



Munich Personal RePEc Archive

The impact of insolvency laws on venture capital

Bhatia, Jai

University of Oxford

15 September 2009

Online at <https://mpra.ub.uni-muenchen.de/21346/>

MPRA Paper No. 21346, posted 16 Mar 2010 01:15 UTC

The Impact of Insolvency Laws on the Venture Capital Industry

Jai Bhatia, CFA

University of Oxford

2009

Abstract

The venture capital (VC) industry supports innovation in an economy, and has seen much success over the last few years. However, with the inherent risk in any start-up business, the venture capitalist is bound to see some failures. This paper explores the effects of corporate and personal insolvency laws on financially distressed VC funded firms. It also compares the contract driven bankruptcy system to the court driven system, and their implications for failed VC funded firms. This paper relies upon qualitative analysis and draws upon interviews with academic experts, industry practitioners and secondary data.

In the light of corporate insolvency, the research concludes that entrepreneurial firms are often 'wound up' rather than put into the bankruptcy system for liquidation/reorganization because the realized value from the small firms often do not cover the cost of the bankruptcy process. Consequently, it is difficult to ascertain the impact of corporate insolvency laws on small businesses. On the contrary, it has been observed that the severity of the personal insolvency law does not affect venture capital financed entrepreneurs. The venture capitalists provide equity finance and the entrepreneurs do not need to risk their personal assets for collateral to acquire bank finance. The comparison between the US and UK systems of bankruptcy revealed that for small entrepreneurial firms, both systems are convergent to a greater degree than they are for larger firms i.e., the smaller the firm the more similar both the systems seem in relation to efficiency and the ability to salvage value from financially distressed firms.

Acknowledgements

I thank John Armour (University of Oxford), George Triantis (Harvard University), David Skeel (University of Pennsylvania), Jay Westbrook (University of Texas), Ronald Mann (Columbia University), Judge Lundin (US Bankruptcy Court, Middle Tennessee), Jeffery Lynn (Lawyer), Richard Yoxon (Intangible asset valuation expert), Lee Manning (UK Administrator), and Sheila Smith (Restructuring expert) for the time they spared to be interviewed for this study.

I would also like to thank Josh Lerner, Oliver Hart, Oren Sussman and TJ Ravishankar for their helpful comments.

Table of Contents

1. Introduction.....	5
1.1 Research Methodology.....	7
1.2 Results.....	8
2. Literature Review.....	9
2.1 Corporate Insolvency.....	9
2.2 Personal Insolvency.....	12
3. Research Findings: Comparing Academic Views with Industry Views.....	13
3.1 Risk –Return Tradeoffs.....	13
3.2 Control, Informational Asymmetries and Agency Costs.....	14
3.3 Reasons for failure.....	16
3.4 Personal Insolvency.....	16
4. Analysis: Corporate Insolvency.....	18
4.1 Relationship between Entrepreneurial Firm and the VC Firm	
• Economics of Bankruptcy.....	22
• VCs with a business interest-private benefits of control.....	23
• Government as a VC.....	24
4.2 Relationship between the Entrepreneurial firm and its Creditor.....	25
5. Analysis: Personal Insolvency	
5.1 Entrepreneurship, Innovation and Insolvency.....	27
• Ex ante effects of Insolvency Law.....	29
• Ex post effects of Insolvency Law.....	30
6. Analysis: Venture Capital Contract Design.....	30
7. Analysis: UK –US Bankruptcy System Comparisons for Entrepreneurial Firms.....	32
8. Conclusion and Implications.....	34
8.1 Further Research.....	35
8.2 Limitations.....	36
9. Appendices	
▪ References.....	37
▪ List of people interviewed	40

1. Introduction

Entrepreneurship not only fosters growth in an economy but also innovation. Venture capitalists fund entrepreneurs, and participate in their risk-taking ventures for a part of the reward, if the venture is successful. In the recent years, venture capital has become prominent. At the time of the dot-com bubble in 2000, the global VC industry was \$30 billion (in VC investments) and eight years since VC portfolios have grown to \$ 125 billion before the markets collapsed in early 2008. Currently, VC portfolio values have fallen to an estimated \$ 25 billion but experts expect it to grow exponentially as the world economy recovers.⁺ Not only has the VC industry generated significant returns and substantial wealth for its investors but is also associated with large corporate successes such as eBay and Yahoo!

Given the extraordinary growth of venture capital in the last decade, it is high on many government's priority lists and policy makers see it as a way to foster entrepreneurship in an economy (Kaplan and Strömberg, 2000). Although, VC funded firms have great potential to create value, a large number of them fail. The insolvency laws in a country affect such failing firms.

Insolvency laws are broadly divided into two categories: corporate insolvency and personal insolvency. Corporate insolvency deals with the fate of the firm as a legal entity in relation to its stakeholders, while personal insolvency deals with the entrepreneurs or managers as individuals.

Most academic and empirical studies explore different aspects of the venture capital industry concentrating primarily on the 'upside' or the successful ventures. This paper explores the venture capital financed firms that were not successful. The goal of this paper is to present a logical study of how insolvency law (corporate and personal) can affect the performance of VC funded firms. It also explores whether a court driven bankruptcy system (as in the US) or the contract driven system (as in the UK) play a dominant role in salvaging value from failed entrepreneurial firms.

⁺ Ernest and Young's Global VC report 2009.

The research was conducted through a series of interviews with prominent academics and VC industry practitioners^κ, in addition to information obtained from secondary sources. In the course of the interviews, corporate and personal insolvency law, their effects on VC funded firms, VC contract design and differences between the bankruptcy systems in the UK and US were discussed. The academic interviewees were asked for their opinions and the industry practitioners were asked to draw on their personal experience. A detailed analysis was then undertaken to compare the divergences that became apparent in theory and in practice. Logical reasons were then suggested for these discrepancies.

Corporate Insolvency

Entrepreneurial firms or 'start-ups' often lack 'hard' assets. Their main assets include the entrepreneur's idea or technology, often not valuable to an outsider, as the value often cannot be separated from the entrepreneur himself. Obtaining bank financing is not only difficult because of the lack of security/collateral but also expensive because of the riskiness of the venture. In the early stages, when the firm is developing the product/technology, it often has negative cashflows and cannot service the loan and therefore requires equity capital. Venture capitalists assume the risk of the venture failing and invest equity capital. They earn returns only when the firm is successful and either sold to another strategic/ financial buyer or has an IPO. The unsuccessful firms frequently become insolvent not only because their liabilities exceed their assets but because the firms cannot secure further rounds of financing. Often entrepreneurial firms do not enter into or are put into the bankruptcy system because the process is costly relative to the realized value of the business.

Personal insolvency

Personal insolvency law often affects the entrepreneur's ability to undertake risk. If the law is more 'forgiving', more entrepreneurs come forward to start their own business and therefore demand more venture capital. 'Forgiving' often means quick discharge from pre-bankruptcy liabilities and the opportunity for the entrepreneur to gain a 'fresh

^κ The academics interviewed include professors John Armour (University of Oxford), David Skeel (University of Pennsylvania), George Triantis (Harvard University), Jay Westbrook (University of Texas) and Ronald Mann (Columbia University) each of who are distinguished researchers in insolvency law and/or venture capital and have made a significant contribution to the existing literature. Industry views include views from venture capitalists, entrepreneurs, a bankruptcy judge, an administrator, an asset valuation professional, an intangible asset valuation professional, investment bankers, US Restructuring expert and a lawyer.

start'. Many empirical studies have shown a positive correlation between 'forgiving' personal bankruptcy laws and entrepreneurship[±] but the question remains open whether 'forgiving' personal bankruptcy laws affect the demand for venture capital. This paper aims at providing a logical argument that venture capital financed entrepreneurs are immune to the severity of the personal bankruptcy laws, which, therefore, may not be an important determinant of the demand for venture capital.

It maybe noted that VC have different or additional expectations from their portfolio companies. In addition to the VCs that have purely a financial interest in their portfolio companies, there are two more types of VCs: a VC with a business interest in the product or technology of the portfolio companies (discussed in section 4.1.2) and government sponsored VC. (Discussed in section 4.1.3). The distinction between them becomes vitally important as each of them react differently towards the failure of a portfolio company. The VC with financial interest's primary objective is 'absolute return', hence winds up unsuccessful ventures. The VC with the business interest has an indirect goal of 'absolute return' (using the product or technology to enhance its own business to generate greater returns) and has softer budget constraints[∨] given the positive 'externality' effects or the private benefits of control. Finally, the government sponsored VC, (whose primary objective is to encourage entrepreneurship) may also take a softer approach to failing companies, given their welfare-oriented motivations. Government sponsored VCs warrant further academic research but are beyond the scope of this paper.

1.1 Research Methodology

The nature of data collection and the analysis is based on qualitative research methods such as interviews drawing on expert opinions and experiences of academics and industry practitioners. Although quantitative methods can be used, in this case qualitative methods are preferred for a number of reasons. Firstly, because the study aims to compare academic opinions to industry practices and find logical reasons for the divergences between theory and practice. The data is best captured through interviews. Secondly, empirical data collected by agencies exhibit a self reporting bias as venture capital firms are more likely to report success stories rather than its failed ventures: this

[±] Bankruptcy and Entrepreneurship by John Armour is the most recent and prominent study.

