.

Planning: The company has reached the stage of success. Everything seems going smoothly and there is big opportunity lying in front. This is exactly when you need to consider the worst scenario. Question yourself really hard: how much of my growth is actually coming from the good macroeconomics/generous investment environment? Would my product/service have the ability to survive if all these supports were taken away one day? How much cash do I need in hand if my revenue is 20 percent off my projection? Be especially careful when everybody around you is spending like crazy. It's easy for entrepreneurs to ignore the risks lying in front when everything is going so well. That's exactly what happened to the tech startups before the dot com bubble burst. Kirsten Knight, the founder and CEO of Creative Assets, has met such drama. Expecting the sales to continue to grow at 20 to 50 percent annually, she opened two new offices in Atlanta and Austin, leased office space, hired company officer and staff. But most of her clients were in technology, so when the crisis happened in 2001, the company's revenue

went down 50 percent but the expense went up 50 percent (Matthews & Dennis, 2003). Matthews said in their book: *All our CEOs found their businesses were incredibly sensitive to the ups and downs of the market, and they were surprised at how quickly the economy changed – with little advance notice.* And their suggestion is: *Run your company as if 70 percent of your resources were suddenly taken away*, which I think is too severe, but 20 percent is the minimum for the worst scenario.

Process: This is probably the most important task at this stage. Standardized processes are critical to keep the organization in shape when it's expanding at high speed. Without established process, it's common to see the following situations happening:

- Salespeople sell a product they know is in inventory, only to learn that someone else has grabbed it for other customers.
- One vendor's invoices are paid two and three times, while another vendor has not been paid in six months.
- The revenues are growing, but the profits are declining, and the finance department cannot pinpoint the reasons (Flamholtz & Randle, 2007).
- Etc.

One common mistake in implementing processes is not knowing what processes are needed. Here I list three important processes closely related to finance that should be in place before the company enters the takeoff period:

- Annual planning and budget: every department head should be able to develop a qualified annual plan with budget. The plan should include the ultimate goals for next year, several milestones to track, and finance measurement for evaluation. And there should be at least two versions under optimistic and pessimistic assumptions respectively.
- Accounting system: the system can collect important accurate financial and non-financial data on a timely manner, and the analysis of data is used in decision-making. The roles and responsibilities of each finance staff are well defined. The procedures of closing book, generating report, reporting taxes, paying bills, collecting bills, and paying payrolls should be very smooth. Internal audit should be conducted on a quarterly basis.

- Performance appraisal and compensation: The evaluation system should be correlated with the finance performance of the company and that of the specific department. Then the evaluation result should be linked to the bonus of each individual staff.

Metrics/Measurement: There are some widely used metrics in finance area: account receivables/account payables/inventory turnover, current ratio, profit margin of every product/business division, cost of acquiring a customer, effect of currency fluctuation, order backlog, etc. Choose the most relevant ones to measure your business. For example, to most high tech startups, free cash flow is a much more important than net profit margin.

Hiring Finance People: Reaching this stage, the startup should have an established finance department led by Finance Controller or VP of Finance. There are two obstacles in this area: 1) the founder is lack of knowledge to assess the qualified candidates; 2) generally finance people are quite conservative, they may not be willing to join the firm at this early stage. To solve the first problem, finding a third-party board to help with the decision would be a good choice. And the entrepreneur should remember the rule "Hire slow but fire fast". For the second problem, an alternative is to hire a part-time CFO from an accounting firm to help building all the processes, as we mentioned in the previous stage. I don't recommend people without rich experience in big enterprises. According to my understanding, it is very difficult for a person to establish a process if he has never been in a similar one.

The Role of CEO: At this stage, CEO should 1) learn to gradually delegate his responsibility to other management members, not to be involved in everything; 2) give enough support to process implementation, which is often ignored because it was not as much fun as developing and selling product; 3) lead by example to obey the new rules, follow the new procedures, and execute the new controls. A common challenge here is that entrepreneur himself is not used to these formality brought by processes, and tend to break them with his authority, which is very destructive to the organization and its culture. This exactly happened in my startup experience.

3.3 Takeoff Period

This is the most exciting and at the same time most risky period. If you pass the test, your startup will outstand from the peers and become a real big business. If you fail, you will stay at the success stage or even worse, you may go bankrupt. This is also a period to verify if the entrepreneur has the skills to manage a business not just to initiate one. I have seen many examples in which the founders were replaced voluntarily or involuntarily because they underperformed at this stage.

