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TWELVE MEDITATIONS ON VENTURE CAPITAL:
some heretical observations on the dissonance between theory and practice when applied to public/private collaborations on entrepreneurial finance policy

Gordon Murray
Professor of Management
University of Exeter Business School
Streatham Court
Rennes Dive
Exeter Ex4 4PU
UK

Tele: +44 1392 264501
Email: gmurray@exeter.ac.uk

David Lingelbach
Assistant Professor of Business
Stevenson University
School of Business and Leadership
Department of Accounting, Economics, and Finance
100 Campus Circle
Owings Mills
Maryland 21117
USA

Tele: (443) 352-4152 (o)
Email: lingelbach@jhu.edu

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TWELVE MEDITATIONS ON VENTURE CAPITAL

ABSTRACT

This paper reflects on the policy formation process in the burgeoning area of venture capital finance. An important question is raised as to why so little extant academic research, of both rigor and relevance, is employed in policy formation. The authors argue that the long term, international and comparative perspective of the academic researcher is of increasing importance in government. The gap between policy practice and academic empiricism is illustrated by reference to contemporary policy interest in the creation of public/private ('hybrid') venture capital funds. The rubric of 12 Meditations is employed as a device to communicate across the academic/policy maker divide.

INTRODUCTION

Meditation (definition)

a. The action or practice of profound spiritual or religious reflection or mental contemplation.
b. Continuous thought on one subject; (a period of) serious and sustained reflection or mental contemplation.

Shorter Oxford English Dictionary (2007)

For practicing Buddhists, meditation is an important aid to self knowledge and enlightenment. In the context of this policy oriented paper, we use this concept in order to raise an important set of questions. Can organizations also become enlightened? Is it possible for a governmental or state agency to undertake 'serious and sustained' reflection? Put another way, can a public agency create, and subsequently employ effectively, a collective memory of past actions and consequences? We would suggest and will argue in this paper that, from the empirical evidence available, government organizations are often rather poor at learning from their own past experiences or borrowing from the relevant experiences of equivalent agencies in other countries.

There are many reasons that may account for this partial and imperfect learning. Civil servants are specialists in the multifaceted and often highly politicized processes of government but not always in the mastery of specific content. Able public servants in national administrations in most advanced polities regularly move across the government machine taking disparate roles in several departments in their progress to senior office.[1] Reflection also takes time and space in the agenda,

[1] The United States is a notable exception to this pattern.

two commodities very scarce in contemporary governments constrained by shrinking budgets and growing demands in an age of state decline (van Creveld, 1999). And, invariably, rational and depersonalized Weberian bureaucratic actions will always be overlaid, second guessed or trumped by the contemporary political imperative.

It is in this policy context that we would argue that the professional academic 'outsider' may have a role. By definition, a scholarly analysis demands reflection, a theoretical compass, and a menu of appropriate methodologies. These are applied to situations which are often viewed over time and across different conceptual geographies in order to reach robust generalizable conclusions. The academic process is both comparative and evaluative. On occasions it may also be prescriptive. It is in offering this differently rigorous and more longitudinal perspective that the academic may complement the shorter run agendas of the policy practitioners. Indeed, in some circumstances, the specialist academic outsider may have a *greater* knowledge and understanding of historic policy actions and their consequences than the current cohort of responsible policy makers.

We make the strong assumption of a different type of academic knowledge. In consequence, our objective in this paper is perhaps ambitious… even heroic. Namely, we wish to inform government policy makers of the consequences of their actions and to stress how well-grounded theory from economics, management, and entrepreneurship disciplines may usefully inform their policy choices. Specifically, and academics by definition should always be specific, we wish to illustrate our premise with reference to the Financial Services industry. We will argue how the applications of early-stage, venture capital (VC) financing policy by several governments - undertaken with little reference to this wider body of research - have often resulted in adverse consequences far removed from their original aspirations. We seek to give explanations as to why these divergences occur by reference to both observed practice and established theory. Our focus and illustrations are exclusively focused on 'early-stage' VC activity where government and private interests have come together to jointly finance 'hybrid' investment funds (OECD, 2004 and 2008). Our deliberations are informed by over twenty person-years involvement in academic research and policy advice/ evaluation across a number of developed and developing economies. It is precisely because we are not practitioners that our analysis may have merit.

Insert figure 1 here

Importantly, the purpose of the paper is neither to criticize nor to indict the actions of policy makers or, indirectly, practitioners. Rather, the authors' ambition is to raise a hand of caution and gently to request that aspiring policy makers reflect, however briefly, on the historical record of public/ private interventions in order that new initiatives may at least be measured against, and more importantly informed by, the template of past experience and its formal analytical interpretation. To borrow from a Buddhist *koan* (riddle), we urge our policy maker readers 'to listen to the sound of a one-handed clap'.

Our observations reflect on public/private co-investment arrangements in a specialist area of financial services involving the financial support of young, innovative and entrepreneurial firms. After the unprecedented chaos of global financial services starting in the Fall of 2008, which has lead to publicly funded rescues (i.e. equity purchases) of many of the Western worlds' major financial services firms, we now find that the management of public/private partnerships in

financial services has become a current and multi-trillion dollar issue. The state has once again become a major player, perhaps the most important player, in global capital markets. The policy dimension of public and private concerted actions has become an issue of the utmost economic importance. Also we have heard several commentators, mirroring public bafflement, ask: why was it not possible to learn more from previous experience of financial and market failures?

