Financing Innovation: The Role of Insolvency Law

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Abstract

Scholars working in the 'law and finance' field have investigated empirically the links between various types of law and the incidence of venture capital finance. However, no study to date has systematically investigated the relationship between insolvency law—both personal and corporate—and venture capital finance. This paper argues that a nation's *personal* insolvency law may have an important impact on the demand for venture capital finance, with more severe treatment of insolvents tending to reduce demand. This hypothesis is subjected to a preliminary test by comparing data on venture capital investment activity with an index of 'severity' of insolvency laws, and is not falsified. This finding will be of interest to policymakers, as a number of recent national and EU initiatives have sought explicitly to encourage innovative firms and venture capital finance. The paper also argues, more tentatively, that a nation's corporate insolvency law is unlikely to have an important impact upon the incidence of venture capital investment.

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1 Introduction

Venture capital is used to finance a small minority of companies with the potential and ambition to grow rapidly. It is thought to be of disproportionate importance in stimulating innovation. Start-up companies with new business ideas and high growth potential, but lacking liquid assets, may be unable to obtain bank finance because of the high risk they present. Venture capital involves the supply of equity finance—so the investor shares in the benefits of high growth—along with 'hands-on' governance so as to assist in bringing about the success of investee companies. A number of recent national and EU initiatives have sought explicitly to encourage innovative firms and venture capital finance. At the same time, scholars working in the 'law and finance' field have investigated empirically the links between various types of law and the incidence of venture capital finance (e.g. Black and Gilson, 1998; Gompers and Lerner, 1999; Jeng and Wells, 2000; Cumming and MacIntosh, 2001).

A number of legal and institutional factors have been identified in the literature as potentially important in facilitating investment by venture capitalists. It is possible to categorise these factors according to whether they impact upon the willingness of investors to advance private equity finance to small, high-growth firms (the 'supply side'), the likelihood that entrepreneurs will engage in activity requiring such finance (the 'demand side'), or both (Gompers and Lerner, 1999). Thus, it has been claimed that rates of capital gains taxation are an important variable affecting the demand for venture capital finance—the lower the applicable rate, the greater the potential returns to entrepreneurship. Conversely, studies have demonstrated a link between the regulation of institutional investment and the supply of venture capital—most notably, restrictive prudential regulation of pension funds may inhibit the supply of capital to start-up firms. Perhaps the best-known claim in this literature is that of Black and Gilson (1998): that the existence of deep and liquid stock markets is an important stimulus for both supply of, and demand for, this type of finance. However, no study to date has systematically investigated the relationship between insolvency law—both personal and corporate—and venture capital finance. This is perhaps surprising, given that reform of insolvency law is or has recently been on the agenda in a number of countries, including Belgium, Germany, Italy, the Netherlands, Sweden, the UK and the US.

The analysis presented in this paper results in two descriptive claims. The first is relatively modest: that insolvency law may have an important impact on the levels of venture capital investment observed across different countries. The way in which this claim is developed is perhaps counter-intuitive. At first blush, we might point to the ubiquitous availability of limited liability through incorporation, and think that *personal* insolvency law would be a relatively unimportant determinant of demand for venture capital. However, this would ignore the potential financial burdens imposed on entrepreneurs prior to incorporation and the common incidence of personal guarantees of corporate debts. Thus the failure of an incorporated business may often result in the personal insolvency of its founders. In a population with heterogeneous risk preferences, the treatment of individuals by insolvency law might therefore be expected to have an *ex ante* impact on incentives to engage in entrepreneurship, and consequently demand for

venture capital finance. Furthermore, the treatment of individual bankrupts might also have an *ex post* effect. A harsh law of personal insolvency may mean that entrepreneurs whose businesses fail through no fault of their own, and who often possess considerable human capital, are legally disabled from inclusion in the pool of talent in which venture capitalists seek to invest. Again, this could be expected to have an impact on demand for venture capital.

The analysis of *corporate* insolvency law's impact is slightly more ambiguous. We might, at least superficially, imagine that a nation's corporate bankruptcy regime would have a significant effect on the incidence of venture capital finance. Under a 'debtor-friendly' corporate insolvency law, management are given power to continue running the firm during reorganisation proceedings, and this can enable them to extract favourable concessions from creditors on behalf of shareholders. We might imagine that, *ceteris paribus*, a debtor-friendly corporate bankruptcy regime would increase the expected returns on equity investment and make debt finance correspondingly less attractive. In turn, this could be expected to increase the supply of venture capital finance. However, this analysis would overlook an important aspect of the venture capital framework. The fact is that innovative 'start-up' firms frequently do not have 'hard' assets which might be pledged as collateral for creditors. Thus they are unable to obtain debt finance—indeed, this is why entrepreneurs founding such firms turn to venture capitalists in the first place. Hence legal constraints on debt can be expected to have little effect on such firm's financing choices.

The paper's first descriptive claim is thus that personal insolvency law may have an important impact on *demand* for venture finance. This segues into the paper's second, less modest, claim. The analysis so far—and in much of the literature—has proceeded on the assumption that venture capital investment is a purely domestic affair, and that its determinants may thus be revealed by a cross-country comparison of legal and institutional factors with investment levels. This assumption overlooks this impact of regulatory competition in the increasingly globalised business environment (Mayer, 2001; Rock, 2002). Consider first that national impediments to the supply of venture capital investment—such as pension regulation—need not inhibit inflows of funds from jurisdictions with more favourable laws. This process would work in a way that reverses the usual dynamic of analyses of regulatory competition—positing outflows of capital from jurisdictions with less 'supply side' regulation to those with more: in effect a 'race *from* the bottom'. Of course, domestic laws which inhibit entrepreneurship may also result in the transnational relocation of entrepreneurs towards more favourable regimes—a more intuitive 'race to the bottom' effect. However, these transnational pressures probably have asymmetric impacts. It is likely to be considerably more costly for entrepreneurs than for capital to relocate across national borders. Thus national laws which affect the 'demand side' are likely to be much more important determinants of investment levels than those which touch on the 'supply side'. The paper's second claim is that because personal insolvency law is thought to affect the demand for venture capital finance, it is likely in a globalised financial environment not only to be a determinant, but *one of the most important* determinants, of venture capital investment. The paper's claims, if made out, have clear policy implications. The provision of a 'fresh start' in

bankruptcy is likely to be one of the most useful steps which a nation's legislature can take to foster innovative high-growth firms.

The rest of the paper is structured as follows. Section 2 is primarily directed at readers unfamiliar with the structure of venture capital investments. It sets the scene by outlining the role played by these specialised financiers in supporting innovative high-growth firms. Section 3 offers a brief review of the literature on the legal and institutional determinants of venture capital finance, and sets up the claim that cross-border flows of funds are likely to make 'demand side' factors relatively more important determinants than 'supply side' considerations. Section 4 then theorises the way in which personal insolvency law might impact levels of venture capital finance. This theoretical claim is then subjected to a crude empirical test in section 5. An index of 'severity' of personal insolvency laws is constructed for eleven different countries. Consistently with the theoretical predictions, this is shown to be significantly negatively correlated with national patterns of venture capital investment. Section 6 considers corporate insolvency law, and suggests its role, if any, is likely to be considerably less significant than might be expected. Section 7 is a brief conclusion. At the outset, it should be emphasised that the limited existing analysis of the relationship between insolvency law and venture capital, and the crudeness of the empirical analysis conducted herein, imply that this contribution is only preliminary.

2 Venture Capital and Innovation

2.1 Innovation, Entrepreneurs and Small Firms

For the purposes of this paper, the term 'entrepreneur' will be taken to mean an individual who is willing to bear the risks involved in founding her own business. Entrepreneurs are thought to play a crucial role in stimulating innovation in the economy. Generally, they are the force that drives the process of 'creative destruction' whereby new opportunities in the marketplace are exploited. For this reason alone, policies which favour entrepreneurship might be thought to be desirable as a means of fostering national competitiveness. In recent years, however, the notion of entrepreneurship has become synonymous with the development and exploitation of technological innovations.

Of course, innovative activity is not restricted to small, entrepreneurial firms. For example, Centre for Business Research data on small and medium-sized firms (SMEs) show that UK firms which are engaged in innovation are spread widely across different industries, and that although newer firms are more likely to innovate than older firms, level of innovative activity is actually inversely correlated to size (Cosh and Wood, 1998).[1] Nor are firms within the 'high-tech' sector necessarily any smaller than average (Hughes and Moore, 1998).

[1] Innovative activity is defined by the study to mean innovations in products for manufacturing firms, and innovations in processes and logistics for all firms.

Why, then should policymakers be concerned about innovation by small, entrepreneurial firms? Some claim that these firms in fact possess a comparative advantage in developing technologies. For example, Saxenian (1994) argues that the organisation of technology-intensive industries in 'clusters' of small firms fosters more rapid dissemination and testing of new ideas than if such technologies are developed within larger organisations. The nature of technological change is that only a very few ideas will ever really be capable of commercial exploitation, and the process of critical engagement that goes on through information-sharing networks that develop between small firms ensures that the process of 'weeding' takes place more rapidly and effectively than within a large organisation, where deployment decisions may be clouded by rent-seeking activity. Saxenian compares the relative success of Silicon Valley in adapting to technological change with the failure of the 'Route 128' region near Boston. At the end of the 1970s, both areas contained 'clusters' of high-technology firms. Those in Silicon Valley tended to be smaller, less vertically integrated, more exclusively focused on a particular product, and more short-lived than their Route 128 counterparts. As a result, firms interacted with each other more, employees moved around more and rich information-sharing networks developed in the social sphere. This allowed for greater experimentation and more rapid dissemination of new ideas than on the East Coast, thus allowing Silicon Valley to forge ahead in adopting new technologies where others failed.

2.2 Financing Innovation: the Limitations of Debt

Two features define the landscape in which small firm financing takes place. On the one hand, small firms display a high degree of 'informational opacity' (Berger and Udell, 1998). Potential financiers thus face severe information asymmetries. Prior to advancing funds, there will be an 'adverse selection' problem (Myers and Majluf, 1984): if the financier offers average terms, these will be attractive to low-quality entrepreneurs, and unattractive to high-quality entrepreneurs. After funds have been invested, the financier will face a 'moral hazard' problem (Jensen and Meckling, 1976): if the business does not prosper and so an inadequate yield is achieved, the financier may not be able to distinguish between whether this was caused by the entrepreneur's lack of effort or pursuit of private benefits, or simple bad luck. This will reduce the entrepreneur's incentives to apply effort and pursue joint benefits.

On the other hand, a distinguishing characteristic of entrepreneurs is that they 'like to be their own boss'. This makes them unwilling to cede control rights to outsiders. Thus entrepreneurs will prefer to finance business development so far as possible with internal funds. If the firm is wealth constrained, however, this will not be possible. And when external finance must be sought, the equilibrium financial contract will be one which mitigates the information asymmetries without ceding control to the financier. This is best done with debt.

The basic structure of a debt contract involves a *contingent* allocation of rights to control business assets between the entrepreneur and the financier (Aghion and Bolton, 1992; Hart, 1995). Provided that the entrepreneur meets the agreed payments, the financier will receive the contractually agreed rate of return. Conversely, the entrepreneur retains

control of the assets. Should the entrepreneur be tempted to slack, or pursue private benefits which will harm financial returns, then the probability of meeting the agreed payments will lessen. If the entrepreneur defaults on repayment, then the investor has the right to seize and sell the business assets to repay the sum owed. This will deprive the entrepreneur of control of the business, which she enjoys. The entrepreneur will thus have incentives to apply effort.