[∨] Softer budget constraints could be a less harsh approach to portfolio company valuation; more flexible time horizons, more forgiving to missed performance targets etc.

is a study of what happens to failed ventures. Empirical data on VC's failed ventures is not only expensive to obtain but often incomplete^φ and rare.

1.2 Results

The analysis of primary and secondary research show that the impact of insolvency law on venture capital industry maybe exaggerated in academia. Many of the venture capital financed firms become insolvent because of the lack of further capital infusion. These firms are often 'wound up' rather than put into the bankruptcy system for liquidation/reorganization because the realized value from the small firms do not cover the cost of the bankruptcy process. Consequently, it is difficult to ascertain the impact of corporate insolvency laws on small businesses.

On the contrary, it has been observed that the severity of the personal insolvency law does not affect venture capital financed entrepreneurs. The availability of equity capital from venture capitalists--used in lieu of entrepreneurs' own savings or personally-guaranteed debt—has an 'insurance effect' on the society of entrepreneurs. .

The comparison between the US and UK systems of bankruptcy showed that for small entrepreneurial firms, both systems are convergent to a greater degree than they are for larger firms. This is a 'size effect': the smaller the firm the more similar both the systems seem in relation to efficiency and the ability to salvage value from financially distressed firms.

A Brief Overview of Sections

The first section is a literature review of the relevant academic papers highlighting the important contributions made by each author. The next section describes the discussions held in the interviews comparing the academic view with the industry views. Section three is the analysis of the interview responses and a synthesis of both the primary and the secondary research. Finally, the last section is the conclusion that summarizes the results and discusses the new questions that this study opens up.

^φ Price WaterHouse Coopers (PWC)'s MoneyTree Report VC data provider did not have data on insolvencies and suggested that Thomson Reuters (www.ventureexpert.com) as a source. Thomson Reuters's service is not only expensive but also their data appeared to be US centric.

2. Literature Review

There has been extensive academic literature on the venture capital industry as well as the effects of different insolvency codes on society. The majority of the analysis on the venture capital industry involves VC investment strategies, entrepreneurial firm development, managerial / entrepreneurial incentives and exit strategies. The common assumption in a large volume of VC literature is that the entrepreneurial firm (VC investment) in question is or will be a success. Empirical evidence points out that only 30-40% of VC funded firms succeed, 30-40% break-even and the rest fail.* This research paper attempts to explore the implications for the failed firms in relation to the existing insolvency codes.

2.1 Corporate Insolvency

To date, the most prominent study on the relationship between venture capital and insolvency law is done by Professor John Armour. His essay in '*Law, Finance and Innovation: A Review*', in J.A. McCahery and L. Renneboog, in *Venture Capital Contracting and the Valuation of Hi-Tech Firms* explores the connection between Venture Capital and law in general. The chapter divides the role and the impact of law into four parts - taxes and subsidies, organizational law, labour law and insolvency law. His approach to insolvency law is divided into 'supply side' (of venture capital) that discusses corporate insolvency law and 'demand side' (of venture capital) that discusses personal insolvency law. The corporate insolvency section revolves around the 'creditor friendly' or 'debtor friendly' environment that exists in that jurisdiction. The classification of debtor friendly or creditor friendly is founded on how the law treats a firm in financial distress and all its claimants. If the law allows debtors to renegotiate contracts and the so-called 'absolute priority rule' (the priority of payments agreed on by the claimants in the event of bankruptcy) is not strictly followed, the environment is said to be 'debtor friendly'. The US's bankruptcy system - Chapter 11 is commonly referred to as an example of debtor friendly bankruptcy system. In contrast, a 'creditor friendly' system is defined as a system that gives creditors control of the firm's assets in the event of insolvency. It adheres more closely with the 'absolute priority rule'. The UK is often given as example of a creditor-friendly environment. The paper claims that the supply of venture capital is affected by the environment in which the firm operates.

* National Venture Capital Association and Price Waterhouse Coopers' Money Tree report Q1, 2009-US.

A significant objection to this argument is that the venture capitalist can design the contract (between himself and the entrepreneurial firm) in such a way that in the case of insolvency, the jurisdiction under which the law will apply will be of a 'creditor friendly' environment. Another objection to the above argument is the classification of 'debtor' or 'creditor friendly' environments. For example, if secured creditors can enforce against the assets of the distressed company but in doing so value is destroyed and the unsecured creditors suffer losses or in the case of statutory super financing – the courts authorize new finance to the firms in bankruptcy that comes ahead of already existing creditors Simplifications of complex issues (such as the classification of 'credit/debtor friendly environments) does not contribute to an enhanced understanding of the subject.

The paper further explains that reorganization law will be less relevant to start-up firms as it lacks assets and will have little to distribute in the event of insolvency. Another dimension explored in this paper is the legal consequences for executives in the event of a failure. In the UK managers can be convicted of 'wrongful trading' when the manager continues to trade even when the firm has no prospect for survival. Managers may opt for an over cautious approach leading to liquidation even though it may not be the most efficient outcome.

Personal insolvency law is discussed in detail in the section 2.2 of this literature review.

Lerner and Gompers' book 'The Venture Capital Cycle' provides an excellent overview and empirical examination of various aspects of the VC industry. It describes in detail the problems associated with VCs: Informational asymmetries, agency costs and managerial incentives and how the industry has resolved some of these problems. When VCs invest, they not only get cash flow rights but also control rights (which include board representation, power to appoint directors, and participation in strategic decision making), resolving the informational problems. Venture capital contracts are designed to align managerial/entrepreneurial incentives with that of the VC. *Triantis in his paper 'Financial Contract Design in the World of Venture Capital'* argues that the important feature of venture capital that Gompers and Lerner do not discuss is the use of convertible securities. *Kaplan and Strömberg's paper 'Financial Contracting Theory Meets the Real World: An Empirical Analysis of Venture Capital Contracts'* also claims that most VC use convertible debt or preferred equity. Although Armour in his paper argues that using convertible securities is not relevant because the VC, at the end of the day has an

equity stake and only gets a payoff if it's entrepreneurial firm succeeds. Using convertible securities is more of a standard industry practice. Triantis argues that the virtue of using convertible securities is not only limited to aligning the entrepreneur's incentives with that of the VC but also possessing the interim contingent rights to manage the business, should it underperform. Usually the convertible debt does not carry a coupon payment which is compensated through a more favourable conversion ratio/price. If the VC has preferred equity, the entrepreneur's claim still subordinate to that of the VC's. Irrespective of the nature of the instrument, the entrepreneur maximizes his benefits, which in turn maximizes the VC's share. The VC's hope is value creation; the only question is how it is going to be distributed. If scale is critical to the enterprise, the VC investment will be substantial and it is logical that they will reap the value more in the event of a sale to another entity or an IPO.

Julian Franks and Oren Sussman's paper 'Financial Distress and Bank Restructuring of Small to Medium Size UK companies' explores the relationship between the entrepreneurial firm and its creditors. It argues that the English system prevents dispersed creditors from 'calling on the assets' of financially distressed companies by strictly following the 'absolute priority rule' or the pre-agreed order of payments made in the event of liquidation. For traditional businesses that are financed by a bank loan, often the bank is the biggest secured creditor. In the event of a bankruptcy, the bank would recover its losses before unsecured creditors (such as trade creditors) can. Unsecured creditors would never 'call' on the assets and trigger liquidation because secured creditors would have first claim to any proceeds and would receive only any residual amount. It would be in his best interest to support the firm as a going concern as unsecured creditors can get more value out of their relationship with the firm. For an entrepreneurial firm with no secured creditors, the unsecured creditors may still find it beneficial not to engage in a 'creditor run' but to support the firm as the entrepreneurial firm has little or no liquidation value.

Considering a 'start-up' firm may not have 'hard' assets but often have technology or intellectual property rights as its main assets, *Professor Ronald Mann's empirical study 'An Empirical Investigation of Liquidation Choices of Failed High-Tech Firms'* discusses alternatives bankruptcy as assignment to the benefit of creditors (ABC) and hibernation. The limitations to this study is that the data is US based and may not be representative of all 'High Tech' ventures. Local regulations, market conditions and investment trends will have influence any choices made by firms.

2.2 Personal Insolvency

Armour develops the relationship between personal insolvency law and venture capital in greater detail in his paper *'Personal Insolvency law and the demand for Venture Capital, which* claims that personal insolvency law has an impact on the demand for venture capital. In a population with heterogeneous risk preferences, more entrepreneurs will use personal assets to start their own business if the law is more 'forgiving' towards failure. In turn, these entrepreneurs will demand more venture capital funding to supplement their personal investments, and so the overall demand for venture capital will increase. 'Forgiving' can be understood as the ability of an entrepreneur to free him from any pre-bankruptcy liabilities in the event of bankruptcy. The speed with which he/she can be 'discharged' plays a vital role in his/her decision to start a business *ex ante*. If the law is 'severe' then fewer entrepreneurs will come forward with their projects. This does not take into account the quality of the marginal projects that come forward when the law is 'softened'. There is an assumption that project quality is independent and randomly distributed in society: only the individual's risk preference plays a dominant role in his choice of self-employment. *Armour in his paper on 'Bankruptcy and Entrepreneurship'* argues that entrepreneurship is positively correlated to 'soft' bankruptcy laws but the direction of causality is unknown. He uses empirical data from fifteen countries in Europe and North America over sixteen years (1990-2005) to investigate and support his claim.