You have already proven your product/service is successful in one segment. At this stage, you probably want to take the product/service to a new segment, or create a product portfolio to target different customers. It's very easy to be overwhelmed by the enormous opportunities that come to you, or pushed by the emerging competitors in the market. But it's extremely dangerous to go with the flow without controlling your enterprise. Undisciplined growth has killed many promising startups. One of the most famous examples is Osborne Computer, the first manufacturer of mass-produced inexpensive portable PCs. It has grown from two persons to 3,000 employees and $73 million in revenue in 12 months. However, the infrastructure was severely underdeveloped, given his stage of growth. And when some suppliers sued to collect $4.5 million, Osborne filed for bankruptcy under Chapter 11 (Flamholtz & Randle, 2007).

Even you think you have well prepared for this stage, you will probably still feel the resources are limited. You find sometimes you cannot deliver what you promised, or the quality of product declines, or the turnover suddenly increases when you actually need more people. They are all natural because your process cannot accommodate your growth. So the main tasks in this stage are still acquiring sufficient resources and establish well-functioning infrastructure to support the growth. And it's acceptable to apply the brake when you feel the growth is likely to be out of your control.

Cash: cash is tighter than ever. Spend every penny with a second thought: what would this investment bring back to me? Is there any cheaper alternative? Can I adopt new technology to

reduce the cost? And prepare a comfortable cash cushion for your business, because a lot of unexpected emergencies happen during this period. Software companies have less worry at this stage due to its cash generation characteristic.

Working Capital:

- Account receivables/payables: The art here is to say no. Don't have the illusion that I am going to sell to everyone. Check the credit shape of the new customers, and remember that to take a new customer is to bring in new risks. Same with suppliers, now you have bigger negotiation power, ask for better price and terms.
- Inventory: Continuous monitoring of inventory levels. Any minor economic fluctuation can create redundant inventory for you. Remember it's you who paid for the inventory. You'd better know who you're going to sell it to, and how long it's going to take you to see it out.

Revenue: Now you may have different versions of your product, or some derivatives of your original product. Use price segmentation or price discrimination to maximize your profits. Now the customer base is very large. Test any change of your pricing strategy in a small group of customers first before releasing it to the entire audience. Don't make the mistake that Netflix did in 2011, when they irritated a large portion of customers and the CEO had to apologize to the public.

Cost Control: (Roberts, 1991) discovered that the companies that have increased their R&D investments at this stage have achieved a better result. So develop a product map and carefully plan the R&D expenses would be a key to control cost. And the company should avoid repetitive spending when the organization becomes bigger, more complex, and more decentralized. Integrating the back office jobs can maximize the synergy. It's good time to sign long-term contract for office space, or even purchase some real estate assets.

Planning: At this stage, the essence of planning is allocating resources. The management should discuss the long-term vision of the company and the places that need most resources. This is the beginning of strategic planning. The operational planning should be further developed. The projection length should prolong from one or two years to three to five years. The prediction should be more accurate because more accurate data are collected from business operations. The plan of each department should be an organic part of the entire company. Employees from different levels should be more involved.

Process: The most important thing here is to realize that process improvement is an ongoing job for a growing business. Don't underestimate the time and costs to fully integrate the processes into an organization. From one example in (Flamholtz & Randle, 2007), it took three years for a company to fully establish a comprehensive set of processes with the help of outside consultants. Now the size and activities have expanded greatly, the company can consider automating many recurring processes. For example, the software company has many recurring revenues from update and maintenance. If they can bill the customers regularly, this will save lots of operational costs for finance department, and will not leave too much money on the table. Another important task is to continuously reconcile between different systems. It is understandable that a startup cannot afford an integrated system like ERP at first, and in the fast expanding period, it is luxury to implement a new system. So reconciliation is crucial. In my career, I have seen one company whose accounting system and inventory system were separate, and they never run reconciliation of the two systems. So after five years, the gap between accounting balance and inventory balance reached almost $4 million.

Metrics/Measurement: The management should have accumulated enough understanding of the business to develop appropriate metrics, both financial and non-financial. The challenge for many new startups is that their business models are brand new and there is no agreed effective metrics yet.

We use Software-as-a-Service (SaaS) as an example. This business model prospered after 2008, when the bandwidth reached to a high level, and the virtualization reduced the cost cloud computing to a really low level. The revenues of SaaS companies are mostly from the monthly subscription fees paid by the clients. People are debating between two types of metrics to measure the revenue: 1) Total Contract Value (TCV) or Annual Contract Value (ACV); and 2) Committed Monthly Recurring Revenue (CMRR) or Annual Recurring Revenue (ARR) (Deeter, 2012). So if you sign a contract with a client with subscription fee $10k per month for 3 years plus a one-off service fee for 10k, your TCV = $370k, ACV = $120k, CMRR = 10k, ARR = 120k. Which metric best reflects your business depends on the nature of your business. If you adopt standard term contract for every client, and there is high penalty for your clients if they want to terminate the contract earlier than indicated, you can use TCV or ACV. Otherwise, you should use CMRR, because this is more aligned with your monthly pricing model. It provides better information about the secured revenue, secured cash flow, and better reflects the profitability.