Of course, the ongoing information asymmetry creates problems within the context of a debt financing arrangement. The entrepreneur may still take a range of actions which might harm the financier and benefit herself. These include paying out excessive dividends to herself, 'switching' from low-risk to high-risk projects, and diluting the debt financier's downside protection by borrowing further from another lender (Jensen and Meckling, 1976; Myers, 1977; Schwartz, 1989). Lenders commonly require borrowers to covenant not to take such actions (Smith and Warner, 1979a), and monitor their conduct so as to injunct breaches. The use of security interests provides further protection, automatically enforcing promises not to divest assets or take on further borrowing (unless on subordinated terms) (Smith and Warner, 1979b; Schwartz, 1989).

We have so far described the foundations of the 'pecking order' theory of corporate finance (Myers and Majluf, 1984): that firms will finance projects first with internal funds, then with debt, and only if these sources have been exhausted, with equity.[2] Given the pecking order hypothesis, entrepreneurs will prefer to raise debt finance if they can. It follows from the foregoing that whether or not they will be able to do this will depend on the nature of the firm's assets. Firms with 'hard' assets that are legally protectable, and capable of alienation, will usually be able to pledge these as security for debt financiers. Conversely, firms whose primary assets consist of ideas and growth opportunities can only realistically obtain outside finance from venture capitalists or other suppliers of private equity finance, such as 'business angels'.

'Start-up' firms developing new technologies commonly do not generate steady cash flows which can be used to make interest payments on debt. By contrast, their cash flows are often *negative*, with large sums being 'burnt' in order first to develop a product and second to grow the market. This leads to a long lag-time before any repayment to investors can be made. Furthermore, the extreme uncertainty associated with developing new technologies makes it difficult to predict how much return (if any) will be generated. These factors make debt investment unsuitable, as the upside returns are fixed by the rate of interest charged (Bank of England, 2001). A very high rate of interest would need to be charged *ex ante* to compensate bankers on a portfolio basis for the losses which will be incurred in the many projects which do not succeed in producing a marketable product. The higher the interest rate charged, however, the more severe the adverse selection problem: good entrepreneurs will not wish to apportion such a high part of their returns, and poor entrepreneurs will not care as the returns will never exist. This will lead to credit rationing: lenders will not advance funds in the absence of liquid assets (Stiglitz and Weiss, 1981).

[2] Empirical studies (e.g. Berger and Udell, 1998) confirm these predictions.

Another problem with debt finance for start-ups is their lack of liquid assets. The key feature of debt that allows the financial contract to work is the ability of the financier to take control of the assets should default occur. The financier's ability to take repayment from the assets makes credible their threat to enforce—and divest the entrepreneur of her control—in bad states. Where the financier would not be able to get value from the assets, then the threat is no longer credible. This would make debt finance unattractive *ex ante.* The value (if any) of a start-up firm will inhere in the ideas—the 'human capital' of the entrepreneur, and their opportunities for growth. An entrepreneur with a sound business plan will generate a network of potential backers and customers, who will be the people through whom the idea will become a reality. Over time, development and continual refinement will be necessary. Without the entrepreneur, this would be much more difficult.

Ideas can of course be made alienable through patenting. However, the possibility of selling the patent without the team should not be overstated. First, many start-up firms will not have legally-protected intellectual property rights. On the one hand, their business model may involve exploiting a niche market, which is not itself patentable. On the other hand, their development may be at such an early stage that nothing patentable has yet been produced. Second, merely controlling the patent will not give the investor the wherewithal to exploit it. This will still require the human capital of a team with dedicated knowledge of associated technologies, suppliers and customers (both actual and potential). Third, for evolving technologies the value of any individual patent, or series of patents, is highly contingent. Much more value is likely to inhere in a firm which has a team of scientists working to produce a dynamic stream of patentable technology than in a firm which simply owns static patents.

2.3 Funding Innovation with Venture Capital

'Venture capital', is defined by the European Venture Capital Association ('EVCA') as,

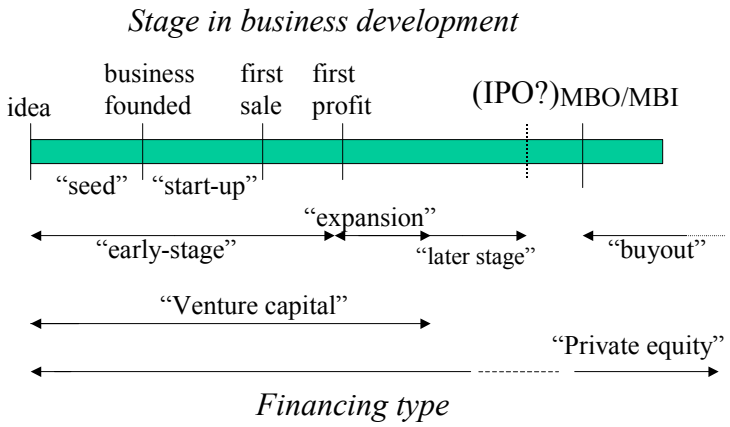
> 'Professional monies co-invested with the entrepreneur to fund an early stage (seed / start-up) or expansion venture. Offsetting the high risk the investor takes is the promise of high return on the investment.'[3]

This is a subset of 'private equity' investment, namely finance provided to companies which are either privately-held, or will become so after the funding has been advanced, in return for an allotment of shares. Figure 1 shows a stylised 'timeline' of a firm's business development. It starts with an idea which is developed into a business plan. Finance supplied at this stage is referred to as 'seed' capital. All being well, the parties then proceed to develop the product and conduct initial marketing. Finance which is supplied prior to the first commercial sale of the company's product—when revenues begin to be generated—is referred to as 'start-up' capital. If the product is successful, the next landmark in the business' development will be when it generates a profit. Generically,

[3] http://www.evca.com/html/PE_industry/glossary.asp?action=search&letter=yes&AZ=vwxyz

finance supplied before this point is referred to as 'early-stage'. 'Expansion' finance refers to monies advanced after a firm has become profitable, and which are used to fund growth.

Figure 1: What is Venture Capital?



Venture capitalists will hold their investments for a period of years, during which time they will either prosper or fail. Successful investments are exited either by listing the company through an initial public offering (IPO) and then selling the venture capitalist's shares, or by selling the company to a competitor (a 'trade sale'). Unsuccessful investments tend to get liquidated. Because they take shares in the company, the venture capitalist will profit from 'upside' returns, and so will be less averse to funding high-risk ventures than creditors would be. One good investment that results in an IPO can earn enough to cancel out ten write-offs and still generate a healthy overall return.

Crucial to the venture capitalist's success is their ability to select worthwhile investments, and to motivate entrepreneurs to work hard. To minimise 'adverse selection' problems—information asymmetry prior to investment—VCs tend to *specialise* in particular industries or areas of technology, and develop *expertise* which assists them in evaluating proposals (Chan, 1983). Another important feature of venture capital investment patterns is that funds tend to invest in companies which are in relatively close *proximity* to their own headquarters. This is thought to facilitate visits to check up on progress, and to enable the kind of 'hands-on' business advice and support in which VCs specialise (Sweeting, 1991; Ehrlich *et al*, 1994; Lerner, 1995).

In addition to these 'structural' features, the *terms* on which VCs are willing to invest are thought by financial economists to play a crucial role in maximising the benefits of the investment.[4] The allocation of control and cash-flow rights serves to give the entrepreneur appropriate incentives, and to allow the venture capitalist to exert influence where necessary (Sahlman, 1990; Kaplan and Stromberg, 2000). A common feature of venture capital investments is that the finance is not advanced all at once, but rather is *staged.* Subsequent 'rounds' of finance may not be available, or only on considerably more expensive terms, if performance targets are not met in the interim. A lower valuation of the shares will dilute the entrepreneur's holdings. Conversely, non-investment will bring about the end of the business, as the venture capitalist's decision not to continue to fund the project will signal to others that it is underperforming.

Notwithstanding the structure of cash-flow rights, investment agreements also usually provide for a range of control rights to be given to the venture capitalist, through voting rights, entitlements to appoint directors to the board, and veto rights over a range of specified actions. As was noted in section 2.2, the general preference of small firms for debt over equity is thought in part to be driven by the desire of entrepreneurs to maintain control of their business. The control rights granted to the venture capitalist are not necessarily incompatible with this. First, the rights are not used simply to protect the value of their investment in a way that conflicts with what the entrepreneur is seeking to achieve. Rather, a key contribution of venture capitalists is that they 'add value' to their portfolio businesses by bringing managerial talent, consultancy services, assisting in the design of governance structures, hiring key team members, providing access to networks and fostering credibility through the signal of their reputation (Black and Gilson, 1998).[5]

3 Legal and Institutional Determinants of Venture Capital Finance

Levels of venture capital investment vary widely across countries, as is demonstrated by Figure 2. Whether, and to what extent, these patterns are influenced by legal and institutional factors that differ by country is therefore an important question for researchers and policymakers. This section will briefly review some of the factors identified in the existing literature, distinguishing between those which relate to the 'demand side' (entrepreneurs' willingness to develop new projects) and those which affect the 'supply side' (investors' willingness to fund new projects).[6] It then develops the claim that in a globalised business environment, demand-side variables are likely to be relatively more significant in their impact.

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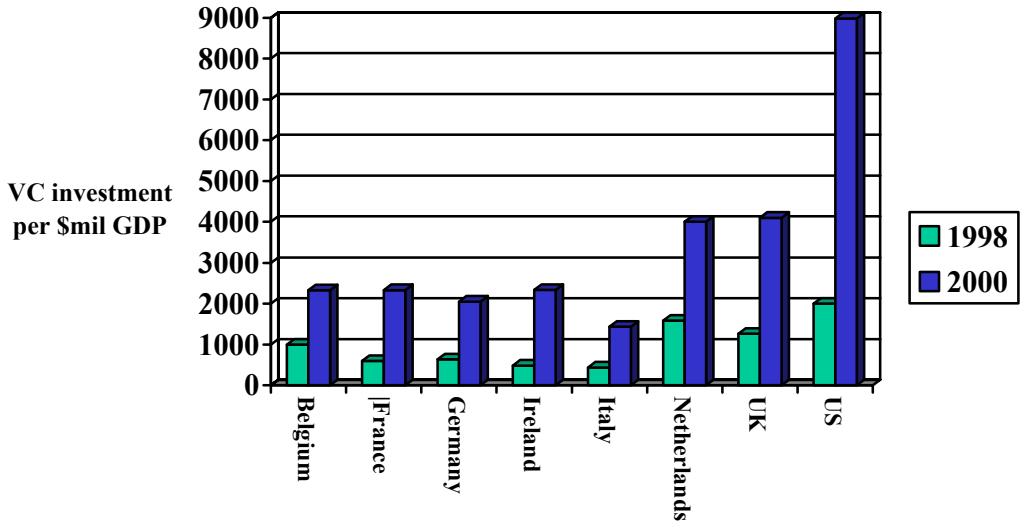
[4] For reviews of the economic literature, see Gompers and Lerner (2001); Hart (2001) and Klausner and Litvak (2001).

[5] These effects are well-documented empirically. In 50% of the financings studied by Kaplan and Stromberg (2000), the VCs expected to play a significant role in shaping the management team. Another study found that VC-backed firms have significantly more independent directors than industry norms (Baker and Gompers, 1999).