Academic Engagement – *or why don't they ever listen to us*?

The degree to which management scholars should or should not actively engage in advising or influencing policy or practitioner constituencies remains a permanent element of academic introspection and debate (Van de Ven, 2007). For many scholars, too close an association with the commercial or public activities of professional managers and their organizations is seen as engendering a risk of compromised intellectual freedom, objectivity and integrity. Jermier (1998) notes that applied managerial research is too often designed and focused on issues determined at the behest of the established, élite cohorts of top management and/or majority stock holders. By implication, the research goals may often be counter to the interests of labor, consumers, or the average citizen (a large and passive group increasingly termed Main Street). The direction of much of applied management research is seen as possibly laden with value assumptions inimical to the liberality of many social scientists. Management research may actually be *damaging* to workers' interests. (It is therefore not surprising that John Doe rarely demands an academic opinion.). On occasion, academic advice may not be good for anyone. Ghoshal (2005), citing the disastrous governance failures of Enron, Tyco and Global Crossing, argued that some theoretical underpinnings of management thinking may actively condone bad management practice (or pathologies). He specifically examples the important, financial economics concept of 'Principal-Agency theory' with its explicit assumption of self interested and adversarial action as the norm of management behavior. Here, the need to incentivize management agents beyond other interest groups can be interpreted as an intellectual legitimization of the self-serving and destructive rapacity of top management teams. Merchant bankers please note![2]

For others, an academic career is more properly conducted in a reflective and disinterested environment removed from the 'noise' of the factory floor or executive suite. Here, the quality and relevance of academic endeavor is more properly determined by fellow academicians who judge output largely within the narrow and self referencing criteria of peer reviewed journal articles, research council grants, conference appearances and other indications of exclusively scholarly esteem and recognition. In each case, the contribution to and influencing of current behavior in the commercial or policy arenas is of subordinate interest and importance. Prescription is seen as the domain of the consultant. Despite consultancy being one of the largest employers of business and management school graduates, the term has a pejorative connotation to many academics. Consultancy advice is often excoriated by scholars as atheoretic, non rigorous and fashion driven, although there exists some recent evidence of a change in heart as so-called researcher/user 'engagement' assumes a greater academic salience (Van de Ven, 2007).

If scholars' ability and desire to influence commercial organizations is seen as limited, the impact of social sciences research on policy formation and execution is perhaps even more parlous.

[2] The draft was written before the announcement in December (2008 of the Bernard Madoff pyramid selling scandal at an alleged cost of $50 billion losses to investors in his funds.

Rynes and Shapiro (2005) lament that the accumulated knowledge of management and organizational behavior professors appears to have had negligible influence on the US government in its addressing of the major organizational and political challenges of the day. This belief of the general failure of theoretical and empirical scholarship to influence government's perspective or actions is lamented by several other authors (Abrahamson and Eisenman, 2001; Bazerman, 2005, Pfeffer, 1998). Perhaps, the most obvious exception to this iron rule of irrelevance can be seen in the influential role that economists have played and continue to play in both commercial and public policy debates. This is despite the assertion by many critics of economics' policy hegemony that economic theory has consistently proven to be systematically wrong (Bazerman, 2005:25). Where economists have appeared to be more consistently successful than other social scientists is in their engagement with both public and private practitioner constituencies, and in their ability to communicate using an institutionally accepted (if not widely understood) language and vocabulary (Ferraro, Pfeffer and Sutton, 2005). More critically, according to Bazerman (op. cit.), the influence of economists is founded on their ability and willingness to offer *prescriptive* advice and detailed analytical recommendation to practitioners. In so doing, economists have arguably communicated and worked with the subjects and users of their research in a more widely and deeply integrated manner that perhaps any other discipline in the social sciences.

In the increasingly global, inter-related (and thus volatile) policy and commercial environments of the twenty first century, Abrahamson and Eisenman (2001) suggest that academics have to redefine themselves as knowledge entrepreneurs if they do not wish to see themselves as marginalized in what these authors believe is an increasingly commoditized knowledge market. This extreme interpretation would ironically seem to place academic researchers firmly in the domain of consultants similarly obliged to hustle in order to find research opportunities in a world of competing experts. We find this suggestion implausible if for no other reason than that much top quality academic research is not a commodity (unlike much consultancy) but is highly branded and personalized in both its form and delivery.[3] However, the question of a sensible balance between the creation of intellectual value and its practical application remains. The policy actions of government are hugely material both in their direct and indirect impact on all citizens as well as in the considerable resources they consume. Academic researchers largely funded by public taxes cannot easily ignore either their actual cost or their potential contribution to society. Greater engagement with the policy process may well provide value to research producers and consumers alike. It is on this optimistic premise that this paper has been written.