Hiring Finance People: Finding a qualified CFO is the biggest challenge at this stage. If you have raised money from a VC, they may provide you several candidates to choose. There are a group of CFOs who specialize in bringing company public. But be aware that CFO with a VC background may push the company to grow too fast and lose the ultimate function of the CFO as the voice of reason of the company, which exactly happened to Sayeed's second startup (Please refer to Appendix for details). Without the help from VCs, it's not easy to fill in this position. The CEO of Defender Direct INC., a supplier of ADT security systems and Dish Network Satellite TV to homeowners, said: *The problem was, when I tried to shoot ahead, I got real schmoheads. CFOs are all by nature pretty conservative people. Once we got to $50million plus, it was a lot easier to attract people* (Hess, 2010). Generally, you don't need a CFO if you don't plan to go public within one year, as suggested by Sayeed. So if you are lucky enough to find a good finance controller at the Success stage, you don't need to hurry to fill in the CFO position. To select a CFO, past experience is most essential. It's better that he has a deep understanding of the industry and has the experience of bring other startups to public. What's more, the culture fit, the smooth communication and mutual trust between CFO and CEO all need to be considered.

The Role of CEO: The organization is now decentralized, and each department has a highly competent manager. The CEO should further delegate his responsibility to mangers and focus on the strategic planning and the development of management. Relating to finance, CEO should keep a close communication with the CFO/Finance Controller, and check critical metrics and financial reports on a timely manner.

As I have stated earlier, it's very difficult to predict when the takeoff period would come. Flamholtz has given a simple formula using the sales to estimate which stage the startup is on (Flamholtz & Randle, 2007).

Stage	**Critical Development Areas**	**Approximate Organizational Size (millions of dollars in sales)**	
		Manufacturing firms	**Service Firms**
New Venture	Markets and products	Less than $1	Less than $0.3
Expansion	Resources and operational systems	$1 to $10	$0.3 to $3.3
Professionalization	Management System	$10 to $100	$3.3 to $33
Consolidation	Corporate Culture	$100 to $500	$33 to $167

Table 5 The Correlation between Annual Sales and the Growth Stages for Startups

It should be remembered that this is an experienced-based adjustment that he found useful rather than a strict formula (Flamholtz & Randle, 2007).

4 Conclusion

4.1 Summary

This qualitative case study involved exploring the priorities of the finance function at different development periods of startups. The literature review in Chapter 2 indicated that one of the most significant success/failure factors of startup might be financial management. The case studies might result in a better understanding of the roles of finance in startups. The nine core themes that emerged from the study provided the possible best practices that the future entrepreneurs could take as a reference when they tried to establish the finance function in their startups. However, it worth noting that finance plays more of a supporting role in most enterprises. It is an organic part of companies' strategy and business model. The startup will only succeed when it balances well between product/service development, marketing & sales, finance, supply chain, and other management areas.

4.2 Scope and Limitations

The scope of the study is restricted to a population of startups mostly established in United States. In the rest of the world, the business environment, the maturity of the entrepreneur community, the government support, and the behaviors of venture capital firms may all differ. Therefore, the framework may only apply to startups in United States. The results of the study might not be generalizable beyond the study.

I only interviewed two entrepreneurs who have successfully grown a business from a small number of people to an established organization. Their reflections may be biased or may not direct to the real reasons of their success. The other cases are from past literatures, which have been edited by the authors and may be biased, or have not been analyzed to serve the discussion on financial management.

4.3 Significance of the Study

The study is significant to entrepreneurs because it provides a very practical framework to follow when they initiate the startups, or at least remind them the challenges lying in front and the possible consequences of certain choices. The study is significant to government because it give the officers a better idea on how to provide necessary support to the startups. For example, realizing the difficulty at expansion stage, government can try to attract people who have successfully grown startups to established business to be new venture consultants. The study is significant to venture capital and other investors to better evaluate the financial management level of the startups they intend to invest. The study is significant to the universities and professors teaching entrepreneurship. Even in MIT Sloan, a world-class business school famous for incubating entrepreneurs, I do not see any course designed for this topic.