[6] A fuller review is presented in Armour (2002).

Figure 2: Venture Capital Investment (early stage and expansion), by Country



(Sources: EVCA, PwC MoneyTree/Venture Economics/NVCA, OECD).

3.1 Analysis at the national level

A variety of different legal rules may affect the observed incidence of venture capital finance across countries.[7] One important factor that may affect both supply and demand is the possibility for a venture capitalist to exit via an IPO. Black and Gilson (1998) argue that the existence of *deep and liquid stock markets* upon which investee companies might potentially be listed following an IPO will be of crucial importance. An IPO allows venture capitalists to realise the upside return on their investment. More importantly, from the entrepreneur's point of view, an IPO is preferable to a trade sale. A trade sale will involve the purchase of a controlling stake by the buyer, and the likely replacement of the firm's managers. In comparison, an IPO of a successful firm will usually leave the existing management team in place.[8] Thus, *ex ante*, a venture capital investment agreement which contemplates the possibility of exit by an IPO will be attractive to a wider range of potential entrepreneurs than one which does not.

The use of tax incentives or subsidies to stimulate venture capital investment features centrally in many countries' policies towards fostering entrepreneurship. Clearly, these

[7] Jeng and Wells (2000) investigate a range of such factors, including pension fund regulation, capital gains taxation, the size of stock markets, and labour laws.

[8] Consistently with this claim, US investment agreements usually provide for *automatic conversion* of the VC's preferred stock into ordinary stock on a successful IPO. This guarantees to the entrepreneur that the enhanced control rights associated with the venture capitalist's financial instruments will cease if an IPO takes place.

incentives could operate either at the supply or the demand side. Lower rates of *capital gains tax* could be expected to stimulate either the supply of or demand for venture capital, or both, by increasing the returns to investors and entrepreneurs. Gompers and Lerner (2000), in their study of fundraising by US venture capitalists from 1972 through to 1994, found that reductions in the rate of CGT increased the level of venture capital funds raised both at state, industry and firm level.[9] However, the changes in CGT did not, as one might expect if the effect were supply-side driven, result in relatively greater commitments of funds from taxable as opposed to tax-exempt investors. Rather, all investors put up proportionately more. This led Gompers and Lerner to conclude that the primary impact of capital gains tax was felt not by investors, but by potential entrepreneurs.

Many countries have pursued policies which seek to stimulate investment in venture capital through granting *subsidies*. These can take various forms, ranging across a spectrum from targeted tax relief granted to investors in venture capital funds, through 'partnership' funds which are partially state-funded and raise private investment as well, and which invest in specific types of firm, to tax relief on stock options and finally direct state investment in high-technology enterprise. We would expect investment tax relief primarily to stimulate supply of finance, direct subsidies and tax relief on stock options to stimulate demand, and 'partnership' funds to do both. However, inappropriately-targeted subsidised schemes may 'crowd out' the private provision of funds (Cummiong and MacIntosh, 2001).[10]

Much of the finance raised by venture capitalists in the US and UK comes from pension funds, insurance companies and other collective investment mechanisms. Hence regulations which inhibit fund managers from investing in 'high risk' asset classes such as private equity and venture capital may hinder supply in economies where a large amount of private wealth is tied up in such schemes. The effect of *pension regulation* on venture capital investment in the US has been documented by Gompers and Lerner (1999, 2000). They point to a dramatic rise in fundraising and disbursements by venture capital firms which followed the liberalisation of the law. Under the Employee Retirement Income Security Act ('ERISA'), pension fund trustees are required to select investments according to the standard which a 'prudent man' would apply. It was once thought that certain asset classes—such as private equity—were inherently too risky to be within the rule. However, in 1979 the US Department of Labor explicitly clarified that

[9] Specifically, the introduction in 1993 of a relief for 'small business stock' permitted gains on shares held in qualifying corporations for more than five years to be taxed at 14% instead of the standard 28% (I.R.C. § 1202).

[10] Cumming and MacIntosh (2001) provide evidence that the introduction of legislation in Canada setting up subsidised Labour-Sponsored Venture Capital Corporations (LSVCCs) actually led to an overall reduction of the supply of venture capital funds. One possible cause is that the LSVCCs' cheaper cost of capital and readily-available funds meant that the valuations attributed to private equity investments were driven up, making returns unattractive to private funds.

private equity could fall within the prudent man rule.[11] Over the next three years, there was a huge upsurge in venture capital fundraising, and a much greater proportion came from pension funds. The same issue was considered in a recent Treasury-commissioned review of institutional investment conducted by Paul Myners ('The Myners Review, 2001), which concluded that inappropriately-designed pension regulation could well be impeding inflows of capital to UK private equity.

Organisational law may affect the incidence of venture capital finance on both the supply and the demand side. On the supply-side, the impact will be felt through the design of business organisations used by venture capitalists to structure their funds. On the demand side, it will be through the organisational structures available to entrepreneurs seeking to incorporate their businesses. The standard organizational form used by venture capitalists in the US is the limited partnership (Gompers and Lerner, 1999: 9-10). The venture capitalist himself is a general partner, and is exposed to unlimited personal liability, whereas the end-investors are limited partners. This structure is typically adopted because of its tax transparency: profits are for tax purposes allowed to 'pass through' the partnership and are taxed as income in the hands of the end-investors. This allows tax-exempt investors such as pension funds to invest alongside others, without losing their privileged status. In order to minimise the costs of conflicts of interest between venture capitalists and end-investors, their action space is usually circumscribed by a range of covenants, for example restricting the size of any investment in a given firm, restricting co-investment in portfolio companies by general partners and restricting the fund from investing in particular types of firm (Gompers and Lerner, 1999: 29-55). If it is difficult to employ an organisational form which allows for 'pass-through' taxation, then we might expect this to have a negative impact on the supply of venture capital finance, at least by tax-exempt investors.

Organisational law may also affect venture capital investment at the level of the investee company. Where legal entity structures are excessively rigid and do not adequately facilitate contracting with a concentrated investor—such as a venture capitalist—over rights to returns and control in the manner discussed in the preceding sections, this will make the investment less attractive. Although little empirical work has been done on the extent to which these issues do in fact impede venture capital investment, it is possible to identify some key concerns in the theoretical literature. For example, Vermeulen (2001) documents the problems which Dutch law's mandatory terms concerning the corporate constitution would create for a US-style venture capital contract.

To the extent that the organisational law of a jurisdiction hinders incorporation by small firms, it may restrict the demand for venture capital finance. We would expect that the availability of a limited liability business entity at minimal cost will be a primary concern for entrepreneurs, a point that is borne out by empirical studies which show that limited

[11] Provided that a fund's portfolio is appropriately diversified, and consideration is paid to the risk-reward profile of a particular investment class, then 'riskiness' *per se* is not a reason to make investment imprudent.

liability is a primary motivation for incorporation by very small businesses.[12] Furthermore, entrepreneurs will wish to be able to operate such an entity with minimum regulatory costs, such as requirements that they perform a costly annual audit. As documented by Djankov *et al* (2000), the costs of forming an incorporated business entity vary widely across jurisdictions. Although these authors do not test for this, it might be anticipated that in states where incorporation is easy, demand for venture capital finance would be strongest. However, Djankov *et al* (2000) indicate that, whilst involving more red tape than some jurisdictions (most notably Canada), the UK is still one of the easiest places in the world to incorporate a business, taking into account all of the regulatory measures which must be complied with.

3.2 The Impact of Regulatory Competition

Funds for investment in venture capital flow readily across borders. Baygan and Freudenberg (2000) present an analysis of trade association data which shows the extent to which this took place in Europe during 1999.[13] Some of their findings are replicated in Table 1. This has important implications for our understanding of the determinants of venture capital finance, suggesting that those factors which influence the 'supply aide' might not have as significant an impact on observed investment levels as might initially be imagined. Rather, transnational capital flows may simply bypass several of the domestic supply-side legal 'barriers' to venture capital considered in section 3.1.

Table 1: Cross-border private equity investment flows, 1999 (% of domestic investments).

	Outflows (to other countries)	Inflows (from other European countries)	Net inflows
Ireland	10	372	362
Finland	16	76	60
Italy	5	13	8
Germany	17	22	5
France	25	22	-3
Netherlands	50	38	-12
Belgium	54	41	-13
UK	33	5	-28

Source: Baygan and Freudenberg (2000).

Consider first the case of pension fund regulation. The Myners Report itself notes that there was a spectacular growth in funds committed to UK venture capital during the second half of the 1990s—but that most of the influx was from abroad, particularly from

[12] Freedman and Godwin (1994) and Hicks *et al.* (1995).

[13] Baygan and Freudenberg include all private equity investment in their data, and hence these figures are not strictly comparable with the others presented in this paper, which exclude replacement and MBO finance.

US pension funds (Myners, 2001, p. 175). The problem with pension fund governance is therefore probably not one of undersupply of venture capital finance to UK firms. Rather, it is a problem for pension fund beneficiaries, who cannot reap the benefits of such investment. This view is echoed by Mayer (2001: 7), who questions whether the relatively low levels of venture capital investment in early-stage companies in the UK is not due to demand-side problems, such as the availability of entrepreneurs with good projects.

Second, if a domestic law, such as that of England, creates significant barriers to using the Limited Partnership form for venture capital funds, then a fund may simply engage in 'forum shopping' by using a Delaware or Jersey business form instead. The logic of the same argument may be extended to choice of state of incorporation for start-up firms seeking to raise venture finance. To the extent that domestic organisational forms hinder their ability to contract effectively with VCs, they may simply opt to incorporate elsewhere, even if the business does not physically move (see Rock, 2001).

Entrepreneurs are also able to repatriate themselves in favour of jurisdictions where demand-side variables are more favourable to their endeavours. Yet it seems plausible that such regulatory competition will have less of an impact here than on the supply of capital. This is because it is more costly for entrepreneurs to relocate across borders than it is for funds to be moved. In turn, this suggests that factors which affect the demand for venture capital—i.e. those legal variables which may have an impact on the level of entrepreneurial activity—are likely to be relatively more important determinants of observed investment levels. This paper's principal claim, developed in the next section, is that personal insolvency law is one such important determinant.

4 Personal Insolvency Law and Demand for VC Finance

This section develops a theory of how personal insolvency law may affect the incidence of venture capital finance. It posits a link between personal insolvency law and levels of entrepreneurial activity in the economy. As such, it is concerned with the 'demand side' of the venture capital industry. Simply put, if it is assumed that a given proportion of potential entrepreneurs would create high-growth businesses with 'soft' assets that are unsuitable for raising debt finance, then greater levels of entrepreneurship will imply greater demand for venture capital finance. Personal insolvency law may affect the level of entrepreneurship in society in two principal ways (Hallinan, 1986; Czarnetzky, 2000). *Ex ante*, it may affect the willingness of marginal (potential) entrepreneurs to enter the marketplace on their own, as opposed to remaining in employment. *Ex post*, it will affect the ability of inframarginal entrepreneurs to return to the marketplace after becoming financially distressed. These will be considered in turn.