THE TWELVE MEDITATIONS

The following twelve meditations are a personal reflection. They are both a summary and a critique of popular government actions in the field of entrepreneurial finance. In the area of early-stage entrepreneurial finance, government activity is increasingly becoming the main driver of new forms of financial provision to start-up and young firms (Jääskeläinen, Maula and Murray, 2007). Here an important clarification is necessary. In our examples and references, we are not describing a form of finance available and relevant to the great majority of small and medium

[3] Clearly, many large consultancies would also see themselves as branded providers of expert advice. However, the primary focus on the named individual producer and the subordination of the profit motive in mainstream academe to the public enhancement of knowledge makes the two activities profoundly different in practice.

sized enterprises (SMEs) that have few ambitions for growth. Rather, we are talking about forms of equity finance (i.e. risk capital) which are appropriate to that exceptional and small minority of new and young businesses, often termed Gazelles , that are very strongly growth focused (Acs et al., 2008; Autio, 2008).

Insert table 1 here

Each of the twelve meditations seeks to illuminate a particular area of public private activity and its related policy actions and consequences. They are presented as a set of statements that are testable, and thus potentially of academic credibility:

1. **Government Innovation & Finance policy makers fit into two camps. They either believe in Charles Darwin or the Book of Genesis. In reality, most prefer the Creation Story**

The state as Creationist

In 1996, a report commissioned by the Industry R&D Board of the Australian Commonwealth government suggested that Australia should consider an 'equity enhancement' program (similar to that employed in the Small Business Investment Companies Act in the USA) in order to stimulate an increased investment of early-stage, risk capital into technology based young firms. The report's author suggested that Australia had an hour glass problem (Murray, 1996a), i.e. a systemic constraint in the sources of start-up and early-stage growth finance available to high potential young firms. Within 18 months, the Australian Commonwealth government had created the Innovation Investment Fund (IIF) with an initial A$100 million budget. The IIF was designed specifically to address capital rationing in young firms by crafting a supply-side policy instrument which provided private VC funds with public leverage of up to 2:1 (Cumming, 2007). Australian policy makers and legislators acted with impressive speed to address a major concern of economic policy. The logic underpinning the creation of the IIF program was to remove a constriction in the capital market and thus assist the rapid development of an emerging, Australian venture capital industry (Wan, 1989).

This enthusiasm to 'kick start' an Australian venture capital industry, while understandable, took little cognizance of the protracted period and the necessary environmental and institutional preconditions required to form a viable and profitable venture capital industry. American family trusts were doing *proto*-venture capital, equity financings in the 1930s (Gompers, 1994). The first 'classic' VC firm, American Research and Development, incorporating a limited liability partnership legal structure was formed in the USA in 1946 by Professor Doriot (Hsu and Kenney, 2005) aided by significant support from Harvard University. Yet, the US VC industry could only credibly be seen as an autonomous, and mature, asset class by the early 1980s – some *forty* years later (Avnimelech and Teubel, 2004). Similarly, the UK government employing the offices of the Bank of England created the Industrial and Commercial Finance Corporation (ICFC) and the Finance Corporation Industry (FCI) in 1945 as part of Britain's post World War II reconstruction. These two organizations became the forerunner of 3i plc.[4] The ICFC and the FCI were a policy response to the 'equity gap' first identified in Britain by the Macmillan Committee during the

[4] The name 3i – an acronym for Investors in Industry - was given to the merged organization formed from ICFC and FCI in 1983.

Great Depression and then reaffirmed by periodic official government reviews of the financial circumstances of small and medium-sized enterprise finance (Macmillan, 1931; Bolton, 1971; Wilson, 1979). Yet, the UK as the second largest VC industry in the world by the year 2000 was only a significant recipient and user of investment funds for early-stage risk capital investments from the mid 1990s onwards. While there is some evidence that the more recently established national VC industries in developed countries have taken less time to become operational and professionalized – see for example the Finnish VC industry (Maula and Murray, 2003; Jääskeläinen, Maula and Murray, 2007) - the reality remains that the creation of a VC industry in even the most conducive legal, economic and technological environments is the product of decades of incremental and evolutionary change compatible with the wider commercial and political environments.

Management scholars have long recognized the necessary precursors to effective strategic action at the level of the firm, industry or economy. Diffusion models, industry life cycles and stage theories of development, while often challenged (see for example, Rogers, 2003, Klepper, 1997), do acknowledge the time and cultural dimensions required for material change (Tushman and Anderson, 1986; McDougall et al., 1994). Similarly, advocates of 'resource based theories of the firm' indirectly recognize that knowledge resources and particularly tacit competencies are not easily or speedily acquired (Kay, 1993). Above all, economic historians have counseled us as to the slow pace and long gestation of *real* industrial change (North, 2005, Clark, 2007).

Yet, political imperatives demand rapid action with the creation of immediately (and preferably novel) policies and programs. Civil servants are often obliged to be complicit in such haste. Policy horizons do not easily extend beyond the interstices between elections in a democratic state which has now become the dominant form of political organization. Thus, publicly financed incentives are set up to encourage initiative and to remove the inertia of limited activity by the targeted constituencies. The result is often the emergence of national VC industries and related programs that have solely domestic relevance, attract little institutional finance from foreign investors, and are heavily dependent on public support for both investment funds and operational costs. This reality is currently being ignored in a host of emerging countries across the world as they seek to emulate advanced Western economies by the promotion of *de novo* venture capital industries.

2. Market failure is what happens when you don't give me money; and a rational, objective and rigorous economic analysis is what has happened when I don't give you money.