4.4 Suggestions for Future Research

Nine core themes emerged from my study. However, there is no quantitative description of these themes. Future researchers might 1) focus on a certain industry and certain geography (i.e. biopharmaceutical in Boston) to do a more deep research on startup's financial management; 2) focus on one theme to analyze in-depth its impact on the success or failure of startups (i.e. the financial metrics for new business model); 3) find more themes that are related to financial management (i.e. what are the impacts being financed by a VC); 4) expand the research to other geographies, for example, India, China, Japan, Israel, etc.; 5) research the reliability of the entrepreneur self-reflection (i.e. are the reasons they attribute to their success or failure the same as those identified by the researcher?)

The purpose of this qualitative case study is to develop a framework on the priorities of financial management in startups at different development stages, as well as the possible solutions that generated from more than eighty examples. Nine finance themes emerged from the study findings and the analysis, providing insight into understanding the successful/failure factors of startups. Chapter 4 summarizes the results and provides recommendations for future research.

Reference

Aguirre, J. (2008). *STUDY OF SMALL BUSINESS LEADERSHIP AS A RESULT OF THE NORTH AMERICAN FREE TRADE AGREEMENT.*

Atkins, M. H., & Lowe, J. F. (1997). Sizing up the small firm: UK and Australian experience. *International Small Business Journal, 15*(3), 42–55.

Aulet, B. (2013). *Disciplined Entrepreneurship: 24 Steps to A Successful Startup*. Wiley.

Beaver, G. (2003). Small business : success and failure. *Strategic Change, 12*(3), 115.

Beaver, G., & Jennings, P. (2005). Competitive advantage and entrepreneurial power: The dark side of entrepreneurship. *Journal of Small Business and Enterprise Development, 12*(1), 9–23. doi:10.1108/14626000510579617

Berger, A. N., & Udell, G. (1998). The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle. *Journal of Banking and Finance, 22*(6-8), 613–673.

Birch, D. (1981). Who creates jobs. *Public Interest, 65*, 3–14. Retrieved from http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Who+creates+jobs+?#0

Bjørnskov, C., & Foss, N. J. (2007). Economic freedom and entrepreneurial activity: Some cross-country evidence. *Public Choice, 134*(3-4), 307–328. doi:10.1007/s11127-007-9229-y

Carrier, C. (1994). Intrapreneurship in large firms and SMEs: A comparative study. *International Small Business Journal, 12*(3), 54.

Choueke, R., & Armstrong, R. (2000). Culture: A missing perspective on small-and medium-sized enterprise development? *International Journal of Entrepreneurial Behaviour & Research, 6*(4), 227–238.

Christensen, C., Raynor, M., & Van Bever, D. (2013). *The Innovator's Solution: Creating and Sustaining Successful Growth*. Harvard Business Review Press.

Churchill, N., & Lewis, V. (1983). The five stages of small business growth. *Harvard Business Review, 61*(3), 30–50.

Collis, J., & Jarvis, R. (2002). Financial information and the management of small private companies. *Journal of Small Business and Enterprise Development, 9*(2), 100–110.

Deeter, B. (2012). 5Cs to Measure Cloud Computing Software Companies.

Donegan, M. C. (2002). *Growth and profitability : optimizing the finance function for small and emerging businesses*. New York: Wiley.

Ekelund, R., & Hebert, R. (2007). *A History of Economic Theory and Method* (5th ed.). Waveland Press.

Ernst&Young. (2012). *Financial Reporting Developments: Software — Revenue Recognition.*

Flamholtz, E., & Randle, Y. (2007). *Growing pains : transitioning from an entrepreneurship to a professionally managed firm* (4th ed.). San Francisco: Jossey-Bass.

Foss, N. J., & Klein, P. G. (2004). *Entrepreneurship and the Economic Theory of the Firs: Any Gains from Trade?*

Fuerst, O., & Geiger, U. (2002). *From Concept to Wall Street - A Complete Guide to Entrepreneurship and Venture Capital Reader* (1st ed.). FT Press.

Haltiwanger, J., Jarmin, R. S., & Miranda, J. (2012). Who Creates Jobs? Small vs. Large vs. Young. *Review of Economics and Statistics*. doi:10.1162/REST_a_00288

Hess, E. D. (2010). *Growing An Entrepreneurial Business: Concepts and Cases*. Stanford, California: Stanford University Press.

Jones, G. R. (2012). *Organizational theory, design, and change* (7th ed.). Prentice Hall.