Although the United States bankruptcy law is at the federal level, the homestead exemption is at the state level. The homestead exemptions protect the personal assets of a debtor from the process of seizure, in case of bankruptcy. Each of the states has varying levels of exemptions with Florida with most exemptions and Pennsylvania with no exemptions. *An empirical study by Fan, Wei and Michelle J. White 'Personal Bankruptcy and the Level of Entrepreneurial Activity'* shows that 'softer' personal bankruptcy laws are not only positively correlated to entrepreneurial activity but also have an 'insurance effect'[#]. This analysis implicitly assumes that the entrepreneur takes the full risk associated with the venture and finances it using traditional financing means: bank loan, using his personal assets as collateral. This paper re-examines the claim when the entrepreneur transfers the risk of the venture failing to the venture capitalist that provides equity capital and in turn gets a significant part of the 'upside' if the investment pays off.

[#] The insurance effect is the ability of the debtor to use the exemptions to shield his personal assets for creditors in the event of bankruptcy.

3. Research Findings: Comparing Academic Views with Industry's Views

As a part of the primary research, five leading academics and ten people working in the/ with the VC Industry (practitioners) were interviewed to compare and contrast their opinions and experiences with venture capital and insolvency law.

3.1 Risk Return Tradeoffs

Academic Views: The academic view of the venture capital risk return tradeoff is premised on a positive relationship between risk and return. There is a general mismatch of the risk –return time horizons: the venture carries a significant risk of failing to begin with and does not generate a return till the investment matures, and the payoff for the VC is only when the venture capitalist exits either selling it to another financial/strategic buyer or to the public through an initial public offering. VCs will veer towards investments, which meet with their time horizon. At best, they may hold a marginal stake with a longer time horizon than they are normally comfortable with; the loss may not be substantial but the gain can be. The mismatch can only emerge in time if things proceed different from expectations. The investment does not have an ‘income stream’ (dividends) and can be compared to the ‘payoff of a zero-coupon bond with a call option but no principal repayment guarantees’ as described by Professor Triantis. The return distribution is peaked exhibiting excessive kurtosis and fat tails. The presence of fat tails indicates that the returns (either positive or negative) could be in excess of what is predicted. Many of the academics agree that the return distribution is unknown but argue that it tends to be skewed to the left exhibiting large ‘upside’ returns. A significant part of the discussion is based on the analysis of a single firm - a portfolio company. Academics treat each firm as a potential ‘winner’ and analyze it ex ante. There is also an implicit assumption of the VC having a symmetric approach to both ‘winners’ and ‘losers’*. It is believed that if a company begins underperforming then the venture capitalist would do its best in terms of time, money, manpower and expertise to maximize each of the investments.

Industry Views: In the conversation with the venture capitalists, the first distinguishing factor was that both VCs interviewed took a portfolio approach to talking about returns. (VCs invest in several small companies.) Each discussed payoff strategy in the context to

* Portfolio companies are described as winners or losers by the VC depending on the firm’s performance as compared to the others in the VC’s portfolio.

the returns generated by the portfolio as a whole rather than individual portfolio company. Although, before investing each of them believed that the entrepreneurial firm could be a success, but as soon as it became a part of their investment portfolio, they were comfortable with the idea that 20-30% of the portfolio companies would fail. The industry standard is the 4:4:2 ratio - out of 10 companies 4 will be a success, 4 will return the capital invested and 2 will fail. The expectation of failure is almost ex ante. Venture capitalists' most critical aim is to identify which companies will be a success and use all its resources to maximize their individual returns. The VCs believe that the return generated from the successful companies will not only compensate for the losses from the other companies but also provide excess returns to the entire portfolio. Not only are the returns asymmetric but also the effort made by the VC, once they have identified the 'winners'. VCs policy of maximizing the 'upside' returns includes 'not bothering with potential 'losers' - those firms would not receive further rounds of financing.'

The critical difference in the practitioners' view is their portfolio approach to analyzing the risk return tradeoff. Ex ante, VC are aware that some investments will fail while academics aware of this treat this as an ex post effect. The VC's expectation that a few firms will fail makes a difference to the way VC treat corporate insolvency as compared to what academics see it as. Corporate insolvency is a part of their business model. Because academics treat it as an ex post effect, they tend to overestimate the cause-effect relationship of entrepreneurial firms and corporate insolvency.

3.2 Control, Informational Asymmetries and Agency Costs

Academic Views: When the VC invests into an entrepreneurial firm, not only has it allocated itself cash flow rights but also control rights of the entrepreneurial firm. Control rights may include a seat on the board, VC's power to appoint directors and participate in strategic decision-making. Prof. Armour is of the opinion that using convertible securities is not of significant consequence as VC can use any type of security but at the end of the day they have an 'equity' stake. Prof. Triantis argues that the VC's motivation of using convertible securities is not only to align managerial incentives but also have contingent rights that if the firm underperformed, the VC could obtain the power to run the business as it seemed fit - as Prof Westbrook phrased it '(VC) gets in the driver's seat'. This supports the common view that VC often bring in management expertise that the entrepreneur lacks. VCs also play the role of financial-intermediaries between investors and the entrepreneurial firms. Entrepreneurs cannot

credibly convey information to investors and directly raise money from the public capital markets. Investors often do not have the tools to make investing decisions and 'outsource' the decision to a VC, who has the expertise and the resources to perform complete due diligence before investing in a small firm: this academic claim that VCs reduce informational asymmetries is supported by the above explanation.

Industry Views: Entrepreneurs claimed that once they had accepted VC funding, the VC was effectively in control. In one extreme case the entrepreneur believed that his function had turned to a managerial one in which meeting performance targets becomes the primary objective so that he could obtain the next round of financing. The venture capitalist did not agree on his function of bridging informational asymmetries between the investor and the entrepreneur. His objection stemmed from the fact that VC normally raises money from investors before identifying any investment opportunities. The fund remains open for 3-6 months and then has a period of two years to invest the money. Investors trust the VC's skill in not only choosing the investments wisely but also giving them the benefits of diversification (investing in many small entrepreneurs rather than one 'chunky' investment into a venture). Ex ante, it does not reduce any informational asymmetries between the entrepreneur and the investors. The traditional view that 'venture capitalist provides management expertise' is another point of difference that the VCs have with the academics. Both the venture capitalist interviewed agreed that they had little or no experience in dealing with some of their portfolio company's products/markets. Their prime asset is the 'network' they have access to and can leverage for its advantage. The network plays a dominant role in providing the VC with an infrastructure that aids information flow, superior human resource information (that allows access to seasoned managers with relevant experiences), and already established institutional relationships with bankers, lawyers, government agencies and suppliers. The entrepreneurial firm gains most from these 'network effects'. The entrepreneurs interviewed agreed with that claim.

The main message from the practitioners' point of view is that VC funding dilutes entrepreneurship as the entrepreneur's function becomes more managerial in nature – often the entrepreneur's short-term goal of obtaining further financing plays a more significant role than his long-term objectives. Academics have an idealized notion of entrepreneurship. Once a business starts, there is a managerial dimension. The question to ask is whether entrepreneurs' risk-taking ability goes down as more is at stake for the VC than for them. However, the entrepreneur needs the VC as much as the VC needs him

to convert money into value. The key is the matching of expectations and horizons. The VC's network plays a dominant role for the entrepreneur. The VC networks not only provide financial resources and access to talented managers (experts) with the necessary skill set to succeed but also the ability to generate opportunities for growth through the 'strength of weak ties'^ε. For the entrepreneur the VC network fill up the 'structural holes'^λ which increases the probability of success. The network effect is arguably the single most important factor after funding and holds the key to value.

3.3 Reasons for failure

Academic and Industry Views: Academics believe the key reason for business failure is a failed business model, a product that failed to deliver what it promised or liabilities in excess of assets. In theory, these should be the fundamental reasons for corporate insolvency but drawing from the venture capitalist's experiences, entrepreneurial firm often suffered financial distress when it failed to secure further rounds of financing. The reasons why further finance wasn't available were not limited to the theoretical reasons mentioned above but often the venture capitalist's cash availability and investment allocation decisions. This is the effect of the portfolio approach. VCs' business is to invest and they cannot but bring a portfolio approach. Some are spread too thin and the entrepreneur pays the price. For example if an 'expected winner' required more capital the VC could divert funds from the less performing firms. Investment trends (such as internet bubble in 1990s, biotech in 2000s and clean tech now) also play a vital role in further financing decisions – if investors want the latest 'fad' investment then the VC provides for it. VCs also highlighted that the cost of putting a firm through the bankruptcy is very high compared to the value saved. Jeffery Lynn – US lawyer estimates the cost of filing for bankruptcy in a simple case could cost between \$25000 - \$50000 including legal fees. VCs believe that 'to wind up' is often the most efficient solution (if they are unable to find another buyer for the distressed firm).