The state as apologist

Technically, a 'market failure' exists when the price established in the market does not equal the marginal social benefit of a good and thereby results in an under supply from producers. Market failures occur for four main reasons: the abuse of market power resulting in imperfect competition; markets ignoring the impact of economic activity on those outside the market; when markets attempt to provide many types of public goods; and the presence of asymmetric information or uncertainty confounding optimal decisions. Early-stage equity finance in unproven young firms seeking to commercialize novel technologies in nascent or immature markets potentially can give rise to several types of market failure. For example, when the market does

not provide sufficient finance to meet the demands of young firms regardless of their willingness to pay the price (interest payment, collateral guarantee etc.) required. Asymmetric information increases the uncertainty and risks for providers of capital, many of which would rather leave the market than provide finance under these unknown (and unknowable) conditions. The absence of finance means that existing companies fail through lack of access to necessary resources or growth is restricted and new companies are not formed.[5] Each of these outcomes may represent a significant social and economic cost to society.

It can be taken as a *sine qua non* that governments in free market economies would prefer *not* to intervene in financial markets unless there is clear evidence of a market failure leading to a serious misallocation of resources. Further, governments have to be convinced that their actions will effectively address the identified problem at an acceptable level of public costs. Thus, governments (and the appropriate competition authorities) need to be convinced both that a market failure exists and that it should be addressed. The fact that many financial institutions are loath to finance young firms is not *per se* evidence of a market failure. Indeed, if the young firms are highly risky and the expected return of any external investment does not provide an acceptable risk-adjusted return to investors, then the commercial decision to deny finance is unquestionably rational regardless of any social benefits forgone. Those arguing the case for intervention have to demonstrate that there are specific and resolvable circumstances that prevent capital markets from acting efficiently and finding an equilibrium price at which the market clears. In short, given the robustness with which many markets work despite wilful public attempts at intervention, the onus of proof should be on those critics that argue that the market is not working.[6]

Absence of information leading to the decision not to offer finance at any price would constitute a market failure, which could justify some form of government intervention. Perverse incentives that bias the normal matching of supply and demand would also constitute a market failure. For example, loan guarantees may, on occasion, have this effect on the actions of both capital providers and users (Riding and Haines, 2001). There is a substantial literature on the interests and actions of the key actors in the venture capital process and the effect of their behaviour on the optimal allocation of finance to potentially attractive young businesses.[7] This literature centers on a treatment of the genesis, effect and management of agency costs as faced by the providers of capital (limited partners), the users of capital (portfolio firms) and the allocating intermediary agents (the venture capitalists or general partners). The effect of moral hazard issues on the behavior of actors in this market is central to these arguments (Burgemann and Hege, 1998). That an agent can act in a manner which adversely affects the supply or demand of capital, is in part based on the absence of full and equal information available to all the parties to the transaction, i.e. the information asymmetry problem. Thus, the actions of government, in addition to providing more capital from public resources, also focus on correcting the causes of market failure in order that public interventions in private markets remain effective and temporary. For example, the popular promotion and subsidization of Business Angel Networks is one means by

[5] This situation is currently occurring in several market economies in Spring 2009 as banks reduce lending in preference for building up their severely depleted balance sheets.
[6] Readers may smile at these comments in the light of the unprecedented chaos in financial markets since the Fall 2008. However, we do not believe that this maelstrom should be taken as the norm and thus seen as the context in which most financial transactions will occur over time.
[7] For a review of this literature, see Gompers and Lerner (2005).

which several governments seek to address a continuing information gap in the immature, informal investor markets (Mason and Harrison, 1997).

Thus, the case for public intervention is largely predicated on the belief that some correctable inefficiencies exists in the market's allocation of finance to SMEs. These are seen as particularly harmful to national economic interests (welfare) in the case of high potential/high impact, young, growth oriented firms. Knowledge-based young firms whose assets are largely tacit in nature, e.g. intellectual property rights, are seen as especially vulnerable to constraints in the supply of finance given their modest internal resources and a general inability to attract debt finance at formation and early-stages of growth because of their irregular and immature cash flows (Storey and Tether, 1998). In short, their future value is not fully reflected in a present level of collaterizable assets which are sufficiently attractive to lenders.

That financial markets can discriminate against SMEs is not a new concept. The Macmillan Report (1931) argued that small British firms seeking sums under £250,000 (approximately £7 million at current prices) were discriminated against. Seventy two years later, HM Treasury (2003) in the United Kingdom has argued that a market failure continues to exist at between £250,000 and £1 million with sums under £2 million being still very difficult to access. The assumption that capital market failures exist for young firms is virtually taken as a given in government policy documents at both national and international levels including the European Commission, the OECD and the World Bank.

Yet, contemporary national studies of SMEs' business environments find it is only in exceptional cases that small and medium-sized firms (including high potential young firms) are repeatedly denied access to finance. In the UK Small Business Survey conducted by academic researchers on behalf of the UK government's Department of Business, Enterprise and Regulatory Reform (BERR), only 17% of firms interviewed between 2004 and 2007 reported any constraint on access to finance with 12% receiving an outright refusal. Being a 'growth oriented firms' was not seen as a significant variable in any refusal to access finance (Cosh, Hughes, Bullock and Milner, 2008). Similarly, Maula and Murray (2003) using Finnish data also noted that only 6-7% of fast-growth SMEs were observed to have any problem with access to finance. These figures would suggest that it would be more sensible to have the statement 'no evidence of market failure exists' as the Null Hypothesis, at least in countries with well-developed financial markets. Yet, the actual policy reality is that the existence of a market failure is commonly taken as a given 'fact' in several advanced industrialized economies. All too often government policy documents repeat the term market failure with little acknowledgement to the paucity of research evidence supporting such a strong assertion. In reality, the research evidence is that many studies purporting to investigate this phenomenon are skeptical as to the generic existence or material effect of a SME 'financing gap', although disentangling supply and demand factors in determining whether such a gap exists can be technically challenging (Berger and Udell, 2006).