Key Small Business Statistics - August 2013 —How many businesses are there in Canada? - SME Research and Statistics. (n.d.). Retrieved April 12, 2014, from http://www.ic.gc.ca/eic/site/061.nsf/eng/02804.html

Kirzner, I. (1978). *Competition and Entrepreneurship*. University of Chicago Press.

Knight, F. H. (1921). *Risk, Uncertainity, and Profit* (1965th ed.). Houghton Mifflin.

Maital, S., Ravid, S., Seshadri, D. V. R., & Dumanis, A. (2008). Toward a Grounded Theory of Effective Business Incubation. *The Journal of Decision Makers*, *33*(4), 1–13.

Matthews, J., & Dennis, J. (2003). *Lessons from the Edge: Survival Skills for Starting and Growing a Company*. New York: Oxford University Press.

McKinney, K. D. (2009). *A PHENOMENOLOGICAL EXPLORATION OF LEADERSHIP CHARACTERISTICS OF SMALL BUSINESS OWNER-FOUNDERS.*

Neuman, W. L. (2003). *Social Research Methods: Qualitative and Quantitative Approaches* (5th ed.). Pearson Education, Inc.

Niselovitch, S. (2011). *Technology Start-ups : A Phenomenological Exploration of Technology Start-up Failure in Israel.*

Parker, S. (2009). *The Economics of Entrepreneurship.* Cambridge University Press.

Price, R. W. (2004). *Roadmap to Entrepreneurial Success: Powerful Strategies for Building a High-Profit Business.* Amacom.

Rasheed, H. S. (2005). TURNAROUND STRATEGIES FOR DECLINING SMALL BUSINESS : THE EFFECTS OF PERFORMANCE AND RESOURCES. *Journal of Development Entrepreneurship, 10*(3), 239–252.

Raymond, L., & St-pierre, J. (2005). Antecedents and performance outcomes of advanced manufacturing systems sophistication in SME. *International Journal of Operations & Production Management, 25*(5/6), 514–533.

Roberts, E. B. (1991). *Entrepreneurs in High Technology: Lessons from MIT and Beyond.* New York: Oxford University Press.

Rogers, S. (2002). *The Entrepreneur's Guide to Finance and Business: Wealth Creation Techniques for Growing a Business.* McGraw-Hill.

Schein, E. H. (2010). *Organizational Culture and Leadership* (4th ed.). Jossey-Bass.

Schumpeter, J. A. (1934). *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle* (1983rd ed.). Harvard University.

Simmons, J. (2007). *SMALL BUSINESS : A PHENOMENOLOGICAL STUDY OF SMALL BUSINESS FAILURE IN MARYLAND.*

Simpson, M., Tuck, N., & Bellamy, S. (2004). Small business success factors : the role of education and training. *Education & Training, 46*(8/9), 481–491.

Small Business Trends | SBA.gov. (n.d.). Retrieved April 12, 2014, from http://www.sba.gov/content/small-business-trends

Song, M., Podoynitsyna, K., Van Der Bij, H., & Halman, J. I. M. (2007). Success Factors in New Ventures: A Meta-analysis*. *Journal of Product Innovation Management, 25*(1), 7–27. doi:10.1111/j.1540-5885.2007.00280.x

Swiercz, P. M., & Lydon, S. R. (2002). Entrepreneurial leadership in high-tech firms: a field study. *Leadership & Organization Development Journal, 23*(7), 380–389. doi:10.1108/01437730210445810

Wheatley, M. (2006). *Leadership and the New Science: Discovering Order in A Chaotic World* (3rd ed.). Berrett-Koehler Publishers.

Wilkinson, A., & Mellahi, K. (2008). A STUDY OF THE ASSOCIATION BETWEEN DOWNSIZING AND INNOVATION DETERMINANTS. *International Journal of Innovation Management*, *12*(4), 677–698.

Zhang, W. (2012). *Constitutional Environment and Entrepreneurship: An Empirical Study*.

Appendix

Interview Summary 1

Interviewer: Yue Fu

Interviewee: Imran Sayeed, serial entrepreneur

Curriculum Vitae of Interviewee:

- Founder of an enterprise software product company; successfully grew the company from a 10-person startup to an IPO
- Founder and CEO of an enterprise software service company; successfully grew from a 15-person startup to one of Computerworld's Top 100 emerging companies and Inc. 500's fastest growing businesses
- Chief Technology Officer of NTT Data

Interview Scripts:

Yue Fu (Y): Would you please tell me about your background and the startups you have built?

Imran Sayeed (I): Sure. The first startup was an enterprise software product company. Five of us started in 1992, and then we took it public in 1995, and then we sold it in 1996.

Y: Because you missed the first quarter target after IPO?