3.4 Personal Insolvency

Academic Views: As the research papers claimed, the 'severity' of the personal insolvency law influenced the level of entrepreneurship, which in turned influenced the demand for venture capital. More 'forgiving' or generous laws will reduce the risks

^ε Ventresca, M, 2008. Technology Innovation and Strategy Lecture 5 Slides. The strength of weak ties is understood as a concept where people loosely connected with each other; often use their connections to generate business/social opportunities.

^λ Structural holes are the lack in the current ties (connections) that could have a potential for benefit.

associated with entrepreneurship, giving the entrepreneur an 'fresh start' and so more entrepreneurs will come forward to start their own venture and demand venture capital. All the professors interviewed referred to the studies that correlated the homestead exemption with the level of entrepreneurship in the state. The homestead exemption acts as insurance, if the venture fails, entrepreneur can shield his home and personal assets from being lien on. In the US, different states have different levels of protection for the debtor. States with the greatest protection showed high levels of entrepreneurship.

Industry Views: Venture capitalists believed that personal insolvency is not a significant decision making variable for the entrepreneur. When the entrepreneur seeks equity capital for a VC, he/she does not use bank finance and therefore does not use his/her personal assets as collateral. The VC takes on the risk of the venture failing. If the venture fails, the entrepreneur loses his original investment but does not face personal bankruptcy. Although the entrepreneurs highlighted the fact that small entrepreneurs sometimes put all their savings and collateralize their assets with the bank to get a start, so that they can attract VC funding. The bankers confirmed that personal guarantees by law need to be agreed upon and renewed each year. So even if the entrepreneur used his/her personal assets as collateral to start his business, he/she could choose not to renew the claim against his/her personal assets, as bank finance would become unnecessary once he/she has obtained the VC funding. Judge Lundin, from his experiences in the US bankruptcy courts, believes that wage garnishment plays a more critical role than the homestead exemptions. Wage garnishment is a court order that a creditor can bring to the employer of the bankrupt debtor – and the employer is obliged by law to deliver a given percentage of the wage to the creditor as a repayment of the debtors' dues. He believed that most failed entrepreneurs want to enter the job market – the social stigma of bankruptcy would carry to the new work place and employers may choose not to let a man 'with legal tangles' represent them in front of clients, halting any career progression of the debtor. The judge also explicitly stated that the question of garnishment would not arise for a venture capital funded entrepreneur because personal bankruptcy is not an issue. In his 25 years as a bankruptcy judge, he has not come across an example of a VC backed entrepreneur's insolvency case.

4. Analysis: Corporate Insolvency

4.1 Relationship between the Entrepreneurial Firm and the VC Firm

Start-up firms are often started when an individual or a group of individuals have an entrepreneurial idea about a new product or technology. Negative cashflows, no steady income streams and high cash burn rates are features of the early stages of firm's development. In this stage, in addition to the question of what 'return' the venture will generate, there is also extreme uncertainty about the success of the venture. Debt is unsuitable, as servicing the debt would be a problem and given the riskiness of the venture, the high interest rates would lead to the problems of adverse selection (Stiglitz and Weiss, 1981). The time lag in matching risk with returns is the time it takes for the product development and launch. This often requires equity capital, with no immediate liabilities of principal repayment or any 'fixed' expenses such as interest payments. The lack of a tried and tested business model and an unproven track record makes it quite difficult for entrepreneurial firms to raise equity finance from the public markets. With the initial high levels of expenditure and the absence of steady revenue sources, cash dries up quickly, requiring larger investments. Venture capital can fill this gap and cater to the large investment (capital) needs of small firms.

Lack of tangible (hard) assets

Bank financing requires the entrepreneurial firms to provide hard' tangible assets as collateral that they lacks^Σ. Given the nature of debt, the existence of the collateral makes the threat of enforcement credible, in case the venture does not succeed and the debtor defaults. (Armour, 2003) Start-up firms are usually financed by the entrepreneur's personal savings, family and friends contributions and then angels' investments but it quickly reaches a point when further finances are needed. The value of the entrepreneurial firm's assets are in human capital, ideas and potential to capitalize on future opportunities – these assets are non-transferable in nature and cannot be used as collateral to obtain a loan from a bank as the bank cannot enforce against it. Also, given that the firm has meager or negative cash flows, it may not satisfy the bank's criteria of possessing the minimum ability to service the debt payments. Although cash-flow-

^Σ Project finance is the bank's form of venture capital where the bank takes on the risk of lending against a project's cashflows only without recourse to the company's other assets. Project finance, in practice, is used only for large companies' project. One of the reasons why entrepreneurial firms do not get access to project finance is the sheer size of the projects; entrepreneurial firms are too small for project finance to be a profitable relationship for the bankers.

based lending was debated some years ago as a possible avenue for banks, it just did not take off. Banks lend essentially on the strength of balance sheets. This highlights the role that the venture capitalist plays in providing risk capital for the entrepreneurial firm.

Often, a venture capital firm raises funds from several investors, performing the function of an intermediary between the investors and the entrepreneurs. This inevitably adds another dimension to the relationship between the VC firm and entrepreneur. The VC firm exploits economies of specialization, scale and scope in gathering and processing information (Triantis, 1999, Black and Gilson, 1998) There is also an element of efficiency, in terms of bridging the informational asymmetries between the investors and the entrepreneurs: disclosing information to one party (VC firm), in comparison to a bank / many investors, mitigates the leaking of critical information and any mis-readings of it by investors as VC firms would not only perform better quality of analysis but also actively control the entrepreneur's actions. Given that the VC firm invests in form of an equity stake, it advises the entrepreneurial firm on strategic as well as financial matters – this advice is superior to that of consultants as consultants may under-invest in information production as they do not get all the benefits of their efforts as they can be easily passed on to another stakeholder. The VC firm's equity ownership in the entrepreneurial firm aids the VC firm to capture greater benefits of their advisory efforts (Triantis, 1999). Renegotiation with one capital provider is easier, time saving and cost- saving instead of dealing with multiple investors. When a VC firm makes sizable investment in an entrepreneurial firm, it is more likely to provide further capital/time than to have the entrepreneur wind up the business. The VC firm only winds up when it loses faith in the product/technology. Opportunistic behaviour by the VC firm or the entrepreneur is reduced by the prospect of continuance in their long-term relationship. (Triantis, 1999)

Agency Costs and Asymmetric information

Financial contracts are incomplete: they do not account for outcomes in all states of the world. Often contracts even fail to use the available information and the asymmetric nature of information often hinders the entrepreneur from credibly conveying information to investors who cannot observe the action (Asymmetric information). The contract often fails to control post-financing behaviour of the entrepreneurial firm (Triantis, 1999). This can be addressed by a milestone-driven investment and active participation in the management. Given that the VC has control rights, it can control the entrepreneurial firm's behaviour better than individual investors. Agency costs are reduced for investors who invest through a VC firm. For example the entrepreneur will

choose to maximize his private benefits regardless of the investor's interests. Since the action is not observable by outsiders, entrepreneurs can choose to expand the business when it would be most efficient to restrict it. However, when a VC firm is involved – information is its prime asset: any attempt of inefficient private benefit extraction is verifiable by the VC as it participates in the management decision-making process. The VC also uses the 'carrot' of providing further rounds of financing as a tool to control agency costs. This is arguably the dominant mode of VC investing in entrepreneurship.

In his paper *Financial Contract Design in the Venture Capital World*, Triantis argues that venture capital contracts terms are not more efficient than traditional bank loan terms at resolving informational problems. Restrictive covenants, redemption rights and staged investments have counterparts in loan financing agreement. Loans often require collateral, have covenants governing the actions of the firm and a right to call back the loan or enforce against the collateral. The distinction lies in the use of convertible securities, either convertible debt or preferred equity convertible to ordinary equity on demand. Many agreements have an automatic conversion clause that is triggered when the firm has an initial public offering. Kaplan and Stromberg, 2000 's study of US venture capital contracts confirms this practice. Armour, in his paper *Law, Finance and Innovation*, questions why venture capitalists do not simply take ordinary shares as convertibility does not distinguish between the theoretical value of convertible debt and preferred equity (Armour, 2003). The venture capitalist is not very concerned with the 'downside' risk – liquidation priority. A reason that VCs use convertible securities could be that this is the most efficient way to align the entrepreneur's incentives. Given that the VC firm invest a large part of the entrepreneurial firm's capital, the VC firm has control rights in terms of enhanced voting right, entitlement to add or remove board members and actively participate in business strategy implementation. Human capital/idea cannot be separated from the entrepreneur but it is optimal for the VC firm to align its incentives in a way that it would be beneficial to the VC firm. If the residual claim after all have received their share belongs to the entrepreneur, then the entrepreneur will work to maximize it. The 'preferred' status of the VC firm and the 'subordinated' status of the entrepreneur only emphasize control that the VC firm has over any of the entrepreneur's adverse actions. The point to note however is that entrepreneurs, in general, are driven by the desire to realize their vision. They recognize too the importance of funding without which this goal cannot be reached. The conflict arises when, in the opinion of the VC, the business has not progressed, as it should have.