4.1 *Ex ante:* Personal insolvency law and incentives for risk-taking

Assume that risk preferences are heterogeneous in society, and that propensity for ideas is distributed evenly across society. A rational potential entrepreneur will consider the costs

and benefits of going into business on her own. The potential upside will be determined by the quality of the idea, which is assumed to be unknown, and the opportunities for exploitation within the economy. The 'downside' will, however, also affect the potential entrepreneur's decision. If the idea does not succeed, what will happen to the entrepreneur? The 'worst case' will be personal insolvency. To see how this might happen, imagine a putative entrepreneur who is considering starting a firm. She will not be able to obtain venture capital finance until a reasonably advanced stage of development. To begin with, she will likely seek investment from family and friends, and run up credit card debt. When these sources are exhausted, she may seek 'angel' finance, and only by the time she has a defined business plan and a reasonably well-developed technology will the firm become an attractive proposition to VCs. From here on, let us focus on three broad sectors of outcome. First, she might not succeed in raising venture capital finance. In this case, it is quite possible that she will have over-extended her personal finances to reach this point, and will face personal insolvency. Second, she may raise venture capital finance and the firm subsequently prospers. In this case, her personal debt load will be paid off. Third, she may raise venture capital finance and the firm subsequently fails. Whilst in the interim she may have received salary from the firm, it is still quite possible that she is so over-extended that the collapse of the firm will precipitate personal insolvency as well. Thus in the first and third cases, the content of personal insolvency law will matter a great deal to the entrepreneur. *Ex ante*, at the point in time immediately before our story starts, the putative entrepreneur will have made a decision to go into business on her own. One factor in this decision will be the potential 'downside' consequences if scenarios one or three eventuate.[14]

If personal insolvency law imposes harsh consequences upon the individual, then *ex ante* the attractiveness of entering into a risky entrepreneurial endeavour will be reduced, particularly if the individual is risk-averse. To the extent that personal insolvency is a possibility, a potential entrepreneur's evaluation of the 'downside' risk to business start-up will be affected by its consequences. This theory would predict that a harsher personal insolvency law should be related to a reduced demand for venture capital finance, as less entrepreneurs are willing to initiative high-risk businesses. We might expect that the 'tougher' the personal insolvency regime, the greater the risk-tolerance that will be exhibited by the marginal entrepreneur. If the personal insolvency regime is made less stringent, then individuals with ideas who are more risk-averse will at the margin find this an acceptable path, and the level of entrepreneurship in the economy will increase.

4.2 *Ex post*: The financial rehabilitation of former insolvents

A second effect of personal insolvency law concerns the ease with which bankrupt entrepreneurs may be rehabilitated into the economy. Bankruptcy is just as likely to occur as a result of macroeconomic instability, or something as difficult to rationalise as 'bad

[14] It may be argued that entrepreneurs are by nature optimistic, and will have sufficient belief in their project to discount the risk of failure. In this case, the consequences of personal bankruptcy will be less important to them *ex ante*. This may well be accurate as a description of those whose do choose to become entrepreneurs, but it proves nothing about those who choose not to do so because of the fear of bankruptcy.

luck', as because of incompetence or on the part of the entrepreneur. Furthermore, the entrepreneur will have gained experience of business management, and the skills necessary to execute a 'start-up'. If such a person has another business idea, the structure of personal insolvency law—and in particular, the availability of a 'fresh start'—will have an impact on their ability to exploit it. The more readily a 'fresh start' is available, the sooner such entrepreneurs can exploit their next idea. If a fresh start is not available, however, then the value of the entrepreneur's human capital to society is lost (Jackson, 1985; Georgakopoulos, 2001).

This effect is entirely independent of the *ex ante* incentives, which relate to marginal (potential) entrepreneurs. It is often argued that there is more to entrepreneurship than simply a willingness to take risks. Even if this is true in the extreme sense that the set of 'entrepreneurs' is fixed in any given society, and its size cannot be increased by making it less risky to incur credit, the numbers of *active* entrepreneurs will be depleted if they are disabled from founding their own businesses following personal bankruptcy.

5 A Preliminary Test: How Does VC Investment Vary with the 'Severity' of Personal Insolvency Law?

If the theory outlined in section 4 is accurate, then we should expect national patterns of venture capital investment to vary with personal insolvency law. More precisely, the theory predicts that less venture capital investment will be observed in jurisdictions where the consequences of personal insolvency are 'harsh' than in those where they are relatively 'soft'. If no such correlation is found, the theory will have been falsified.

This section reports a preliminary test along these lines. It begins by describing the ways in which the 'severity' of consequences of personal insolvency may vary. A crude index of the severity of eleven different regimes is then constructed, and compared with data on the levels of venture capital investment in these countries for the years 1997 through 2000.

5.1 How Do Personal Insolvency Laws Differ in 'Severity'?

Crucial to the meaningful testing of the theory are the means by which the 'severity' of personal insolvency laws are assessed. To do this, it is necessary first to survey, at a fairly general level, the sorts of consequences which may accompany personal insolvency, then to identify the ways in which these consequences differ meaningfully across jurisdictions, and finally to focus on those differences which are likely to be significant for the purposes of the theory outlined in section 4. What, then are the typical consequences of personal insolvency?[15]

[15] Wood (1995: 1-34) offers a useful overview of different features common to many insolvency procedures.

Generally speaking, personal insolvency proceedings typically result in a *divestment* of the debtor's ownership of her assets in favour of an official trustee, who will liquidate them in order to raise money to pay creditors. The divestment can vary in its completeness. In some jurisdictions the debtor remains 'owner' of her assets, whereas in others there is a complete transfer to the trustee. The purpose of the divestment is to prevent the debtor from alienating assets to the detriment of creditors, and to allow for their realisation in an orderly fashion by an outside appointee. Hence in jurisdictions where the debtor retains (some) ownership rights, there are nevertheless usually restrictions on her ability to alienate assets, at least without the consent of the trustee.

Concomitantly with the debtor's divestment, the individual claims of creditors will usually be *stayed*. The function of this rule is well-understood: its purpose is to prevent wasteful duplication of proceedings, and, where there is a 'going-concern' surplus to sale of business assets as a collective, to ensure that this is not lost through uncoordinated enforcement activity leading to a piecemeal liquidation of assets (Jackson, 1985). Almost universally associated with the idea of divestment of assets and a stay of claims is the concept of the creation of a 'bankrupt estate': namely the patrimony of the debtor which is available for collective realisation on behalf of the creditors. A potentially significant difference between jurisdictions concerns the scope of *exemptions* from the estate. In most jurisdictions, the debtor is permitted to retain full ownership of personal effects and tools of her trade. However, in some jurisdictions the scope of the exemptions may be much more generous.

Personal insolvency will often have a range of other consequences for the debtor apart from the divestment of personal assets. Most importantly, the debtor's *legal status* may be affected, such that she is subject to *disabilities* in her interactions with other persons. For example, she may be disbarred from engaging in commercial activities and/or participating in the management of a limited company, obtaining credit (above a certain amount), holding political office etc., etc. The *extent* of these disabilities will vary from jurisdiction to jurisdiction, along with the *length of time* for which they are imposed.

Perhaps the most important difference, however, concerns the availability (or otherwise) of a 'fresh start' following personal insolvency proceedings. The concept of a fresh start is well-known: the debts of the insolvent are 'discharged' after a certain period of time following the commencement of proceedings, and she is free to return to the marketplace free of her obligations to repay them. This allows her to enjoy once more the fruits of her productive capacity, and removes disincentives to investment in human capital, etc, which would otherwise obtain were she denied such an opportunity. Many jurisdictions do not permit a discharge of debts following insolvency. For those that do, the length of time which must elapse, and the other conditions which must be fulfilled (e.g. demonstration of good behaviour), vary considerably.

Another important aspect of personal insolvency proceedings will be the treatment of assets acquired after the proceedings have begun. If a discharge has occurred, then the debtor will be free to enjoy them subject to any non-discharged obligations to her creditors. Conversely, if a discharge has not occurred, then these new assets will be

available for the payment of creditors. If the trustee is still in situ, then income may be treated as falling into the estate, and hence available for distribution by the trustee, subject to an exemption whereby the debtor may retain sufficient income to sustain herself and her family. Alternatively, if the proceedings have finished, then the income may belong to the debtor, but be susceptible to levying by her creditors.

In seeking to operationalise the theory developed in this paper, we might therefore speak of the 'severity' of a personal insolvency law as being be a function of the following factors: (i) the existence of a legally-sanctioned 'fresh start', and the circumstances under which it is available; (ii) the range and restrictiveness of the disabilities imposed upon an individual who becomes personally insolvent; and (iii) the level of exemptions (if any) of property from the insolvent estate.

The way in which these factors differ across legal regimes may be illustrated by reference to two countries for which detailed legal materials are available in English, namely the UK and the US. In the UK, the estate of the bankrupt, minus certain exemptions, is taken over by a trustee and sold for the benefit of his creditors (Fletcher, 1996). The exemptions include items for the bankrupt's personal use in employment and clothing and household items required for his basic domestic needs and those of his family. The bankrupt is then subject to certain legal disabilities for a three-year period,[16] including an inability to incur credit of more than £250 without disclosing his status as a bankrupt, a ban on trading under a different name without disclosing the name under which he was declared bankrupt, and being disqualified from participating in the management of a limited liability company.[17] During this time, the whole of the bankrupt's income apart from a very modest living allowance must be transferred to the trustee for the benefit of his creditors. At the end of three years, the 'first time' bankrupt receives a 'discharge' and all legal disabilities cease.[18]

In the US, an individual debtor may opt either to enter bankruptcy proceedings under either Chapter 7, Chapter 11 or Chapter 13 of the federal Bankruptcy Code (Tabb, 1997). Chapter 7, the most frequently used, normally provides a debtor with an immediate automatic discharge from most of his debts, in return for handing over all of his non-exempt assets for the benefit of creditors.[19] From this point onwards, no creditor may seek to collect pre-bankruptcy debts from the debtor, and the debtor may keep the proceeds of any subsequent earnings.[20] There is no specified period during which the debtor is subject to legal disabilities, and proceedings typically take around 3-4 months to finalise. Indeed, the Bankruptcy Code specifically protects debtors from any discriminatory treatment on account of the fact that they have filed for bankruptcy.[21] The

[16] The period may be reduced to two years for cases involving total debts of less than £20,000.
[17] There are a range of other disabilities, including being barred from sitting as a Member of Parliament or of the House of Lords.
[18] If the individual was previously discharged from bankruptcy less than 9 years beforehand, then discharge is not automatic.
[19] 11 USC §§ 524, 727(a).
[20] 11 USC §§ 524(a); 541(a)(6).
[21] 11 USC § 525.

range of property which is exempt from the bankrupt estate is largely defined by reference to the state in which the debtor has been domiciled for the 180 days preceding the filing.[22] The level of exemptions varies widely, the most notoriously generous being the 'homestead' exemptions under Florida and Texas law, which allow the debtor to retain an interest in his home of unlimited value. However, in some other states, such as Pennsylvania, the debtor is allowed to exempt no more than a total of $300-worth of property.[23]

5.2 Social Sanctions for Bankrupt Individuals

Some of the most unpleasant consequences of personal bankruptcy do not result directly from the legal procedures involved, but rather flow from the social stigmatization of those who become bankrupt. Some degree of social stigma is of course universal, but anecdotal evidence suggests that it varies by jurisdiction. For example, it is commonly said that the social stigma associated with bankruptcy in the US is far lower than in most European jurisdictions. Social stigma can be understood as a form of reputational sanction administered by others in the community. Bankruptcy is a matter of public record, and can act as a strong signal of financial irresponsibility, thereby making it rational for lenders or other business partners to shun the debtor. Furthermore, there may be a loss of esteem from other individuals associated with this public signal of failure. These effects will mean that the adverse consequences of bankruptcy to an individual may extend for much longer than the formal legal proceedings.