This is not to suggest that market failure does not or cannot exist. Indeed, there are structural circumstances that suggest it is uneconomic for VC firms to provide small tranches of money to young firms (Murray and Marriott, 1998; European Commission, 2005). Many VC firms in the membership of the British Venture Capital Association (BVCA), no longer wish to offer

applicant investee firms sums of money under a minimum of £5 million.[8] However, this debate on the minimum scale of VC investment masks the fact that many firms seeking finance *are not attractive enough* to professional investors in an asset class where the risk reward ratio has persistently acted against the interests of investors. The concept of 'market readiness' is only just coming into policy fashion. This approach reappraises the market for SME finance from a demand-side perspective. It seeks to answer the conundrum that many SMEs argue that access to finance is extraordinarily difficult while at the same time venture capitalists state with equal conviction that they have more money than opportunities in which to invest (Queen, 2002)

3. **The rest of the world is not America. We can borrow but ultimately we have to find our own solutions**

The state as groupie

The USA with the largest and most established VC industry[9] in the world is the single benchmark against which all other VC industries are compared (European Commission and US Department of Commerce, 2005). This is sensibly so, as the US has consistently been one of the most profitable VC markets (Rosa, Machado, and Raade, 2006) in addition to having identified and financed some of the world's most outstanding new companies (Gompers and Lerner, 1999). The returns to the US top quartile VC firms have been attractive (and for some investments quite spectacular) and have greatly advantaged both the general partnership's managers and their limited partner investors. This US success is in marked contrast to the disappointing returns that early-stage, classic VC has recorded in the UK, continental Europe and beyond. It appears that the US industry remains exceptional in its greater ability to recognize, nurture and benefit from the investment in early-stage companies across a series of new and disruptive technologies and markets (Murray and Lott, 1992; Dimov and Murray, 2007).

It is thus not remarkable that government A or B may state that official government policy is to emulate as closely as possible the successes of an American exemplar. Yet, this goal is often little more than an aspirational slogan. For example, in the UK, public ambitions have covered creating a Silicon Fen (Cambridge), a Silicon Valley (South Wales) and a Silicon Glen (the Edinburgh Glasgow corridor in Scotland). Further, we have Ireland, Finland, Belgium, New Zealand and a host of other smaller countries each assuming policy targets for VC financing that are based on emulating the actions and history of the (presently) largest economy in the world, with the most successful technology-based corporations and, similarly, the most advanced educational infrastructure in science and technology research. Regardless of the implausibility of such goals (Leslie and Kargon, 1996), they are an abnegation of the peculiar and unique processes by which individual national economies develop. If we ascribe to the logic of 'path dependency', a UK, Brazil, India or China cannot replicate the US experience (Teece, Pisano and Shuen, 1997; Kenney and von Burg, 1999). At best, national policy makers may be able to draw out a number

[8] For example, 3i plc, an extremely successful venture capital firm which was originally formed by the UK government in 1945 specifically to address the problems facing small businesses identified in the Macmillan Report no longer invests in the start-up and early-stage markets. Similarly, Apax Partners, an important early VC funder of start-up firms, in (2003 formally announced that requests for risk capital finance of under £10 million would no longer be considered

[9] Here we define 'classic' venture capital in accord with common practice and exclude private equity investments in mature and established companies particularly Management Buy-Outs.

of generalizable lessons from the US experience. For example, much of the present success of Silicon Valley is based on the foundation of several large companies intimately connected to the defense industry from the 1930s onwards (Saxenian, 1994; Leslie and Kargon, 1996; Page, West and Bamford, 2005). The idea that creating a 'military industrial complex' comparable to the US (and possibly Israel) might be a precondition of a successful VC industry only emphasizes the need to think in terms of peculiar national histories rather than electing to follow blind emulation.[10]

What nations may be able to do is to understand the reasons and precursors for the formation of US systems for the financing of young and novel industries in order to make their own adaptations. Israel has colonized an early-stage VC space very successfully as an *off-shoring* of US technology particularly (but not exclusively) in its civil application of originally military products and services, e.g. encryption and other security software. Similarly, Ireland has historically been highly successful as a low tax European *entrepôt* and destination for foreign corporations wishing to have a trading base within the European Union. Its early-stage VC activity has been strongly oriented around servicing the large community of foreign owned, technology-based corporations resident in Ireland. For Finland, its decision to become an innovation-based, knowledge economy was hugely influenced by the collapse of its Soviet export market in the early 1990s (Sabel and Saxenian, 2008). The need to finance speculative innovative ideas outside traditional financing channels led to Finnish government support for the emergence of a VC industry in the mid 1990s (Maula and Murray, 2003). In the developing world, India created a vibrant VC industry in response to the emergence of the outsourced software services industry (Dossani and Kenney, 2002) while South Africa has struggled to develop VC despite a promising enabling environment (Lingelbach, Murray, and Gilbert, 2008). What unites each of these illustrations is the *uniqueness* of each country's history and the specific circumstances leading to the formation of a national VC industry.