This is especially true of technology-based businesses where the challenge is to gauge the direction of movement (of the technology).

Risk-Return Analysis

Standard organizational law in most countries allows two main types of organizational structures for a VC firm: limited partnerships and/or private companies. Limited partnerships are used in the US (Gompers and Lerner, 1999) and in the UK. (Armour, 2003) In both countries limited partners have limited liability: the risk of loss only extends to the capital invested. General partners may or may not have unlimited liability. The disadvantage that the UK has is that the number of partners is limited to 20, giving rise to many parallel agreements, complicating legal structures^α. When entrepreneurial firms get to a stage when venture capital becomes vital, the firm often converts to a limited liability company, if it is not already one so that the venture capitalist can invest and take a stake in the firm; this is generally seen as an industry practice.^β

The motivation for a VC firm to invest in an entrepreneurial venture is its potential to earn excess returns. The risks include investing and developing new technology/product, enduring long gestation periods of negative return and cash burn. Active participation in management direction is undertaken to earn a return that is often a multiple of the capital invested. Gompers and Lerner in their book 'The Venture Capital Cycle' highlighted that returns can be anywhere from a fraction of the investment to 8-12 times of capital invested. This volatile nature of the returns and the lure of abnormally large returns attracts many investors. The return distribution is described as positively skewed with a fat right tail emphasizing the fact that tail event returns are not common but extremely large. The industry standard is explained by the 4-4-2 ratio of success-breakeven-failure of firms. Many VC supporters claim that returns from successful ventures compensate for losses from failed ventures. Venture capitalists are aware of the risk of failure ex ante.

The venture capitalist provides risk capital because he is concerned with the 'upside' potential of the transaction. Normally a VC firm, will invest in more than one entrepreneurial firms (portfolio companies). It uses the principles of diversification

^α Since only maximum of 20 partners (investors) are allowed, VC firm often, set up parallel partnerships. The legal structure can get complicated when investors have cross-holdings in several partnership agreements.

^β Gompers and Lerner's 'The Venture Capital Cycle'

knowing that some investments will do well while the others may not. The VC firm's target is to try and maximize returns from the firm that does well and earn a multiple of capital invested. The 'downside' risk is limited to the capital invested. The VC does not show interest in the loss making ones. Often ventures that don't do well are either sold off to another interested party or simply written off. Given that the VC firm makes staged investment, if the VC loses faith in the venture, it does not supply the next round of financing. Choking off the supply of capital often results in wind-up. The salvage value from a failed venture is insignificant to the venture capitalist. (LaPorte et al, 1998)

Many venture capital financed entrepreneurial firms become insolvent not because of excess liabilities over asset but because the supply of capital is cut/ the venture fails to acquire the next round of financing. The bankruptcy systems cannot protect these firms. Neither the courts nor the contracts can force VC firms to provide further rounds of financing.

4.1.1 Economics of Bankruptcy

The economics of using a formal bankruptcy procedure points out that the cost of the procedure may well be in excess of gains, if any, from bankruptcy.² Many venture capitalists may choose not to throw good money after bad and opt for a more efficient solution of a write off. Sheila Smith (Head of Restructuring at Deloitte) explains that before filing for bankruptcy in the US, a firm must prepay two months of utility payments. If the firm falls under the Warn Act, (in the US) then it is liable to pay sixty days of severance payments³ to its employees.

Lack of complex debt structures

Entrepreneurial firms often do not have complicated (senior, subordinated and equity tranches of) debt. Often bank debt, if any, carries a hard asset as a security. This gives the bank the first right to claim any proceeds to recover in capital in event of a bankruptcy. The bank - when it is the major lender, often does not recall the loan at the first sign of trouble but thoroughly performs due diligence before recalling the loan (Sussman and Franks, 2005) The simplicity of the debt structure itself reduces the instances of filing for bankruptcy as there is only one, if any, big lender.

² Jeffery Lynn (Lawyer) estimates the cost of filing bankruptcy even in a simple case can be between US 25,000 to US 50,000 including legal fees and Lee Manning (Administrator from Deloitte UK) estimates the cost of administration at £25,000.

³ This is applicable to firms employing over 50 people.

Bankruptcy may not always be the optimal solution – given that the values of assets are in human capital and in the entrepreneur’s ideas. Costs of filing bankruptcy, legal charges and other transactions fees could be in excess of the amount recoverable from the entrepreneurial firm.

4.1.2 VCs with a business interest – private benefits of control

Large multinational firms often have their own venture capital firms that invest in developing the line of business that the multinational is interested in. The multinationals can enjoy the private benefits of control of the entrepreneurial firm. For example Intel has established a venture capital firm that invests into technology companies that can either expand Intel’s technology or advance Intel’s technology further. Many technology companies use this as one of the routes for innovation. The collaboration model popularized by Proctor and Gamble that capitalizes on entrepreneurial skill as a source of innovation is a collaboration of the company with entrepreneurs with new ideas. Some firms may also prefer to use this model for accounting reasons. If the firm was to spend on research and development, US GAAP requires the company to immediately write off any research (innovation) expenses. This would inevitably hurt the company’s income statement. The venture capital route to spending on research (innovation) allows the company to either take the research costs off-balance sheet or show the amount invested in the venture capital fund as an asset depending of the legal structure that the company has opted for.

The large multinational often participates with the entrepreneurial firm in obtaining the intellectual property (patents). Given that the entrepreneurial firm is partly controlled by the venture capital fund that is in turn owned by the multinational company – the company can easily use its advantage to either become a joint owner of the intellectual property or obtain an exclusive license to use that technology.

Often when these sort of entrepreneurial firms fail it is because the technology that they were developing didn’t work or the multinational company could acquire that technology cheaper from other sources. The firm fails because of the lack of funding as the multinational cuts off the cash supply. These investments are once again written off. Formal bankruptcy procedures, once again, may be an uneconomical and inefficient outcome for a small firm.

4.1.3 Government as a VC

The government often plays the role of a VC to encourage innovation in small businesses. With venture capital recent success at fuelling economic activity, many governments have launched public programs that fund/invest in small businesses. Capital for Enterprise in the UK and YEDA in Israel are examples. In 1995, the Small Business Innovation Research (SBIR) program in the US invested in early stage financing in technology-intensive companies provided almost \$900 million. (Lerner, 1996) The objective of such programs is not only to fill 'funding gaps' that arise because of private capital market deficiencies but also capture public benefits such as increased innovation, growth and job creation. (OECD, 1997) On one side, the economic literature is supportive of the public programs suggesting that new firms, especially technology-intensive firms, are receiving insufficient capital that constraint the research and development expenditures of smaller businesses. (Lerner 1997) In its early years, firms such as Apple computers, Compaq and Intel received support from SBIR program. On the other hand, private venture capitalists play a dominant role in not only providing capital but also guiding and monitoring the small businesses. Government officials may not have the expertise or the resources necessary to maximize the entrepreneurial firm's potential. Private venture capital has its competitive advantages of expertise, network externalities and performance driven incentives that a governmental effort may lack. Softer budget constraints, more forgiving approach to missed financial targets could lead to unsustainable (inefficient) post-incubation businesses.

There are few empirical studies to measure the impact. Lerner in his paper 'The Government as a Venture Capitalist: The long-term impact of the SBIR program' argues that public programs such as the SBIR program has limited economic impact. The paper examines the impact of the SBIR (Small Business Innovation Research) program – largest US public venture capital initiative that provided \$6 billion to small technology firms between 1983 and 1995. The positive effects were confined to firms based in areas with substantial VC activity as seen from the study of 1135 firms over a ten-year period measured in terms of sales growth and employment.

Brander, Egan and Hellmann's study '*Government Sponsored Versus Private Venture capital: Canadian Evidence*' also casts doubt on the desirability of government intervention in venture capital markets. The paper argues government sponsored VC investment underperformed because of the selection effect that private venture capitalists have a higher quality thresholds for investment than subsidized government

VCS. Private VCs have a natural competitive advantage of expertise in value creation that is incentivized by the large returns. The industry practice of profit sharing (2 and 20 rule⁶) attracts the most talented people into the VC business. Often the government fails attract the same pool of talented people that a private VC can.

Although studies may question the efficacy of governmental presence in the venture capital markets, the reality is that there are programs supported by the government that have a welfare approach and aim to maximize public benefits before financial targets.

Many of these government financed VCs have softer financial targets in terms of more lenient evaluation for further rounds of funding and longer investment periods – softer policy on exit strategy timeline. For example Yeda Research and Development Co. Ltd, financed companies such as InterPharm Laboratories Ltd in 1978, (now a subsidiary of Merck-Serono) that after many years of research, developed a treatment for viral infections, cancer and autoimmune diseases.⁷ Governmental VCs can stay invested for longer giving their portfolio companies a better chance of survival. Given that the VC firm aims to maximize public welfare, it may make inefficient decisions such as giving more capital to a firm that should be liquidated because it employs more people. Lack of active management, specialized advice and sharp financial goals can increase inefficiency of the portfolio company. Theoretically, bankruptcies in governmental finance firms will be less, as they tend to be lenient with entrepreneurial companies.