Whilst neither of these flow directly from the legal treatment of insolvency, it is clear that the design of legal sanctions may affect the way in which other members of society react to bankruptcy. First, note that the 'severity' of bankruptcy law can be expected to have a direct effect on the numbers of individuals who become bankrupt. Whether by entering business as entrepreneurs, or by taking on large levels of consumer debt, a relaxation of the legal consequences of bankruptcy can be expected to make more individuals willing *ex ante* to run the risk of becoming unable to pay their debts. As the numbers of bankrupts increase, the reliability of bankruptcy as a signal of financial irresponsibility will decrease. Consequently, it is to be expected that the social stigma attached to bankruptcy will decline.[24] On this theory, the social stigma of bankruptcy is endogenous

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[22] 11 USC § 522(b). The same subsection also provides a federal list of exemptions which the debtor may elect to apply instead of state exemptions (§ 522(d)), provided that his state of domicile has not legislated to deny its debtors this choice. Tabb (1997: 643-644) notes that 'as of 1997, 35 states had opted out of the federal scheme, rendering § 522(d) a dead letter in much of the nation'.

[23] The US bankruptcy system is not quite as reckless in its generosity to debtors as it at first may seem. There are a number of grounds for denying discharge, perhaps the most important of which is that a discharge may not be granted more than once every six years. Furthermore, if the court considers that the debtor is committing a 'substantial abuse' of the system by not filing for Chapter 13, under which a debtor enters into a repayment compromise with his creditors lasting three years, then he may also dismiss the case. Finally, a range of debts such as those incurred on the basis of fraud, student loans, alimony payments and certain tax claims may not be discharged.

[24] This theory is borne out by a consideration of changing attitudes towards personal insolvency in the US, from the mid-nineteenth to late twentieth centuries: see Hallinan (1986).

to the severity of the bankruptcy law's consequences upon individuals, and so the latter may be thought of as a reasonable proxy for the former.

5.3 Legal Data

Eleven jurisdictions (Belgium, Denmark, France, Germany, Ireland, Italy, the Netherlands, Spain, Sweden, the UK and the US) were selected for analysis. The selection criteria were the availability of data concerning their insolvency codes and levels of venture capital investment, and the existence of a reasonably well-developed venture capital industry in each case. Summary details of the relevant insolvency laws are presented in the Appendix. These data were used to construct an ordinal index of the relative 'severity' of bankruptcy for individuals, as set out in Table 2. In each case, where the laws had changed during the period 1997-2000 (as in the cases of Belgium and Germany), the analysis was carried out for both the old and the new laws, with the results for the former regime displayed in brackets.

Table 2: Index of 'Severity' of Personal Insolvency Laws

	Belgium (pre 97)[a]	**Denmark**	**France**	**Germany (pre 99)**[b]	**Ireland**	**Italy**
Years to Discharge	0D (N/A)	N/A	0D	7 (N/A)	2D	N/A
'Severity' index	**3 (5)**[a]	**5**	**3**	**3(5)**[b]	**4**	**5**
	Netherlands (pre 98)[c]	**Spain**	**Sweden**	**UK**	**USA**	
Years to Discharge	3 (N/A)	N/A	N/A	3	0	
'Severity' index	**2(5)**[c]	**5**	**5**	**2**	**1**	

[a] Belgian law reforms effective from 8 August 1997: coding for 1997 is weighted mean (7:5) of coding under old law and under new. Coding for 1998 onwards is new law.
[b] German law reforms effective from 1 January 1999. Coding for 1997-98 is old law, coding for 1999 onwards is new law.
[c] Dutch law reforms effective from 1 December 1998. coding for 1997 is old law, for 1998 is weighted mean (11:1) of coding under old law and under new law. Coding for 1999 onwards is under new law.

The factors relevant to the analysis were as follows:

Discharge/'Fresh Start'. A five-point scale was used to classify differing regimes' approaches to discharge, with points representing:

1 = immediate discharge available
2 = discharge available in less than 5 years
3 = discharge available after 5 but less than 10 years
4 = discharge available after 10+ years
5 = no discharge available

Three observations are worth making. First, fraud is a universal bar to discharge, and so the coding proceeds on the assumption that the debtor has not been fraudulent.[25] Second, the availability of 'discharge' in this analysis is taken to mean discharge by the court *regardless of the consent of creditors.* In all the jurisdictions surveyed, it is possible for a debtor to obtain a discharge of sorts through reaching a compromise with creditors, utilising a statutory 'cram-down' procedure. Hence a more meaningful comparison is whether the debtor can obtain a discharge if creditors are not willing to consent. Third, in some jurisdictions (notably Belgium, France and Ireland), a discharge is only available at the discretion of the court. Where the source material suggests that the discretion is normally exercised, as is the case in Ireland, then the jurisdiction is coded by reference to the length of time before the court has jurisdiction to exercise such discretion. Where the source material suggests that the exercise of the discretion is more subjective, as appears to be the case in France and Belgium, then the jurisdiction is classified two points more on the scale than would have been the result simply by reference to length of time until the court's discretion becomes exercisable.

Exempt Assets. A link between the size of the homestead exemption across states in the US and entrepreneurship have already been demonstrated by Fan and White (2000), who found that the level of exemptions were significantly correlated with the incidence of owner-managed businesses. Whilst they did not investigate the way in which venture capital investment varied by state, their study nevertheless provides strong indirect support for the thesis in this paper. However, there is considerable homogeneity of treatment of exempt assets in European jurisdictions. Almost everywhere, the debtor is allowed to retain personal effects and a modest living allowance, but little else. The relatively small degree of variance in asset exemptions means that this factor is unlikely to have much influence on relative demand for venture capital. The exception is the US, where the existence and extent of the so-called 'homestead' exemption is a matter left to state law. In some states, such as Florida and Texas, its size is unlimited. Thus, it is tempting to include a factor in the index which reflects the fact that the level of exemptions available in the US may be more generous than in other jurisdictions. This approach would, however, be misleading, given that the data used in this paper on venture capital investment activity are aggregated at the national level, and the US exemption rules vary by state. Furthermore, such an exclusion is likely to detract little from the analysis, given the relative similarity of treatment of this issue in all other jurisdictions considered.

[25] As the bar is common to all jurisdictions where discharge is available, it is of little interest for the purposes of comparative analysis.

Disabilities. The level of disabilities may be expected to have an impact on both *ex ante* incentives to become an entrepreneur, and *ex post* rehabilitation. However, comparative legal data on the nature of disabilities under particular jurisdictions has proved difficult to obtain, and so this factor is not included in the preliminary assessment.

5.4 Data on Venture Capital Investment

Annual data on levels of venture capital investment are published by private equity trade associations. Figures for European jurisdictions were obtained from the European Venture Capital Association's annual yearbooks. US data were obtained from the PricewaterhouseCoopers/Venture Economics/NVCA MoneyTree survey.[26] In keeping with the definition of 'venture capital' used in this paper, attention is restricted to early-stage and expansion finance.[27] Later-stage, replacement, and MBO finance are thus not included. In order to take into account variances in the size of national economies, total venture capital investment for each of the years 1997-2000 inclusive was divided by GDP, measured in millions of US dollars, to give the annual investment levels per million dollars of GDP.[28] Table 3 presents data on levels of venture capital investment in these 11 countries for each of the years 1997-2001.

Table 3: VC (early stage and expansion) Investment per $m of GDP[a]

Country	1997	1998	1999	2000
Belgium	734.30	999.49	2419.68	2331.99
Denmark	143.37	246.32	505.54	1032.21
France	405.04	597.60	1117.02	2334.64
Germany	425.75	638.56	1246.91	2051.91
Ireland	481.93	485.97	901.63	2337.82
Italy	217.56	436.09	479.76	1438.43
Netherlands	1407.96	1586.46	2644.03	4001.87
Spain	378.05	354.22	846.21	1415.45
Sweden	233.43	515.70	1657.88	2265.81
UK	1003.31	1262.92	1831.66	4100.28
US	1537.93	2001.35	5069.15	8986.24

a. Sources: EVCA, PwC MoneyTree/Venture Economics/NVCA, OECD (2002 prices and exchange rates)

[26] These data were downloaded in spreadsheet form from www.pwcmoneytree.com/ in March 2002. The data are no longer available at this website free of charge.
[27] The classifications of 'early stage' and 'expansion' finance used in the US and European surveys are similar. The surveys are not, however, mutually co-ordinated, and so do not correspond precisely in their classifications.
[28] All dollar figures reflect 2002 prices and exchange rates. Data on inflation were obtained from www.economist.com and exchange rates from www.ft.com.

5.5 How Does VC Investment Relate to Personal Insolvency Law?

Combining the investment figures with the data on insolvency laws yields a set of 44 country-year observations.[29] Table 4 presents descriptive statistics for the data and the natural logarithm of the level of venture capital investment per $m of GDP.

Table 4: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
"Severity" of Personal Insolvency Laws	44	1.00	5.00	3.7481	1.3960
VC Investment per $m GDP	44	143.37	8986.24	1525.2140	1592.2669
Ln (VC Investment per $mil GDP)	44	4.97	9.10	6.9284	.9143
Valid N (listwise)	44				

The analysis in section 4 implies that a more severe personal insolvency law will reduce the incidence of venture capital finance. This hypothesis would be falsified by the data is no significant association is shown between severity of bankruptcy regime and levels of investment.

Graph 1 shows a scatter plot of the raw data. As can be seen, there appears to be a linear relationship, with a negative gradient, between severity of bankruptcy law and levels of venture capital investment.[30] Strictly speaking, the index of 'severity' of personal insolvency laws yields only ordinal data, because the scale involves a subjective element of classification. As a result, it cannot be guaranteed that each 'step' on the scale is of equal size, and hence tests which rely upon the distances of data points from the mean can yield misleading results. Hence the safest techniques for determining whether the apparent relationship between the two variables is statistically significant are nonparametric tests, which require only that the data be ranked, but do not require that it be ranked on scales of equal intervals. Table 5 reports the results of two such tests: Kendall's τ-b and Spearman's rank-order correlation, which rely upon relative differences in rank-ordering in the data. Both show a reasonable degree of negative correlation between the two variables, that is statistically significant at the 0.01 level. This means that we can be 99.9% confident of rejecting the null hypothesis that there is no correlation between the variables.

[29] These are panel data, as they track each of the 11 countries across time. However, there have only been two significant changes in legal rules during this time, and so there is almost no variation in severity of personal insolvency laws across time. For this reason, the data are treated as a pooled cross-section.
[30] This relationship is also present for each of the individual years within the dataset.