I: Yeah. So that was the lifecycle of the first one. The second one, I started in 1997. The first one I was one of the founders but not the CEO. The second one, I was the founder and the CEO. I raised $25 million in 2000, and we sold it in 2005. This is an enterprise software services company.

Y: According to the theories I read, they tend to divide the growth stages of startup into four steps ((Flamholtz & Randle, 2007)), the new venture period focusing on product prototype and market exploration, expansion period, professionalization period focusing on building professional management tools, and consolidation period focusing on organization culture. Does this theory fit into your experience?

I: I think both of my ventures went through the first three stages, but never got the forth stage. So I would agree the first three stages, I don't think we did the consolidation part.

Y: When did you see the finance began to play a role?

I: In the case of the product company, it plays a role the moment you first raised founding, because they have to manage costs. At first it was very simple, it can ben an accounting person or a bookkeeper, but if you have raised money, you need a finance person, to manage cost, budget, provide monthly update to your investors, and all of those things. So you need finance involved.

Y: You didn't mention in your first company you raised any money.

I: We did. We raised about $50 million. The first round was in 1992, the other round was in 1994.

Y: So you mean you only need an accountant before you raised the fund, and you needed more comprehensive finance person once you got the fund?

I: Not necessarily. In the case of the product company, we didn't get a CFO until six month before we went public. And in the case of the second company, we got our professional CFO once we raised $25 million.

Y: Why is there such a big difference? Why did you get a CFO at such an early stage?

I: Because the market was moving so rapidly. Had the dot com bubble not crashed, we would probably have gone public in the next six months. So again, this CFO was prepared for IPO.

Y: So take the first company as an example, how did you see the finance process evolve?

I: So the first person was just a bookkeeper. He managed the books, making sure the inflows, outflows, managing monthly P&L, expenses, the payroll, the next round for database, you know, all of that. They did all of that.

Y: So is this the person who established the whole process or you brought him in after you had all the processes?

I: We had two people. The bookkeeper, who was doing the database stuff, and we had an outside accounting firm. We outsourced it. One of the partners was incredibly helpful.

Y: I guess outsourcing is very common for startup?

I: Yeah. And this person was amazing. He worked with lots of startups, and he advised them. He was there as an outsourced CFO.

Y: So he helped you establish the process?

I: All processes, and helped to get the line of funding (credit), etc.

Y: Is that common for startups?

I: Yes.

Y: This is quite surprising. Because when I did my startup, we also outsourced our accounting job. But they only did bookkeeping for us.

I: No, we did in the other way round. We actually did bookkeeping internally. They recommended this bookkeeper, who was reliable. But we need someone to help with our strategy, when to raise money, establishing and managing our line of credit with banks, etc.

Y: Is this a special kind of accounting firms just for startup?

I: No, it was just material accounting firms. Some of them happen to work with startups. This person happened to be the partner, happened to be the Head of the New England Small Business Association. He worked with lots of small business like us.

Y: Did you pay him a lot? Is it affordable to hire such services?

I: No, not really. What we did was when we raised funding, we gave him margins.

Y: How about in the second startup?

I: It's the same person.

Y: So after you have the whole process, who will be in charge of the finance department? I guess you had a finance department by then.

I: Yeah, once we got the money, we hired a seasonal CFO, and he brought his own team.

Y: Is it difficult to find a CFO?

I: No, the VC firms usually help with it. So the VC firms have CFOs that are used by all the startups.

Y: But did he work full time in your company?

I: Yes, he's a full time.

Y: For those VCs, how do they have the resources of CFOs? Where do they come from?

I: From their network of companies. They have the companies they invested in, they bring in CFOs, they take the company public, they make the money, and then they go to the next startup. Like the person who was working with us, he has been with Graylog for many years, and ours is his fourth startups. He took a company to public, made money and moved to the next.

Y: So he only stays maybe one year after IPO? I guess that's also very common.

I: Yeah, there are a bunch of CFOs who like startups. There's a whole economy on that.

Y: When you were the CEO, how do you see the finance plays the role?

I: The second was a service company, so the finance is intimately involved. Actually I promoted the CFO not just CFO, but also COO. In a service company, everything you need to look at from gross margin, your (build) rates, internal costs, or employee costs, or utilization metrics. You have tons of metrics to be managed. All of these were overseen by the CFO.

Y: Do you find finance has different priorities in different growth stages?

I: Well, the priorities were to serve the different company's strategies. They don't have their independent priorities. So finance supports the organizational strategies to maximize its available resources.

Y: Yeah, but for example, in the expansion period, maybe CFO will focus more on budgeting or cost control, so you don't overspending?