In all the above three cases: VC firm, VC with a business interest, Government as VC, the size of the firm and the reason that led to bankruptcy plays (lack of capital, liabilities in excess of assets) a vital role in comparing the bankruptcy cost with the cost of saving the small business. Also venture capitalists interests lie in maximizing the upside of returns and do not bother with bankruptcy procedures as they have an equity stake. There is a lack of empirical studies that study the behaviour of VC with not only a financial interest but also a business interest or a welfare concern.

4.2 Relationship between the Entrepreneurial firm and its Creditors

An interesting fact of venture capital investing is its concentrations in certain geographical locations such as California, New York, etc. and in certain industries such

⁶ 2 and 20 rule: the VC charges its investors a 2% management fee and 20% of the profits above the threshold return of 8%. This is common industry practice.

⁷ www.yedaend.com/success-details.aspx?ssid=3

as biotech, high technology etc. The common features among these industries are high research and development costs, new product/ technology development, long gestation periods, negative cashflows in the early stages and high cash burn rates one side and the possibility of making supernormal returns on the other. In cases such as these, often the largest creditor is the workforce. The nature of the liability of the firm is the same; unpaid wages to employees or unsecured creditors. Given that the firm may not have liquidation value (from lack of tangible assets), creditors in this case workers behave like 'equity holders' as it is in their best interest to keep the firm as a going concern.

Traditional businesses such as manufacturing related firms have an operating cycle that requires working capital funding. Trade creditors of such businesses are supplier of goods and services and provide unsecured credit. Another key feature of trade creditors is that their loss in case of debtor-default is less than the actual exposure because the creditor has marked up the good/ service to include a profit margin. The percentage of profit often includes the estimated risk of default of the debtor. Yet, there is both loss of profit and capital loss. Creditors do not run to liquidate the firm or even engage in 'asset grabbing'^φ even in the absence of a secured creditor or a bank loan because the entrepreneurial firm may not have 'hard' assets. From Sheila Smith's (Head of US Restructuring, Deloitte) experiences, small manufacturing firms often lease/rent manufacturing facilities (factory, machines etc). Also, as Lee Manning, (Administrator from Deloitte), argues that in many cases, the supplier or the creditor retains the 'title of the goods' and claims the unsold goods back instead of accepting a financial settlement, in the event of a default. Unsecured creditors of small business often behave like 'equity holders'; they have a higher chance of the recovery of their claims, if the firm survives and continues business,^δ the only qualification is the time element. There may be a loss of interest given the irreversibility of transactions, unless the amount is substantial.

In either of the cases, creditors enforcing against the debtor for small firms may not be economical. Jeffery Lynn (US Lawyer) estimates the cost of filing bankruptcy under Chapter 11 or Chapter 7 (liquidation) can be greater than \$25000 in legal expenses alone, which have a higher priority to most other creditor claims. Savings after expenses

^φ Franks and Sussman, 2002

^δ Creditors debt-like payoff (limited upside) can actually be compared equity-like position as the 'upside' is not in a single transaction but in the continuation of business and the ability of the supplier to earn his profit margins.

would be divided among the creditors; only if that amount were significant would the creditors choose to liquidate.

5. Analysis: Personal Insolvency

5.1 Entrepreneurship, Innovation and Insolvency

In a society of heterogeneous risk preferences, the treatment of individuals by insolvency law might have an ex ante effect on incentives to engage in entrepreneurship. Ex post, it also affects the intra-marginal entrepreneur's ability to return to the marketplace after becoming financially distressed. (Armour, 2004) Entrepreneurs who start-up their own firms may not have adequate 'hard' assets to use as collateral for a bank loan and so the entrepreneur often uses his personal guarantees – on personal assets such as his residence etc. to guarantee his firm's debt. It is a common practice, for banks to demand that the entrepreneur uses his personal assets as a security against the loan. This help the bank bring down the risk associated with the venture, because if the venture fails the bank can enforce against the security and recover its capital. This arrangement allows the bank to charge an acceptable interest rate that is adjusted for risk but the implication of this financial burden on the entrepreneur is critical, if his venture do not succeed then the bank can call on his personal assets leaving him in a much worse off position than before. Here, the nature of the personal bankruptcy law plays a significant role.

The 'softness' or the 'forgiving' aspect of the insolvency law as described as the ability to discharge the insolvent individual legally from his liabilities. The shorter the discharge time the 'softer' the law: in the US, discharge from any legal disabilities takes up to three months while in the UK it can take up to a year. A study by Di Martino, 2002 on the history of personal bankruptcy argues that relatively more strict continental law (Italian) was less efficient than the Anglo-Saxon one in reducing the costs of insolvency. Financial failures in continental Europe in the early 1900 led to debtor imprisonment, or being expelled from the business community and creditor's recovery rates were low – the economy suffered as many entrepreneurs did not step forward to start their own business as the was a general loss of confidence.

The US addressed this in the first Congress meeting and passed a federal statute making the bankruptcy law uniform throughout the country. Although bankruptcy law is federal, exemptions are at the state level. The homestead exemption differs from state to

state in the degree of 'severity' shown to the debtor. The exemption allows the insolvent individual to retain some of his personal assets (principle residence, motor vehicles and personal property) – to degree to which the law allows which personal assets differs significantly. For example in Arkansas, Florida, Iowa, Kansas, Oklahoma, South Dakota, and Texas have a unlimited homestead exemptions, where the bankrupt individual can retain his home of unlimited value while states such as Maryland, Delaware, New Jersey and Pennsylvania have zero homestead exemptions (Hasan and Wand, 2008). Fan and White, 2003 studied and found a positive correlation between generous homestead exemptions and an individual's choice to start his business (entrepreneurship). Another critical factor is the ability for the creditor to obtain a 'garnishment' order from courts: Garnishment or wage garnishment is the ability of a creditor to get back his loan through a claim on a part of the insolvent debtor's future earnings. When a garnishment order is delivered to an employer, it is the employer's duty to subtract a percentage of the salary and give it to the creditor. The level of garnishment (percentage of salary deductible) varies from state to state from 5-25%. This not only has a similar effect on entrepreneurship as the homestead exemptions but also has a social stigma attached to it – most people would not like their employers to be aware or involved in their personal matters such as past insolvencies. Wage garnishment and its impact on entrepreneurship has attracted little empirical scrutiny but according to Judge Keith Lundin, Judge of the US Bankruptcy Court in Nashville, Tennessee, in his experience, garnishment has a more significant impact on an individual choice to start a business. He believes that the marginal (potential) entrepreneur worries that he should find employment, if his venture does not succeed. But with his name tarnished with a garnishment order, employers may discriminate against him.

The ability of an individual to get a 'fresh start' - discharged from all pre-bankruptcy indebtedness is the government's method to promote innovation and entrepreneurship in an economy. Armour and Cumming's paper on Bankruptcy Law and Entrepreneurship empirically show that bankruptcy law has statistically and economically significant effects on the level of self-employment. Countries such as Germany in 1999 and Netherlands in 1998 introduced laws that would allow bankrupt debtors to be discharged from indebtedness. The 'softening' of the law had an insurance effect as failed entrepreneurs had hope of a fresh start.

Venture capital is another form of a financing arrangement where the venture capitalists provide capital to entrepreneurs, taking an equity stake in their business. VC firms also

have an 'insurance' effect to the society of entrepreneurs in terms of providing capital and taking risk on the entrepreneurial idea. If the VC and the entrepreneur come to an agreement on financing then the entrepreneur does not have to use personal guarantees or his personal assets as collateral to secure funding from a bank. The relationship with the VC allows the entrepreneur to own his personal assets without any risk of loss if the venture fails. If the venture fails, the VC withdraws but the entrepreneur does not lose all his personal assets. The entrepreneur does not experience financial distress and can choose from entering the job market or starting fresh again. This VC financing's insurance effect reduces the importance of the 'severity' of the personal insolvency law as a significant decision making variable. If the VC financed entrepreneurial firm suffers bankruptcy, the venture capitalist and the entrepreneur lose the capital each invested and nothing more. The VC financing presents a way to separate the risk of a new idea succeeding from the idea itself. When the risk is shifted to someone else there is a cost attached: the entrepreneur not only gives up a significant part of the 'upside' – cash flow rights but also control rights.

Ex ante effects of insolvency law

Insolvency law affects the entrepreneur's incentive for risk-taking; there is an implicit assumption that the quality of all available projects is independent from risk preferences of entrepreneurs. Entrepreneurs will behave rationally, comparing the costs and benefits of self-employment and only when benefits exceed the costs will the entrepreneur start-up a business. Benefits are understood in terms of the 'upside' potential of the business and 'downside' as the worse case scenario when the venture fails and the entrepreneur becomes insolvent. If the law is forgiving, then entrepreneurs will be more willing to take risk as costs of failure are reduced, harsher laws will have a reverse impact. If the marginal entrepreneur is aware of his project quality ex ante, then he will only come forward if the project quality is good in harsh insolvency law conditions, but in 'softer' insolvency law conditions, he will come forward even with low quality projects. If the quality of the project is known ex ante, softer insolvency codes may lead to the misuse of the law. An objection to this argument is that entrepreneurs are biased towards the project ex ante and often adopt an optimistic approach to rational decision-making that could lead to sub-optimal decisions. Venture capital brings with it experience, expertise and a harsh screening process that not only studies the project but also is better able to make rational decisions, as they are liable to their investors to generate returns. Their professional approach is less driven by emotions or ego (as is the entrepreneur's, at times) and more by the potential of the project to earn

profits. Venture capitalists reduce the impact of insolvency law on the entrepreneur's decisions and increase the probability that higher quality projects are selected for funding.