Graph 1: Raw Data: VC Investment and Severity of Personal Insolvency Laws

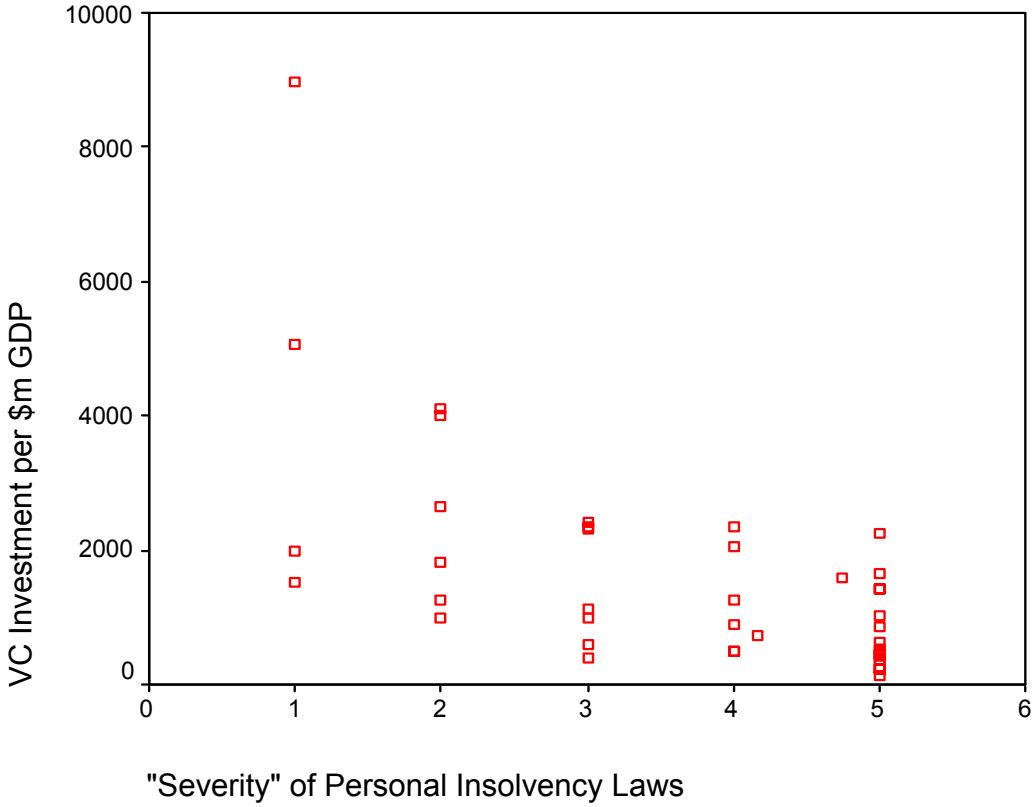


Table 5: Nonparametric Tests for Correlation of VC Investment with 'Severity' of Personal Insolvency Laws

			"Severity" of Personal Insolvency Laws	VC Investment per $m GDP
Kendall's tau_b	"Severity" of Personal Insolvency Laws	Correlation Coefficient	1.000	-.493**
		Sig. (2-tailed)	.	.000
		N	44	44
	VC Investment per $m GDP	Correlation Coefficient	-.493**	1.000
		Sig. (2-tailed)	.000	.
		N	44	44
Spearman's rho	"Severity" of Personal Insolvency Laws	Correlation Coefficient	1.000	-.621**
		Sig. (2-tailed)	.	.000
		N	44	44
	VC Investment per $m GDP	Correlation Coefficient	-.621**	1.000
		Sig. (2-tailed)	.000	.
		N	44	44

**. Correlation is significant at the .01 level (2-tailed).

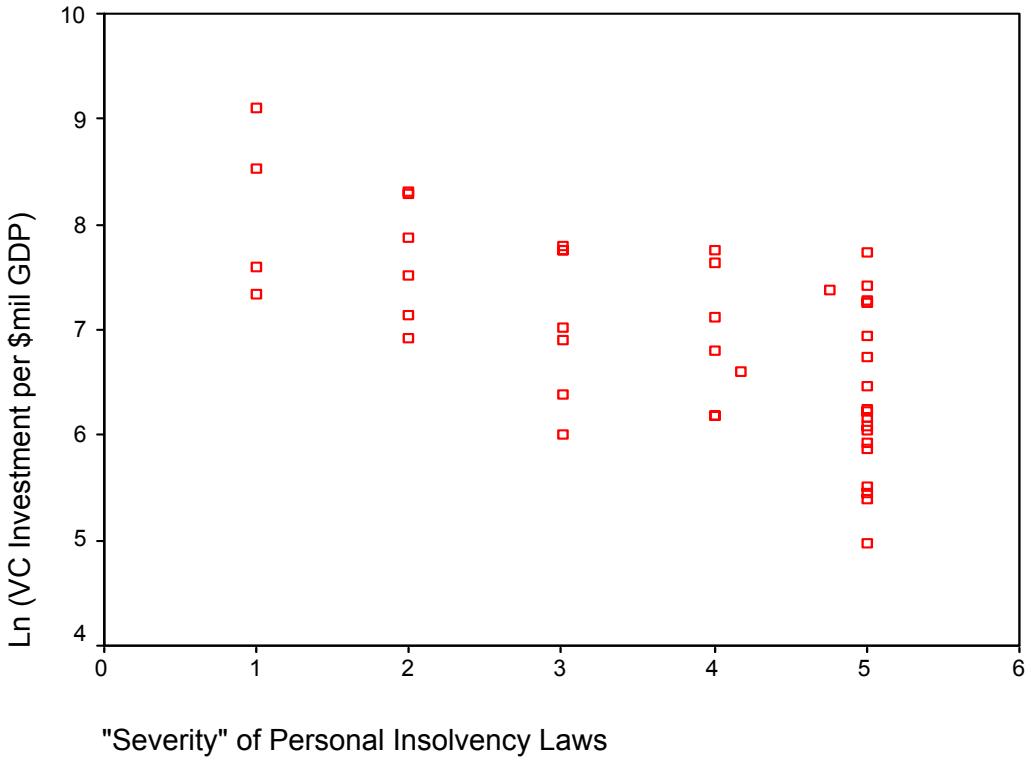
A simple ordinary least-squares regression was also run on the data. For the reasons explained above, this technique may not be considered strictly appropriate. However, the method by which the scale of personal insolvency law 'severity' was constructed is related to the number of years until discharge, and hence may be sufficiently approximate to an interval scale to be capable of yielding meaningful results, provided that they are interpreted with sufficient caution. Furthermore, there are well-known precedents in the 'law and finance' literature for the use of regression analysis involving indices constructed by subjective classification of legal rules or other relevant data (see eg La Porta *et al,* 1997). The format of the presentation of the results in this section follows that adopted by Black (2001).

Linear regression analysis depends crucially on the normality of the distribution of the dependent variable. However, the data on levels of VC investment are not normally distributed, and so this variable was not regressed directly on 'severity', but rather was subjected to a logarithmic transformation. Thus ln(VC investment per $m GDP) (as dependent variable) was regressed on severity of personal insolvency law (as independent variable), with a constant term as the only other independent variable. The resulting regression equation is as follows:

$$\text{Ln (VC investment)} = 8.499 - 0.419 \text{ (severity of personal insolvency laws)}$$
$$(t = -5.393,\ p < 0.001,\ F = 29.084)$$

Graph 2 shows a scatter plot of these variables.

Graph 2: Ln(VC Investment per $m GDP) and Severity of Personal Insolvency Law



The Pearson correlation coefficient, which shows the strength of the correlation between the two variables, is a respectable –0.64. This is different from its direction, which is given by the slope of the regression line. The R^2 for this regression, which indicates the fraction of the variance of the dependent variable that is explained by the variance of the independent variable, is 0.41—ie 41%. This is not particularly strong, and provides another reason for caution in interpreting the results. Nevertheless, given the relatively small sample size and the wide range of other factors which may affect levels of venture capital investment, this is not unsurprising.

The tests conducted in this section are of course extremely basic, given that they do not attempt to account for any of the other factors which might affect the differences in observed investment levels. Hence the results cannot be interpreted as more than suggestive of a negative correlation between severity of personal insolvency law and levels of venture capital investment. However, the data do display a correlation in the manner predicted by the theory outlined in section 4, which is sufficient to reject the null hypothesis that no such relationship exists.

6 Financing Policy and Corporate Insolvency Law

It is possible that both demand for, and investors' willingness to supply, private equity finance to small firms might also be affected by corporate insolvency law. The starting intuition here is that corporate insolvency laws vary according to their respect for creditors' preinsolvency entitlements. Generally speaking, credit can be expected to be more difficult to obtain, and equity correspondingly easier, in a country with a corporate bankruptcy regime which does not respect creditors' entitlements than in one where bankruptcy law does. This result is modelled formally by Gangopadhyay and Wihlborg (2001). This could therefore be expected to increase investors' willingness to supply venture capital finance. At the same time, marginal founders of 'start-up' firms might be forced to move further down the 'pecking order' to seek outside equity because of the relatively high cost of debt.[31] This could have the effect of simultaneously stimulating demand for outside equity.

6.1 Debtor- and Creditor-friendly Corporate Insolvency Laws

For the purposes of this analysis, we might categorise corporate insolvency laws according to whether they are 'creditor-friendly' or 'debtor-friendly'. Creditor-friendly corporate insolvency laws have as their primary goal the maximisation of returns to creditors *ex post*. In their strongest exemplars, they are characterised by creditor control over access to the proceedings, the selection of the trustee or other official who conducts the proceedings, and the decision as to how best to deploy the firm's assets. Furthermore, they exhibit respect for preinsolvency priorities of claims against the insolvent firm, so that shareholders are not paid unless creditors have received payment in full.

[31] On the 'pecking order' theory of corporate financial structure, see *supra* section 2.2.

Within collective proceedings, the idea is that, depending on the available estimates of their highest-valued use, the assets can either continue to be employed in the existing business, or sold piecemeal (see Jackson, 1982). Thus any effective corporate insolvency law must provide a mechanism whereby the business can continue as a going concern if it is worth more that way. For creditor-oriented codes, this may either be through a 'liquidation procedure' or a 'reorganisation procedure' (IMF, 1999). The difference is as follows. Under a liquidation procedure, the debtor's assets are sold and the debtor ceases to exist as a separate corporate entity. The sale, however, may be conducted either on a going-concern or a break-up basis. The official overseeing the debtor's business will typically have been appointed by the creditors, and will seek to achieve the maximum value for the realisation of the assets. Under a reorganisation procedure, the creditors renegotiate their claims with the debtor, agreeing to accept either (or both) *less* or payment *later* than their entitlements under existing contracts. In a creditor-oriented reorganisation procedure, the creditors will select the persons who manage the firm during the proceedings, and likely will also have some say in the formulation of a plan of reorganisation. Furthermore, protections will exist such that no plan can be approved which upsets the pre-insolvency ordering of priorities.