I: That's what a good CFO should do anytime. And the CFO should serve as the conservative role and to provide you the perception into anything and then the management team decide how much of that to take on. So I don't see the finance roles are changing. It's to make sure that they are (up to date) and they provide accurate real time financial metrics to help us to make certain decisions, and that's true no matter we are campus startup or 200 person company.

Y: So when the VC assigned the CFO to you, do you have the power to reject?

I: Of course, we interviewed several candidates, and we chose one of them.

Y: So do you find the finance in a software product company different from that in a software service company?

I: Somewhat different. In the sense that in the service company we focus more on utilization, gross margin, bench, etc. It's totally different. In the product company, it's about product costs, product mix, investment of new product, and product line, totally different metrics.

Y: So when you chose the CFO…

I: They have to have experience in product or services, yes.

Y: Besides background, are there other competencies that you think are important?

I: Yeah, this is the person you work closely with. He needs to have a strong culture fit. We need somebody who has experience, who's willing to help you grow the business not just bookkeeping type of person. There are a lot of things to evaluate a CFO. In both cases, we want someone to have public company experiences. Because our goal was to go public, so obviously that's a big part of it.

Y: But what happened when the second startup didn't go public?

I: He actually stayed to the end. He wanted to stay. I mean, there were not many companies going public anyway, so it's not like he could pull out a whole deck of companies that he could shift to. He actually ended up staying, and I promoted him both CFO and COO. He did a very good job.

Y: So what did he do to help you to sell the company?

I: He was intimately involved in the process. He evaluated different investment bankers, he helped us to put together the pitch, he made sure the company's financials were right, and he handled the due diligence. He managed the whole process. He was the point person.

Y: I guess before you did the startup, you didn't have any exposure to finance?

I: No, I was a tech person.

Y: So when you became the CEO from a tech background, how did you cooperate with the CFO?

I: You have to know the right question to ask. I am not very good at doing discounted cash flows or monthly cash flow analysis based on your P&L. But I can read them and I know what makes

sense. Whether there is the CFO or the person from the accounting firm, the part-time CFO, I would trust them enough to know this makes sense.

Y: I guess the CFO should be able to talk to a tech person?

I: Right, absolutely.

Y: Regarding the two experience, is there anything you feel regret? Anything you feel if you could do it again, you would do it in another way?

I: Yeah. It's nothing to do with the CFO. I think the CFOs were fine. In the second case, because the CFO was from the VC, he got too influenced by them. When they pushed us to grow faster, we signed a lot of leases, and we ended up with $10 million bad real estate leases.

Y: I also have the similar experience. Because one of the founders had a PE background, so the way he focused more on short term return on investment.

I: Right, so that was the challenge. I wish we could be more conservative. But again, we were expecting the market to go up, that's the problem.

Y: About budgeting, how did you develop this process?

I: When we were not VC backed, the budget was based on conservative estimate of trends and cash inflows.

Y: So you do it by yourself?

I: Yes, with the help of the part time CFO. We didn't have a lot of cash in hand, but we did have a line of credit.

Y: Is that easy for a startup to get a line of credit?

I: No, what we got was a SBA backed loan, based on the fact that I am a minority, and the percentage of our assets (as collateral).

Y: For example, the lesson I had in my experience was that we don't really need a fund. Our business model was we collect the money before we deliver the service. So we can run on our own. We don't need a fund to support our financials. Although there were some VCs approaching us, we didn't take any of them. In a situation like this, would you say it's still beneficial to get a VC because they provide other supports such as a qualified CFO?

I: No, not necessarily. I think it depends on the experience of your team. If your team is experienced, there is no point. If you don't need the money, then don't take the VC. You can get the support from other resources at much lower prices.

Y: So from your later experience as an advisor to other startups, is there any example like this?

I: There are several of them not having VCs. They are doing very well, generating enough cash, and they don't need a VC.

Y: So do you think if there is a general best practice for a startup to establish the finance process?

I: I would say that when they are at really early stage, you can just hire bookkeeper. It's always to get a part time CFO from an accounting firm, because they are not that expensive, and they can add a lot of value. But you don't get a full time CFO until you finish your major round of funding and the VC demands it, or you plan to go public.

Y: So for those startups that don't take any VC, when do they build the finance process?

I: They have a controller and some bookkeepers. Only when you want to go public or selling, you hire a CFO.

Y: Oh, so even when you plan to sell your company, you need a CFO?

I: Not necessarily, you can also hire a seasonal CFO to deal with due diligence as part of the acquisition. You want someone to understand how to package, work with the investment bankers. That's the time to have a seasonal CFO.