In fact, we would argue that it remains an open question as to whether or not VC is mainly an American innovation that has been diffused and adapted for various other national environments. A credible argument can be made that risk capital is a global phenomenon of several distinct variants and with historical antecedents predating American VC activity. Thus, it may well be that the potential for significant venture or risk capital activity is endemic to several or a majority of societies but that weak institutional environments have inhibited their development when compared to a number of advanced Western economies (La Porta et al., 1998 and 2000).

The question is not whether the USA is an exemplar in VC activities. In reality, the USA is not an exemplar. Rather, a small number of American locations or clusters have sufficient size and centrality to enjoy world scale impact in knowledge-based investment. These include Silicon Valley, Greater Boston and arguably North Carolina, Austin and Seattle. Outside these centers, the USA has little obvious advantage over Europe or other regions. Policy makers should sensibly be asking themselves what are the preconditions for successfully creating an industry based on entrepreneurial risk - and do such preconditions exist in their own economy? Only after meeting these requirements is it credible to start looking at the technical questions of knowledge

[10] To date, only Israel has also been able to harvest a comparable (albeit much smaller) civilian innovation premium from its high defense spending unlike Russia or South Africa.

asset production and scale and scope economies in technology or other product markets in order to ascertain the probabilities of economic survival and success.

4. **If you believe that all men are born equal – don't become a venture capitalist. Socialists make lousy venture capitalists**

The state as wimp

One of the biggest challenges for policy makers in seeking to implement a US model of VC activity is to attempt to introduce a new model of behavior without also importing or recognizing the social and cultural underpinnings of the American model. This model of economic activity relies on market forces as the pre-eminent allocation and signaling mechanisms. Like Darwin's evolutionary theory of natural selection, entrepreneurial markets allow relatively few winners but demand many losers. To operate in this market takes a form of physical and mental toughness that is unusually pre-eminent in the Anglo-Saxon competitive and individualistic culture. Max Weber in 1904 termed this set of enabling characteristics, the Protestant Ethic. It contrasts strongly with a more paternal European social models in which the state is both protector and allocator of publicly owned resources.[11] The US model is meritocratic and elitist. Its citizens have a passion for winning and broadcasting the benefits of success. Of equal importance, Americans appear noteworthy in their more tolerant acceptance of failure as a concomitant and necessary requirement to the celebration of success. This muscular American economic individualism can be compared with, in Hoffstede's (2001) terms, the lower masculinity of, for example, Nordic economies with their preferred emphasis on a societal as opposed to a predominantly individual perspective.

Given that democratic governments usually reflect broadly the cultural norms of their electorates, while similarly many economists theorize in terms of the behavior of the *owners* of assets rather than concentrating on the entrepreneurial *arrangers* of assets (Cantillon, 1755; Say, 1815), it is very easy to misunderstand the environmental preconditions for entrepreneurial behavior. Accordingly, one of many persistent weaknesses in developed, democratic Western governments is their attempts to introduce fairness, equity and balance into the entrepreneurship policy equation. Entrepreneurial action is exceptional in all communities. Entrepreneurs are a small minority in the adult population generally. Even in the USA, only 12% of adults are actively involved in the entrepreneurial process of starting new firms (Bosma, Jones, Autio, and Levie, 2008). For a majority of European countries, 'Total Entrepreneurial Activity'[12] within the national adult population is consistently recorded at less than half of the USA value. Such estimates are stable over several annual surveys. Government incentives that do not discriminate in favor of its more entrepreneurial citizens - which may often be the more educated, the richer or the more foreign – unwittingly trade economic advantage for apparent social equity. An entrepreneurial policy that does not actively discriminate in favor of growing businesses and their owners commanding more and/or better quality assets, including human capital, is at best ineffective and at worst hypocritical.

[11] This question of different styles of capitalism with different roles for the state has assumed enormous importance in the chaotic capital markets of the Fall, (2008. See *The Economist* 4th October (2008 pp45-46.
[12] See the Global Entrepreneurship Monitor (GEM) project at http://www.gemconsortium.org

5. Governments have as much chance of becoming effective venture capitalists as tax collectors have of being loved

The state as loser

If government policy makers on the evidence available believe that the capital markets are imperfect in the supply of finance to SMEs, they have a number of choices. The provision of direct grants is one means by which the state can circumvent the market allocation process by transferring public finance directly to targeted firms on the basis of a set of selection criteria that policy makers believe are appropriate. Criteria employed may include firm size, firm sector, firm location, priority industry sector, R&D intensity, limited collateral etc. Conversely, they can themselves replicate the services supplied by private market principals. In this case, the government itself becomes a venture capital provider and addresses the missing or insufficient supply of services and actions of the private sector funders. A number of countries have set up such commercially focused funds, effectively recruiting investment managers to become public employees. For example, the Finnish Industry Investments, the China Hi-tech Venture Capital Corporation and GIC Special Investments in Singapore are all publicly owned investment funds with significant VC activity. Such activities are direct replications of private VC funds but are normally constrained in their investment focus—at least in developed countries— to that area of the market which is seen as problematic, e.g. seed capital and start-up finance particularly to high-tech ventures.[13] Given that the state is providing a service that private, profit motivated agents have eschewed, usually for reasons of poor fund performance, it is not surprising that such initiatives have often been characterized by high costs and poor returns (Murray, 1998). Public venture capital firms are disadvantaged in competing in an area where professional investment competences are scarce and accordingly highly rewarded in professional labor markets.[14] There is a further agency problem in that while public investment executives may wish to be remunerated in a comparable manner to their private peers, they are not personally at risk from the negative outcome of their poor investment decisions.[15] Thus, public funds are commonly hampered by limited experience and low competence levels as well as by less well aligned managerial incentives.