For present purposes, a debtor-oriented procedure is understood as being one which allows the debtor's management and/or shareholders to force creditors into a more generous renegotiation of their claims than would be feasible under a creditor-oriented procedure. To this end, the focus is on reorganisation procedures, as liquidation does not countenance any renegotiation. A debtor-oriented reorganisation procedure works by allowing the incumbent management to retain control of the firm during the proceedings—a so-called 'debtor in possession' or 'DIP' procedure. Relative comparisons of debtor-orientation may be made by reference to the degree of autonomy management enjoy from interference by creditors. Thus a universal stay of creditors' claims will make for a more debtor-friendly DIP procedure than a stay which applies only to unsecured creditors, leaving secured creditors free to repossess their collateral. The debtor-friendliness of a DIP procedure can be enhanced by provisions allowing the debtor to raise finance during reorganisation proceedings which will rank ahead of pre-existing creditors. Moreover, if the debtor is given control over setting the agenda in plan formulation, and control in structuring the voting, then this will tend to favour the interests of shareholders as opposed to creditors. Control over access to the proceedings will also matter, in that if creditors are able to block debtors from entering reorganisation, then this will act as a constraint on debtor autonomy. These control rights may enable the debtor to 'squeeze' creditors into agreeing to allow shareholders to have a valid claim against the reorganised firm, notwithstanding that this implies an alteration of preinsolvency priorities.[32]

An example of a 'debtor-oriented' system where this type of breach of the APR occurs routinely is Chapter 11 reorganisation in the US. Under this procedure, creditors and the

[32] For formal models of this bargaining process based on US Chapter 11 reorganisation proceedings, see e.g., Bebchuk and Chang (1991) and Baird and Picker (1992).

debtor engage in a form of structured bargaining over a plan of reorganisation. When the plan is confirmed by the court, the debtor emerges from Chapter 11 proceedings and the parties' pre-confirmation claims are extinguished and replaced with the claims against the firm detailed in the plan. Typically, creditors will agree to accept payment of *less*, and *later*, than they had originally contracted for. If the APR were respected, then we would expect shareholders not to receive any payment under these plans where the firm's assets are worth less than its liabilities. Yet empirical studies have confirmed that it is normal for the old shareholders to receive claims in the reorganised firm—worth somewhere in the region of 5% of its market value—notwithstanding that the creditors are receiving claims that are worth less than their outstanding debts.[33] Insolvency scholars believe this outcome occurs in the US because of the way the law is structured so as to give considerable bargaining leverage to the debtor. By contrast, in a 'creditor-friendly' jurisdiction such as the UK, there is no question of the law facilitating such outcomes (see Armour, Cheffins and Skeel, 2002). Creditors are firmly in control of insolvency proceedings, and the only way in which the shareholders will retain any claim on a reorganised firm is if the creditors consider they are contributing value to it, e.g. through their human capital.

6.2 Why Corporate Insolvency Law is Unlikely to Matter for Venture Capital Investment

We might think that, *ceteris paribus,* breaches of the APR would make debt investment *ex ante* less desirable, and equity more desirable. However, there are reasons for thinking that corporate insolvency law is unlikely to have a significant impact on the incidence of venture capital finance. The analysis posits an *ex post* transfer from creditors to shareholders, which in effect subsidises equity investment. When this is priced *ex ante*, it can be expected to result in cheaper equity and more costly debt. However, a crucial assumption underlying this reasoning is that the firm seeking finance does indeed have a significant portion of its financial structure supported by debt. If this is not the case, then there can be no *ex post* transfer, and hence the effect of corporate insolvency law will be negligible. Recall from section 2.2 that, according to the 'pecking order' theory of corporate financial structure, the very reason high-growth 'start-up' firms are driven to seek venture capital finance in the first place is that their lack of 'hard' assets means they are unable to support debt finance. Thus for the sorts of firms which typically raise venture capital finance, variations in the structure of corporate insolvency law along the lines discussed in this section are unlikely to have much effect.

To put the matter another way, there is likely to be very little in the way of assets to reorganise if a venture-backed company goes into insolvency proceedings. The inability to pay trade creditors will likely have been precipitated by the venture capitalist deciding not to continue funding the firm. Given that the existing VC will have good information about the quality of the firm's projects, it is unlikely to be able to obtain replacement finance at this stage from elsewhere. For the same reasons, a sale of the business as a going concern in insolvency will not be feasible. So what will be left? Given that there

[33] For a review, see Armour (2001).

will be few liquid assets, there is unlikely to be much to fight over at all (Bratton, 2002; Gilson & Schizer, 2002; see also Gebhard, 2000; Corcoran, 2002). Informal interviews with three venture capitalists conducted by the author have lent support to this assertion: in the interviewees' experiences, insolvencies were usually 'complete write-offs' of the investment concerned. Indeed, given that venture capitalists' investments are typically structured as preferred equity, which will receive a liquidation payment ahead of ordinary shareholders, VCs have an incentive to seek to close failing portfolio companies *before* they become technically insolvent, so that at least part of their investment may be recaptured in a solvent liquidation.

Corporate insolvency law might affect the incidence of venture capital finance in a different fashion, however. In jurisdictions with very debtor-friendly corporate bankruptcy regimes, small firms with 'hard' assets capable of supporting debt might nevertheless find that the relatively high cost of debt finance makes outside equity more attractive. Given that venture capitalists are the primary source of private equity finance for small firms, this might therefore be expected to lead to a greater observed incidence of this form of finance in 'debtor-friendly' jurisdictions. Whilst theoretically appealing, this intuition seems at odds with the way in which venture capitalists go about selecting investments. Successful VCs tend to 'focus' on particular emerging technologies that have the potential to yield spectacularly high returns to shareholders. Further research is required in order to establish whether this effect is significant.

7 Conclusion and Implications

This paper has sought to contribute to understanding of the legal and institutional determinants of venture capital investment. It has focused on the role played by insolvency law, an area not examined in detail in the existing literature, and argues that a nation's personal insolvency law is an important factor affecting of the levels of venture capital finance.

The theory developed in section 4 suggests that personal insolvency law may affect demand for VC in two ways. *Ex ante,* a 'harsh' bankruptcy regime may act as a deterrent to potential entrepreneurs who are considering founding a high-growth technology firm. *Ex post*, a legal regime which does not facilitate the financial rehabilitation of bankrupt individuals may result in the exclusion of talented entrepreneurs from the business start-up arena, where risky businesses fail through no fault of the founders. Either or both of these effects can be expected to have an impact on the demand for VC finance. The index of 'severity' of personal bankruptcy laws developed in section 5 lends some support to this hypothesis. Were the hypothesis false, we would expect to see no correlation between severity of the legal regime and the levels of venture capital investment. The ordinal classification of legal rules necessarily involves an element of subjectivity, but this was minimised to the extent possible by linking the aspects of the laws which were 'measured' as closely as possible to the feature which the theory predicted would be most important: the availability, and terms of, a 'fresh start' in bankruptcy. Whilst the statistical techniques applied to measure this correlation are relatively crude and therefore the results can only be treated as preliminary, the analysis of the data suggests a

correlation between the legal rules and investment levels, and hence the hypothesis has not been falsified by this test.

Conversely, the theory developed in section 6 has argued that corporate insolvency law is unlikely to be a significant determinant of national levels of VC investment. Further work is, however, necessary in order to test this hypothesis. Following the approach adopted in section 5, an initial test would involve classifying corporate insolvency laws according to their degree of 'debtor friendliness' and then examining how these findings relate to levels of early-stage private equity investment.

The paper's more ambitious claim is that a nation's personal insolvency law is likely to be one of the most important factors affecting levels of venture capital investment. This is because the theory developed in the paper suggests it affects the national *demand* for this types of finance. As explained in section 3.2, 'demand side' factors are likely to be more significant in a world where investment capital can relocate across borders more readily than entrepreneurs.

The analysis in this paper has a number of implications for ongoing policy debates. Generally, a number of recent national and EU initiatives have sought explicitly to encourage innovative firms and venture capital finance. For example, the European Commission's Risk Capital Action Plan is designed to stimulate this type of activity throughout Member States (European Commission, 1998; 2000). The UK Government has set itself the goal of making Britain the 'best place in the world to start and grow a business' (Small Business Service (UK), 2001: 3). The stimulation of the market for venture capital will clearly play an important part in this process, and an understanding of the determinants of venture capital investment—and in particular, the relative importance of 'demand side' factors—is of obvious importance in achieving this objective.

More specifically, the claims developed have implications for developments in the field of insolvency law. Under the aegis of the Risk Capital Action Plan, the European Commission has identified the need to facilitate the 'softening of bankruptcy laws to allow failed entrepreneurs a second chance…' (European Commission, 2000), although specific proposals for reform have yet to be tabled. More concretely, the UK's Enterprise Bill 2002 contains a number of features designed to reduce the harshness of personal insolvency for individuals who have become bankrupt simply because of bad luck, as opposed to irresponsible risk-taking on their part (Department of Trade and Industry (UK), 2001). Under the new legislation, the time to automatic discharge will be reduced to 12 months.[34] Furthermore, the legal disabilities associated with the status of undischarged bankrupt will be scrapped, as a bid to send a signal to society that bankruptcy should carry less stigma. This paper affirms the good sense of these policies.

[34] However, if fraud is shown then the bankrupt may be made subject to a Bankruptcy Restraining Order which will, *inter alia*, prohibit him from being involved in the management of a company for a period of 5-15 years.

Ironically, proposed reforms in the US will move personal bankruptcy law in the opposite direction. The pending Bankruptcy Abuse and Consumer Protection Act 2002[35] will see the introduction of means-testing for debtors who wish to make use of Chapter 7 proceedings, requiring those whose incomes are above a certain threshold instead to make use of the Chapter 13 procedure, which involves a composition with creditors as opposed to an outright discharge (American Bankruptcy Institute, 2002). These reforms may have the effect of making entrepreneurship less attractive at the margins.

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Appendix: Personal Insolvency Laws of Different Countries

The following characteristics of personal insolvency laws were examined:

[NB These data are incomplete in several respects and will be subject to further refinement: the only aspect upon which the analysis in the text is based is the length of time to discharge, where available].

1. Types of insolvency procedures open to individuals, and eligibility requirements.
Most jurisdictions support at least two procedures—a 'pure bankruptcy' proceeding in which the debtor's assets are liquidated, and a composition or arrangement with creditors. The focus in the analysis is on the former, as this represents the most severe set of consequences for a debtor. Many jurisdictions restrict access to certain types of insolvency proceeding to 'commercial' parties, which typically encompasses both corporations and individuals who are involved in running a business. Where such a restriction exists, it is assumed that entrepreneurs of the sort discussed in section 4 would be classified as 'commercial' parties, and detailed consideration is not given to procedures which are applicable only to consumers.

2. Effects of Commencement.
This section briefly outlines the effects of commencement of 'pure bankruptcy' proceedings. Particular attention is paid to (i) whether any assets, and if so, which types and to what value, may be retained by the debtor as 'exempt' from the proceedings; (ii) whether the debtor is subjected to any legal disabilities following the commencement of proceedings, and if so, which ones; and (iii) how the proceedings are terminated.

3. Discharge.
This section examines the circumstances, if any, under which the debtor may be discharged from pre-bankruptcy debts. In all jurisdictions, it is possible for a debtor to achieve a discharge with the agreement of his creditors through a composition. Because this facility is universal, attention is focused in the comparative analysis on the length of time to discharge without such agreement (if such discharge is available).

1 Belgium

Relevant Legislation: Law of 17 July 1997 (Concordat Act) and Law of 8 August 1997 (Bankruptcy Act); Act of 5 July 1998 (Collective Debt Rescheduling for private persons) in Arts 1675/2-17 of the Judicial Code.

Types of Procedures & Eligibility: (1) *Concordat* is open where a court considers that there is sufficient possibility that the debtor can achieve a reorganisation of his debts through agreement with creditors. (2) *Bankruptcy* is a liquidation procedure employed where the court is unwilling to make an order for a concordat. In both cases, proceedings are only open to commercial parties (individuals or corporations).

Effects: Bankruptcy proceedings result in a total divestment of the debtor's assets through a 'collective seizure' by the court on behalf of the creditors. A 'mediator' takes over the

running of the debtor's estate, and all transactions entered into by the debtor after the commencement of proceedings must be approved by him.