Ex post effects of insolvency law

Although a majority of empirical studies are based on the ex ante effects of insolvency law, in practice ex post effects play a more significant role. It is the entrepreneur's ability to recover from his failed venture and start fresh and try again. The 'softness' or the 'forgiving' nature of the law only adds value if the entrepreneur has the motivation to use new ideas and start again, as his 'human capital' as an asset is not lost to society (Armour, 2004). It is often argued that the number of entrepreneurs in society are fixed and that reducing the risks of entrepreneurship does not increase the number of entrepreneurs: there is more to entrepreneurship than taking risks. The objection to this argument is that the number of active entrepreneurs changes with the level of risks associated with entrepreneurship. Venture capital changes the variables in the equation, as the costs of failure do not involve personal bankruptcy but the opportunity cost of the entrepreneur's effort and time.

6. Analysis: Venture Capital Contract Design

Financial contracts are inherently incomplete, as they do not capture all possible outcomes that could happen within the contract's stated time frame. The academic literature extensively discusses the principal-agent problem, conflicts of interest between the principal (investors) and the agent (entrepreneur). Given that the entrepreneur takes business decisions to selecting investments, the entrepreneur will try to maximize his private benefits, without any regard to the investors' interests. The venture capital contract is structured in such a way that when the entrepreneur attempts to maximize his own interests, the VC's interests are also maximized. The venture capitalist can align its interest using a different class of equity shares – preferred equity – that in addition to cash flow rights also has a disproportionate amount of control rights. Other problems of financial contracts include 'adverse selection' (Myers and Majluf, 1984), i.e., if investors offer average terms – it attracts entrepreneurs with a lower quality of projects. This problem is reduced for venture capital contracts, as venture capitalists have a more rigorous screening and selecting process (Discussed later). Post financing, the problem of moral hazard arises (Jensen

and Meckling, 1976), if the venture fails the entrepreneur tends to take greater and larger risks (gamblers), in the hope that one large success will salvage the venture. The investor is unable to observe the entrepreneur's actions and distinguish the reason for the venture failure: whether because of the entrepreneur's lack of efforts, market conditions or bad luck (Armour, 2004). Venture capitalists circumvent this problem, as they are not passive investors but actively participate in business decisions.

Kaplan and Strömberg (2003) compare real world financial contracts to contract theory, using data from 213 VC investments in 119 portfolio companies by 14 VC firms. They find that VC financing's key features are separate allocation of cash flow rights and control rights (voting rights, board rights, liquidation rights and other rights) and VC's control rights have a positive correlation to the entrepreneur's cash flow rights. Another striking feature is the use of convertible securities (Triantis, 1999). VC's often use convertible/participating preferred equity that corresponds to holding a zero-coupon debt and voting equity. The contingent claims (control rights) are allocated so that if the venture performs badly the VC can gain full control. As the company does better the entrepreneur gains more control with an automatic conversion of the VC preferred equity to common equity before the initial public offering or a trade sale of the entrepreneurial firm.

Given that the firm is performing badly, the VC can use its control rights to gain full control of the management and steer the firm away from bankruptcy. The VC's motivation to take control of the failing firm is in line with its incentive to protect and grow its investments. With the VC in control, the VC's reputation is at stake, if the firm defaults on its commitments. Often the VC prefers that failed firms do not have creditor lawsuits. VCs have to maintain their investors' faith as they raise and pool capital to fund their investments in entrepreneurial firms. Many VCs will simply choose to write off failed investments and concentrate on the successful ones. The bankruptcy system cannot salvage these companies as it normally would have little or no debt and often debt are settled before the VC writes off the investment (VC from Goldman Sachs).

Another vital part of the VC contract is its non-compete agreement and vesting provisions that make it more expensive for an entrepreneur to leave the firm (Kaplan and Strömberg, 2003). This would not have so much of an effect ex ante on an individual's incentive to start his business but it would have a significant impact on the individual's actions post-investment. As an entrepreneurial firm's most valuable assets

are intangibles ('human knowledge' - in terms of the entrepreneur's ideas and skill), non-compete agreements become a critical asset to the firm. If the venture fails, the question arises whether the non-compete agreement still holds good – if not, the entrepreneur could move on to start another business utilizing the same/similar ideas and skill. If he is restricted and bound by the non-compete agreement then he is forced to join the workforce and obtain employment. Unless the entrepreneur has all his personal assets invested in the venture, the question of personal bankruptcy does not arise ex ante.

The market for venture capital is not efficient. Venture capital funding is available in certain industries such as bio-tech, software, etc. more easily than others, in certain places such as US –Silicon Valley, New England, NY metro, Europe –London etc more easily than others. Entrepreneurs have to find VC partners, negotiate mutually acceptable contracts and secure financing. The VCs do enjoy, to a certain extent, greater bargaining power than entrepreneurs, given the numbers of entrepreneurs searching for VC funding compared to VC's investible funds. The VC can hence, dictate terms such as choice of jurisdictions that have stricter personal bankruptcy laws, to weed out the poorer quality of projects. (It is assumed that the entrepreneur is aware of the project quality ex ante and can make rational decisions using this knowledge. Discussed earlier.)

7. Analysis: UK –US Bankruptcy System Comparisons for Entrepreneurial Firms

Both bankruptcy systems aim to salvage as much value as possible. The US follows a court-driven system, where the financially distressed debtor can seek protection (from assets being seized) from the courts. The courts leave the debtor in charge and give the firm time to restructure its operations and financial statements. Financially distressed firms renegotiate contracts such as debt repayments, leases, union contracts and often use the renegotiation as a tool for cost reduction. The intent of the law is to help the firm become competitive once again and emerge from Chapter 11 economically more efficient. What is most important to note is that the US courts allow the 'Absolute priority rule'^φ to be breached. Judge Lundin has argued that judges resolve any conflict but remain neutral in the whole process of bankruptcy, although there is a bias for preserving the existing synergies of the firm.

^φ Absolute priority rule is the pre-agreed priority of payments between the firm and its creditors.

The UK follows a contract-driven bankruptcy system. Any creditor can put the firm into bankruptcy for unpaid debt. The firm usually goes into administration or Company Voluntary Arrangements (CVA) where an administrator/ receiver is appointed to deal with the financially distressed firm. Administrators' responsibilities includes attempting to restructure the business, failing which, examining other options such as distress sale or liquidation. What is noteworthy is that the renegotiation of contracts is done privately in the absence of judicial environment. The UK courts can only enforce the terms of the contract but do not breach the 'absolute priority rule'.

The US system can be seen as 'carrot' approach when managers can use the bankruptcy system as a business tool to fight financial distress while the UK system is the 'stick' approach where managers are fired, if the firm faces financial distress and can be convicted of 'wrongful trading'¹. However, both systems appear to be converging with UK's new proposed law to allow medium and large firms access to a court driven system for renegotiation of its contracts and with US allowing more creditor rights and enforceability of contracts.

Yet, for an entrepreneurial firm, the difference between the two systems is minimal. In sum, there is a 'size effect' as the systems converge relatively faster for smaller firms. In either system, (the UK or the US) the strategy for an entrepreneurial firm is survival through growth (in terms of increased revenues or research progress). Entrepreneurial firms usually have little room for cost reduction through renegotiation of expensive contracts, such as large interest costs or union obligations. As established before, trade creditors prefer not to liquidate the firm, given the lack of 'hard' assets. Many financially distressed small firms do not end up in the bankruptcy system because the process of bankruptcy is uneconomical. The VCs interviewed preferred to 'wind up' a firm, if they were unable to find another buyer for it. According to the VCs, the main reason for a corporate insolvency of a VC funded entrepreneurial firm is not liabilities in excess of assets but the lack of further capital infusion: the bankruptcy system cannot protect value in these cases. Another observation to support the claim that differences in the systems are minimal for entrepreneurial firms, is the interests rates on loans to entrepreneurial firms are similar. Although the US is a debtor friendly environment,

¹ Wrongful trading: managers who are aware that the firm is financially distressed but still continue to trade can be convicted in court where they could become personally liable for their actions. The aim is for managers to act responsibly and not undertake business transactions when they are aware that the firm may not be able to meet its obligations.

(contracts have a higher probability of getting renegotiated) this risk is not captured in the interest rates charged on the loan when compared to loans offered in the UK to entrepreneurial firms. Professor David Skeel believes that one of the reasons for the similar interest rates could be that entrepreneurial firms' loan risk in either country, is not significantly different from the other.