It is these structural limitations of publicly owned VC funds that have occasioned greater contemporary interest in what are termed 'hybrid' VC funds (OECD, 2004).The genesis of this model is the seminal experiment in the USA of creating Small Business Investment Companies under the auspices of the Small Business Administration. While certainly not free of problems in its execution (Kleiman and Shulman, 1992), the generic characteristics of the SBIC 'equity enhancement' model have now been adopted in a range of modified forms by several other countries (including Australia, Finland, New Zealand and the UK). The central logic of the use of public funds to leverage private investor returns is that it is efficient for the state to use public

[13] When public financed VC funds compete in product area where there are already private providers, the government is vulnerable to charges of 'crowding out' private investors

[14] Corporate Venture units have similar problems to public VC funds in attracting professional investment managers to work in environments where their actions are constrained by non-commercial objectives and their remuneration is influenced by factors outside of their investment record. (Hill et al, (2008)

[15] General partners in a private VC or PE fund are required to also invest a part of their wealth personally in to their fund. GPs' share of the capital gain of the fund is also commonly condition on reaching a 'hurdle' of minimum performance return linked to the cost of capital of the investors in the fund.

finance in order to engineer a range of incentives that encourage private VC firms to work in partnership with the state in promoting greater investment activities in areas of interest to public policy. In order to attract private interest, the state has to create incentives that address the key structural factors that make early-stage investing unattractive to the commercial investor. In essence, inducements have to be engineered that materially rebalance the risk/reward ratio of speculative risk capital investment in start-up and early-stage companies. There are several variants to the hybrid model but essentially the public exchequer becomes directly or indirectly a limited partner in the hybrid fund and provides a substantial proportion of the finance available to the fund and to investments made to the target group of companies. (In the specific case of the SBIC, the government becomes a guarantor or underwriter to the private investors thereby increasing the amount of funding that can be raised from commercial sources at an attractive rate of interest.) Frequently, the state will provide funding on a 2:1 basis as a 'special' investor in the fund as, for example, in the UK's Enterprise Capital Fund scheme or Australia's Industry Investment Fund. In additional, the state will often only require a nominal return in the event of a successful investment. If the investment fails, the state will be a subordinated investor preferentially writing off its own proportion of the monies committed to the portfolio firm or to the aggregate fund.[16]

Recognizing the sensitivity of VC fund returns to 'the time cost of capital', some schemes allow the public LP to invest before private fund money is committed. The state will only seek a repatriation of its own finance when all other private LPs in the fund have first received an agreed share of capital gain contingent on a successful investment. Thus, the private fund gains the benefit of substantial public investment at a lower cost of capital and with the public LP bearing a greater risk of loss in the event of a partial or complete investment failure. This public leverage effect can have a material effect on the performance of the fund. Jääskeläinen et al. (2007) estimate that these asymmetric public/private risks and rewards can increase the terminal, net 'cash to cash' returns (i.e. Internal Rate of Return) to private LPs by up to 8%. However, these authors caution that such engineering of incentives can only work to increase the returns of a hybrid fund that has generated some positive capital gain via its investment decisions.

6. Downside guarantee funds do just that – they guarantee that there will be a downside

The state as sucker

The most attractive incentive to a private investor occurs if the state is prepared to guarantee the level of risk of the investor (LP) by underwriting part or all of the contingent loss of individual portfolio investments made or the aggregate losses of the fund. Guaranteed underwriting of the investments of private agents in order to encourage them to undertake actions desired by the state has a considerable history that long predates its involvement with VC (Irwin, 2007; European Commission, 2001 and 2005). However, guarantees become especially useful in circumstances where there is a high level of unquantifiable uncertainty. For example, the large and subordinated position of the state as a 'special' limited partner in the UK's Regional Venture Capital Funds was necessary before private investors (including the publicly owned international financing agency, the European Investment Fund) were prepared to co-invest in the new program. The

[16] Later public VC schemes in the UK have seen the state negotiate a position as preferred creditor (e.g. Enterprise Capital Fund Scheme) rather than as subordinate investor (e.g. Regional VC Fund Scheme)

terms accepted by the state as a 'special' limited partner included being 'the first investor in and the last out'; a cap on its returns; and, above all, the recipient of first losses. These conditions meant that in effect the state guaranteed the downside of the fund up to the level of its total public investment. Likewise in the United States, the SBA's underwriting of loans taken out by SBICs has the same guarantee effect. Such schemes have also been in evidence in continental Europe with France, Denmark and Germany specifically providing guarantees to private sector risk capital investors (see, for example, WFG, tbg and KfW in Germany, SOFARIS in France and the Equity Guarantee Program in Denmark). In the United States, a number of states have also provided guarantees to support local VC funds, including Oklahoma, Arkansas, Iowa, Ohio, Utah, and Michigan (NASVF, 2006).