Y: Is there any important points I missed?

I: No, I think that's the key. Just make sure that you have accurate numbers every month from the inception, and manage the finance. Typically you have low cash flow; you don't want to break it.

Y: Did those kinds of things ever happen to you?

I: Well, when we haven't been backed by VC, there was one morning we almost missed the payrolls. It's nice we never missed payrolls, but we got very close.

Y: Because you had no cushion?

I: Yeah, when we were self-funded.

Y: But it's not because you misunderstood one number?

I: No.

Y: Thank you very much!

I: You are welcome!

Interview Summary 2

Interviewer: Yue Fu

Interviewee: Lucas Andrew Tatone, serial entrepreneur

Curriculum Vitae of Interviewee:

- Founder of an IT-enabled offshore-outsourcing accounting service company in India. Successfully grew the company from one person to more than 200 employees.
- MBA student at MIT Sloan School of Management
- Founder of an IT-enabled platform for enterprise accounting.

Interview Summary:

1. So tell me about your startups.

   My first startup is in India to provide offshore-outsourcing services to leading accounting firms worldwide. I succeeded in growing the organization from just one employee (me) to nearly two hundred professionals with clients and operations spanning five continents and more than a dozen time-zones. This was an IT enabled service company, with unit economics similar to Infosys or Wipro. Instead of IT consulting, we provided tax preparation for high-net worth individuals and the lucrative companies they ran.

   My second startup is also in accounting industry. I met Howard Anderson in 15.390 New Enterprises. He encouraged me to stick either with a familiar market or a familiar product, but to avoid trying to tackle a new market and new product simultaneously. So I decided to stick with the accounting industry that begged for a technological solution, and to attempt to identify problems that could be solved with existing technologies.

2. When you think about the two startups that you established have they gone through similar developing stages?

   My first startup was initiated in 2003, and it began to expand very rapidly between 2006 and 2008. I was mainly responsible for sales, basically flew all over the world to meet the clients. I have another partner, an Indian with CPA and 20 years older than me. He was mainly responsible for internal management and staff training. After 2008, the economics

became really bad, and we had different visions about the company, so I sold my shares for the 1x valuation, common with service companies. I'd never heard of closed-bid-second-price-auctions. If I had, I would have worked harder to find multiple bidders.

I have just started my second startup with Mark Yuan. He is also a Sloan MBA, and had experience as an early employee at an enterprise accounting software company. We are still at the very early stage.

3. Have you met any problems during expansion?

   Yes, the main problem is after I sold our service to a new customer, I found we couldn't deliver what I have promised. Another problem is we were seriously under capitalized and lost some really good opportunities. I should have raised $200 million for series A, if I knew the quick growth would come. I tried to raise money at that time, but it didn't work out as well as I expected.

   Also, it was extremely difficult to increase the sales and establish a sales team at the same time. I would develop a strong sales force in advance, so we would grow even larger. However, a talent-based business model is very difficult to expand. In my case, every new client resulted in hiring another 10 staff. The organization soon became needlessly complex, especially relative to our modest revenues as measured in Indian rupees.

   I was spoiled by success at an early age. 10x growth in 36 months can lead you to wildly overestimate your future earnings. I was convinced it was only a matter of time until I had a billion dollar company under my control. In an act of hubris, I continued to push for aggressive expansion in the face of the global financial crisis, when I should have acted more defensively.

4. When the product is not quite developed, how do you handle the cash?

   The first startup was a service company, so the cash is always positive. For the second startup, we have just finished our first round fund raising. We plan to raise $750 million from our strategic partner.

We have a new idea to manage the second startup. We will build a product within the capacity of us two. So the cost management should not be a problem. We aim to identify industry problems, establish early customers and achieve scale through established platforms. We aim at an exit at $ 5 million, selling it to a strategic partner, like Thomason Reuters. SaaS companies now enjoy a high valuation. Then we will use the money to build our second product. It can also be a platform, and may compete with Thomason Reuter.

5. Who was the first finance profession you hired?

   My partner was responsible for finance. He has many years of management. He was basically COO plus CFO. Finance work only occupied him one day per week on average. When we expanded, we had three full time accountants. Because we are providing accounting services, so talent is not a problem for us.

6. How did you do budgeting? When did you begin to do it?

   Very simple, just forecasting the sales and the costs. We began to do it after we had defined our product.

7. Do you use any financial metrics to evaluate the business? For example, do you know the cost of acquiring a customer?

   We used a few metrics, but I don't know the cost of acquiring a customer.