Exempt assets: [to follow]
Disabilities: [to follow]

Discharge: Is available to commercial parties at the discretion of court following the completion of bankruptcy proceedings, and provides complete exemption from all debts. No specific guidelines as to how to exercise this discretion are given to courts under the Bankruptcy Act, but it is 'generally accepted' that a discharge will be granted where debtor 'gives sufficient guarantees of his reliability as a business partner in the future' (Dirix, 2001: 172).

[NB discuss position prior to 1997 reforms—no 'fresh start' available]

References: Dirix (2001).

2 Denmark

Relevant Legislation: Danish Bankruptcy Act of 9 September 1986, Danish Bankruptcy Act No 402 of 26 June 1998.

Eligibility: Bankruptcy proceedings are open to insolvent debtors.

Effects: The commencement of proceedings effects a stay of unsecured claims (not secured claims), a divestment of the debtor's assets, the appointment of an official to oversee the estate and the administration of claims. Proceedings end on the liquidation of the debtor's assets and the payment of claims.

Exempt assets: Personal assets of low value and assets that are essential for everyday life.

Disabilities: The debtor may not found a new company until bankruptcy proceedings are finished. However, he may still be a director of a company even during the pendency of the proceedings, and there is no bar to founding a new company once the proceedings are over.

Discharge: No discharge is available, and the debtor remains liable for unpaid debts after the proceedings close.

References: INSOL Europe (undated); SJ Berwin (2002: 43-45).

3 France

Relevant Legislation: Law No. 84-148 of March 1, 1984 (Prevention of Business Difficulties Law), Law No. 85-98 of January 25, 1985 (Insolvency Law) and Law No. 85-99 of January 25, 1985 (Insolvency Practitioners Law), Law No. 94-475 of June 10, 1994 (Insolvency Reform Law).

Eligibility: (1) *Judicial Liquidation* under the Code Commerciale is available to traders or business entities who are insolvent. (2) *Bankruptcy* ('Banqueroute') is a criminal proceeding brought against insolvent who are found to have been fraudulent. (3) *Judicial Reorganisation* is available to debtors where the Commercial Court considers it appropriate.

Effects: The commencement of Judicial Liquidation results in a stay of claims against the debtor, including those of secured creditors. The debtor is divested of his title to his assets, these are liquidated and the proceeds used to settle creditors' claims. The proceedings end when payments have been made to creditors sufficient to exhaust the estate.

Exempt assets: Movables necessary for the life and work of the debtor, his family; claims for food; pensions for occupational injuries and wages, up to the amount fixed by law.

Disabilities: [to follow]

Discharge: Is available at the end of the liquidation proceedings on the discretion of the court, provided the debtor has not been fraudulent.

References: Dalloz (1955-); Bell *et al* (1998); Sorenson and Omar (1996); Koral and Sordino (1996); INSOL Europe (undated)

4 Germany

Relevant Legislation: Insolvenzordnung of 1 January 1999.

Eligibility: Any natural or legal person who is cash flow insolvent.

Effects: An 'insolvency estate' created, consisting of all the debtor's assets plus all those coming into his hands during the proceedings, but not assets subject to security interests. A trustee is appointed who takes over the powers of management and disposition of the assets comprising the debtor's estate. There is an automatic stay of all claims, including those of secured creditors.

Exempt assets: [to follow]
Disabilities: [to follow]

Discharge: Prior to 1999, no discharge was available, and bankruptcy was known as 'social death'. Since 1 January 1999, a discharge is available if the debtor promises to sign over the majority of his income to creditors for a period of 7 years following the completion of proceedings—hence the discharge period is effectively 7 years.

References: Ziechmann (1997); Paulus (2001); Schiller (2002).

5 Ireland

Relevant Legislation: Bankruptcy Act 1988.

Eligibility: Any individual who commits an act of bankruptcy (including inability to pay debts as they fall due).

Effects: The bankrupt is divested of his assets, which vest in the Trustee in Bankruptcy. Unsecured creditors are stayed, and the Trustee gets in and realises the debtor's assets for the benefit of his creditors. The debtor's future salasry is also attached.

Exempt assets: Personal effect, clothign, tools of the bankrupt's trade, necessaries for himself and his family, etc, amounting to a total of not more than £2,500, although this may be increased by order of the court.

Disabilities: It is an offence for an undischarged bankrupt to a director, or to be involved in the promotion, formation or management of a company without court leave, regardless of wrongdoing. A bankrupt must disclose his status as such where individually or in partnership, he obtains credit of more than E650. A bankrupt is barred from holding representative office.

Discharge: Available at the court's discretion, usually granted on proof of payment of 50% of creditors' claims, or 12 years following the commencement of proceedings.

References: Sanfey and Holohan (1991); SJ Berwin (2002).

6 Italy

Relevant Legislation: R.D. 16 March 1942, n. 267. (The Bill of 27 October 2000 delegates to Italian government the power to reform Italian bankruptcy law; in particular to rationalise the number of non-bankruptcy insolvency procedures and introduce a 'crisis procedure' which would replace them, providing a period of up to two years to reorganise a business as a going concern).

Eligibility: Bankruptcy proceedings are only open to traders, with an exception for small businesses. Fraudulent debtors are barred from access.

Effects: The commencement of proceedings effects a stay of claims, the divestment of the debtor's assets, the appointment of an official to oversee proceedings and administer claims.

Exempt assets: Property and rights of a 'wholly personal nature'. At the court's discretion bankrupt may be awarded a food allowance so as to be able to feed himself and his family, payable out of the estate. Future assets (i.e. those falling into the estate after proceedings commence are not excluded—the only exclusion is for future income or salary, insofar as it is necessary to provide for the bankrupt's, and his family's, living needs. Proceedings end either when the creditors are paid in full, or when it is clear that

there are insufficient assets to pay all creditors' claims, or when a composition is agreed between the debtor and his creditors.

Disabilities: All post-bankruptcy transactions by the debtor are void as against his creditors. The debtor is barred from being involved in the management of a business. He may not leave his residence without the administrator's permission, and all commercial correspondence must be dealt with by the administrator.

Discharge: No discharge is available unless the creditors consent to a composition.

References: Wood and Totty (1994: 259-312); Cherubini (2000); Cappiello (2002); SJ Berwin (2002: 17-21).

7 Netherlands

Relevant Legislation: Bankruptcy Act 1893 (*Faillissementswet*); Natural Persons Debt Rescheduling (Natural Persons) Act 1998 (*Wet Schuldsanering Natuurlijke Personen*) (in force 1 December 1998). (Reform is ongoing: a Bill was presented before the Dutch Parliament in 2000: Bill 27 199).

Eligibility: (1) *Faillissement* (liquidation) (open to all debtors) (2) *surséance van betaling* (suspension of payments) (open to all debtors) (3) *schuldsanering* (debt restructuring) open only to individuals, available from 1 December 1998. *[***check eligibility for entrepreneurs***]*

Effects:

Disabilities: A debtor subject to liquidation proceedings (1) may only seek work as an employee and may not engage in any new commercial or managerial activities.

Discharge: No discharge is available in liquidation proceedings. However, under a debt rescheduling agreement (3), an individual who is willing to (i) pay over all his personal earnings except for a minimum set by the court and (ii) maintain good conduct, will obtain a discharge after 3 years. The individual must have demonstrated that he is willing to negotiate with creditors, but need not actually achieve a voluntary compromise—the court will impose the restructuring plan if no agreement is reached. NB this procedure was not available prior to 1 December 1998.

References: Wessels (1999: 95-108); Raaijmakers (2001); SJ Berwin (2002: 33-35).

8 Spain

Relevant Legislation: Civil Procedure Act of the Commercial Codes of 1829 and 1885; Payments Act of 1922.

Eligibility: Must be a trader; fraud is a bar.

Effects: stay of claims, divestment of assets, appointment of official, administration of claims. Can have retrospective effect—under Spanish Supreme Court jurisprudence, will be back-dated to nullify all transactions which were contrary to the creditors' interests or resulted in a reduction of the debtor's net equity.

Exempt assets: The debtor's personality or rights inseparable from it, such as his name or family rights.

Disabilities: The debtor may not administrate his estate; he is disqualified from acting as a company director during the period of proceedings and is disqualified from any 'act of trade' until successfully applies for requalification.

Discharge: No discharge/requalification is available without the consent of the debtor's creditors to a composition (a composition may be achieved during bankruptcy proceedings as well as in suspension of payments), but fraud is complete bar to any form of discharge.

References: Cremades (1992: 183-198), Cremades and Cabiedas (1989: 447-484); Wood and Totty (1994: 649-733); SJ Berwin (2002: 22-27); Gonzalez (undated).

9 Sweden

Relevant Legislation: Rights of Priority Act (1970: 979); Floating Charges Act (1984: 649); Bankruptcy Act (1987: 672); Reorganisation Act (1996: 764). Reforms are pending, with new legislation on Business Reorganisation due to come into force on 1 January 2003.

Eligibility: The debtor must be insolvent, in the sense of inability to pay debts when they fall due.

Effects: Assets are sold to satisfy debts. Business may be sold either as a going concern or on a break-up basis.

Exempt assets: Assets essential for everyday life.

Disabilities: The debtor must not engage in business activity until the bankruptcy proceedings are finalised, nor may an he be a member of a company's board or managing director until proceedings over.

Discharge: N/A.

References: Hagg (1997); SJ Berwin (2002: 40-42).

10 UK

Relevant Legislation: Insolvency Act 1986 (The Enterprise Bill 2002 will modify the law to facilitate a discharge after one year for non-culpable debtors. It will also abolish the disabilities associated with bankruptcy).

Eligibility: Any individual who is unable to pay his debts.

Effects: The bankrupt is divested of the ownership of his assets, which vests in the Trustee in Bankruptcy. The Trustee's duties are to get in and realise the debtor's assets for the benefit of his creditors.

Exempt assets: include items for the bankrupt's personal use in employment and clothing and household items required for his basic domestic needs and those of his family.

Disabilities: include an inability to incur credit of more than £250 without disclosing his status as a bankrupt, a ban on trading under a different name without disclosing the name under which he was declared bankrupt, and being disqualified from participating in the management of a limited liability company. A bankrupt is also barred from holding representative office.

Discharge: available three years after commencement of proceedings, provided debtor was not fraudulent. If the individual was previously discharged from bankruptcy less than 9 years beforehand, then discharge is only available at the discretion of the court. If the total amount of the bankrupt's debts come to less than £20,000, then discharge is available after two years.

References: Fletcher (1996).

11 USA

Relevant Legislation: Bankruptcy Reform Act 1978 (Modifications currently pending in the form of the Bankruptcy Abuse and Consumer Protection Act 2002).

Eligibility: Any individual may make use of either Chapter 7 (liquidation), Chapter 11 (reorganisation) or Chapter 13 (plan of payment) proceedings, provided that Chapter 7 may not be used by debtors for whom it would be a 'substantial abuse' to grant a discharge as opposed to entering Chapter 13 proceedings.

Effects: Chapter 7: stay of all claims, appointment of Trustee who oversees realisation of debtor's prebankrutpcy estate and payment of creditors.

Exempt assets: Personal effects etc. So-called 'homestead' exemption varies by state, from *de minimis* to unlimited (e.g. Florida, Texas).

Disabilities: N/A

Discharge: Available immediately proceedings end, provided that the debtor has not obtained a discharge in the preceding 6 years.

References: Tabb (1997).