Another vital difference between the UK and the US bankruptcy system is the time frame with which a firm could experience liquidation. As shown by the data, only 12%-13% of the firms that enter Chapter 11 proceedings emerge restructured and the rest (87%-88%) eventually go through the liquidation process. Liquidation procedures in both countries are broadly similar. The significant difference arises in the time frame as the US bankruptcy system allows deferment of liquidation by two years. The only qualification to this argument is that in a rare case, if a large firm such as General Motors emerges from bankruptcy then the salvaged value of the restructured firms maybe greater than the cost of delay of liquidation of the balance 88% of the firms. It is worth debating whether the difference between the two systems is exaggerated in academics.

8. Conclusion

The goal of this paper was to analyze and understand the effects of insolvency law on the venture capital industry. It focuses on the academic perspectives on the venture capital industry and compares it to industry practices to see whether the theory faithfully depicts reality. With the help of the interviewees, this paper presents contrasting views and analyzes how insolvency law affects venture capital in theory and in practice.

The paper has explored the relationship between the entrepreneurial firm and the venture capital firm. Given the high risks of new technology / products, entrepreneurial firms cannot often finance their business through debt and hence seek equity financing. The venture capitalist's motivation in investing in an entrepreneurial firm's equity is in the 'upside' or 'superior returns' if the venture is successful. Since the firm lacks a complex debt structure, if the venture fails only trade creditors stand exposed. The venture capitalist often writes off his weak investments and concentrates on the potential 'winners'. Normally, the VC finances an entrepreneurial firm that is in the developing stages, when it has negative cashflows and high cash burn rates. VC funded firms also fail when the VC is disenchanted with the idea or progress, and simply stops

financing – the entrepreneurial firm suffers a cash crunch and cannot survive without further rounds of financing. Many VC funded firms do not go through formal corporate bankruptcy procedures because it is expensive as compared to the realizable value of the firm.

The relationship with entrepreneurship, innovation and insolvency is also explored. Insolvency law affects entrepreneurship, when the law is more ‘forgiving’ more entrepreneurs volunteer to start their business and when the law is more ‘severe’ few come forward. Here it is assumed that the quality of projects is independent. In more forgiving regimes, more entrepreneurs come forward because they can get a faster discharge from liabilities that reduces the cost/risk of entrepreneurship for the entrepreneur and he is able to ‘start fresh’ sooner. When a VC firm funds an entrepreneur, he requires no bank financing, therefore he doesn’t use his personal assets as collateral and hence he is at no risk of personal insolvency. The availability of venture capital has an ‘insurance effect’ on the entrepreneurial society as it shields the entrepreneur from the impact of the personal insolvency laws.

Finally, the relationship between the entrepreneurial firm and its creditors emphasizes that the entrepreneurial firm does not usually have secured debt (in terms of a bank loan) but instead has unsecured trade creditors who do not lend money, but offer goods /services on credit for short periods of time. For high-tech firms the major current liability is often the unpaid wages of the people who work there.

The comparison between the US and UK systems of bankruptcy showed that for small entrepreneurial firms, both systems are convergent to a greater degree than they are for larger firms. This is a ‘size effect’: the smaller the firm the more similar both the systems seem in relation to efficiency and the ability to salvage value from financially distressed firms. In both cases (in the US and UK), small firms are treated almost equally reflecting that insolvency law is not a significant decision making factor for VC funded entrepreneurial firms, although this is yet to be empirically proven.

8.1 Further Research

This paper also highlights two prime areas ripe for further research on the relationship between venture capital and insolvency law: first the type of VC especially the VC with a business interest in the portfolio’s company’s product or technology, many big

technology company have adopted to 'open innovation' model where they take on the role of a VC to fund innovation in their industry and second empirical analysis on the role of wage garnishment's impact on entrepreneurial spirit in an economy.

8.2 Limitations

The main limitation to this study was the time frame. Organizing interviews with both the academic experts and industry practitioners was difficult because many of them were on their summer break and were willing to invest limited time to answering questions. This also limited the number of people interviewed, opening up the possibility that this study may not represent the complete view on the topic. This study is qualitative in nature and the accuracy of the findings could be greatly improved by undertaking through quantitative analysis, using data obtained from VC consolidated reports (preferably including those of failed portfolio companies). Another limitation of this paper is that it only discusses venture capital in the developed world. Venture capital in the emerging markets face further challenges such as weaker legal system, therefore lack of contract enforceability, corruption, bureaucracy etc, which is beyond the scope of this study.

References

- Armour, John. 2003. 'Law, Finance and Innovation: A Review', in J.A. McCahery and L. Renneboog (eds.) *Venture Capital Contracting and the Valuation of Hi-Tech Firms* (Oxford: Oxford University Press), 133-161.
- Armour, John and Cumming, Douglas C. 2004. 'The Legal Road to Replicating Silicon Valley' CBR Working Paper No. 284 (March 2004), available at: <www.cbr.cam.ac.uk/publications/index.htm>.
- Armour, John. 2004. "Personal Insolvency Law and the Demand for Venture Capital," 5 *European Business Organization Law Review* 87-118
- Armour, J., and D. Cumming (2005): "Bankruptcy Law and Entrepreneurship," Working Paper No. 300, ESRC Centre for Business Research
- Davydenko, Sergei, and Julian Franks. 2008. "Do Bankruptcy Codes Matter? A Study of Defaults in France, Germany and the U.K." *J. Finance* 63 (April): 565-608.
- Djankov, Simeon, Oliver Hart, Caralee McLiesh, and Andrei Shleifer. 2006. "Debt Enforcement around the World," Working Paper no. 12807 (December), NBER, Cambridge, MA
- EVCA (European Private Equity and Venture Capital Association) - 1998 *EVCA Yearbooks* (Bruges: EVCA).
- Fan, Wei and Michelle J. White 2000. 'Personal Bankruptcy and the Level of Entrepreneurial Activity', working paper, University of Michigan.
- Franks, Julian, and Oren Sussman. 2005. "Financial Distress and Bank Restructuring of Small and Medium Size UK Companies." *Rev. Finance* 9 (March): 65-96
- Gompers, Paul A. and Josh Lerner. 1999. *The Venture Capital Cycle* (Cambridge, MA: MIT Press).

- Gompers, Paul A. and Josh Lerner. 2000. 'What Drives Venture Capital Fundraising?' NBER Working Paper: 6906.
- Gompers, Paul A. and Josh Lerner. 2001. 'The Venture Capital Revolution', 15 (2) *Journal of Economic Perspectives* 145-168.
- Grossman, Sanford and Oliver Hart. "One-share-one-vote and the Market for Corporate Control." *Journal of Financial Economics* 20 (January/March 1988): 175-202.
- Hart, Oliver. 1995. *Firms, Contracts and Financial Structure* (Oxford: Clarendon Press)
- Hart, Oliver and John Moore, 1998, "Default and Renegotiation: A Dynamic Model of Debt," *Quarterly Journal of Economics*, 113(1), pp. 1-41.
- Hart, Oliver, 2000, "Different Approaches to Bankruptcy." Harvard Institute of Economic Research Paper.
- Jensen, Michael C., and William H. Meckling. 1976. 'Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure' *Journal of Financial Economics* 305-360.
- LaPorta, Rafael, Lopes-de-Silanes, Florencio, Shleifer, Andrei and Vishny, Robert W. 1997. 'Law and Finance', 52 *Journal of Finance* 1131-1150.
- Modigliani, Franco and Merton Miller. "The Cost of Capital, Corporation Finance, and Theory of Investment." *American Economic Review* 48 (June 1958): 261-97.
- Kaplan, S. and Strömberg, P. (2000), 'Financial Contracting Theory Meets the Real World: An Empirical Analysis of Venture Capital Contracts', working paper, University of Chicago Graduate School of Business.
- Strömberg S., 2000, "Conflicts of Interest and Market Illiquidity in Bankruptcy Auctions: Theory and Tests," *Journal of Finance*, 55, 2641-92.

- Myers, Stewart C., and Nicholas S. Majluf. 1984. 'Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have', 13 *Journal of Financial Economics* 187-221.
- Triantis, G. G. 2001. 'Financial Contract Design in the World of Venture Capital', 68 *University of Chicago Law Review* 305-323.

Appendix A: List of the People Interviewed

Professor John Armour	Department of Law (University of Oxford)
Professor David Skeel	Penn Law School (University of Pennsylvania)
Professor George Triantis	Harvard Law School (Harvard University)
Professor Jay Westbrook	UT Law (University of Texas at Austin)
Professor Ronald Mann	Columbia Law School (Columbia University)

Judge Keith Lundin	United States Bankruptcy Court, Middle Tennessee
Mr. Richard Yoxon	Intangible valuing expert, Intangible Business Ltd
Mr. Lee Manning	UK Administrator, Deloitte LLP. UK
Ms. Sheila Smith	Head of US Restructuring, Deloitte Financial Advisory Services LLP
Jeffery Lynn	Lawyer based in the US

Brief discussions held with investment bankers with private equity experience from Goldman Sachs, Shinsei Investments, Walburg Pincus and three entrepreneurs seeking venture capital finance.