The central issue with a guarantee scheme centers on exactly the nature of the incentive to the private investor and the conditions under which it will be triggered. Equity leverage using subordinated state finance has a multiplier effect on the investor's return, amplifying both the rewards and costs of good and bad investments, respectively.[17] In contrast, a guarantee gives no incentive for the general partner to make good investments but reduces the cost to the limited partners of making a poor or ill judged investment. Accordingly, the guarantee blunts the salience of negative market signals by reducing the impact of their consequences (Gilson, 2003). The guarantee can thus allow the creation of a 'moral hazard' whereby the investor does not bear the full commercial consequences of his or her actions. Accordingly, an injudicious but rational investor has an incentive to make riskier investments that would be the case if no underwriting was available given the asymmetric responsibilities.[18] In the authors' opinion, any public scheme that serves to lessen the costs of poor decisions while being neutral to good decisions is problematic. This is especially so when (as noted) public funds or private funds working at the most challenging early-stages of the investment market are likely to have greater problems in attracting the involvement of the most experienced and successful investment managers.

7. Ventures capitalists believe that seed capital is very important – so long as they don't have to provide it

The state as pocket money

In a British Venture Capital Association sponsored survey in 1990, the top twenty venture capitalists in the UK were asked their opinion as to the greatest shortcoming of the industry in its first decade of significant operation (Murray, 1992).[19] The respondents, who included representatives from both 'classic' VC and Private Equity (Management Buy Out) fund managers, were unanimous in their opinions. They cited the inability of the UK to find a means

[17] In the event of a failed investment, the state may still seek a minimum return on its cost of capital. The later ECF funds have this preferential requirement for the state's interests imposed on recipient funds.

[18] Exactly the same criticism is being used to discuss the system of giving bank employees large performance bonuses. Market traders were incentivised to take considerable risks given that they did not bear the full costs of any negative outcomes.

[19] The author arranged for the forthcoming survey to be announced in *the Financial Times*. The article stated that the researcher would meet the UK industry's *top* VC investors as identified by the British Venture Capital Association. Accordingly, some forty plus chairman and CEOs of venture capital companies contacted the author requesting that he meet them urgently!

of financing start-up and early-stage, high potential enterprises as successfully as the VC industry in the USA. The dearth of seed funding was particularly noted. This situation remains similar, and arguably worse, nearly twenty years later. Seed and other early-stage capital has remained a chronically unsuccessful investment focus outside the possible exceptions of East and West Coast America. Targeted primarily at technology-based new enterprises with products yet to be commercialized, seed capital investment combines multiple uncertainties from technology, market and managerial sources. In addition, seed investing is particularly unattractive for VC investors in that it demands very considerable managerial input from the general partnership of the VC firm into the fledgling enterprises while at the same time employing very little capital from the funds under management.

Accordingly, the European VC model with its concentration of small, *specialist* early-stage funds has been characterized by very low returns and several failed funds. This has resulted in an exit of commercial focused VC firms from this market. Consequently, seed, start-up and early-stage financing is now an area of the risk capital market where public funded VC firms predominate (Small Business Service, 2006b; Pierrakis and Mason, 2008). An earlier evaluation of the European Commission's European Seed Capital Pilot Program showed that one quarter of the 21 country funds surveyed would have become insolvent within three years - even without making an investment - given the very high start-up and transactions costs in relation to the funds under management (Murray, 1998). Classic VC funds in the UK have addressed this challenging asymmetry between the (high) management costs incurred and the (low) returns generated from exits and fee income from the modest funds managed by either abandoning seed activity or by increasing funds under management and refocusing activities on later stage growth and development capital investments. A number of general partnerships have reallocated their efforts entirely from venture capital to private equity deals. Nor is this situation unique to the UK. The FII program in Finland was sanctioned for being set up to undertake early-stage investments while in practice concentrating its resources in private equity deals (Maula and Murray, 2003). Similarly, in an emerging economy context, South African private equity funds that have established VC funds in the past are now scaling back or abandoning those efforts for much the same reasons (Lingelbach et al., 2008).

The US model of seed investing implicitly recognizes that seed capital is, in isolation, not a viable commercial product, at least not when delivered by a VC fund. Rather, it is the first, 'intelligence seeking' stage of a holistic investment process that will normally provide multiple rounds of follow-on finance to successful firms up to an exit event via either an IPO or a trade sale. Accordingly, US VC firms undertaking seed capital are multi-stage investors and are commonly managing funds of over one billion US dollars. By such means, the strategically important but extraordinarily high risk/return ratio of seed capital deals are attenuated in being amortized across the total range of activities of the fund (Dimov and Murray, 2007).

8. The archetype venture capitalist has razor sharp teeth, can smell blood at three kilometers, has a paranoid/psychotic need to achieve lucrative deals, reveres capital gain above all things – and likes flower arranging

The state as innocent abroad

In order for the state to work effectively with venture capitalists, policy makers need to understand the *modus operandi* of the private sector organizations and commercial managements with which they wish to collaborate. Without such an understanding of the instrumentality and aggressively meritocratic and professional culture of the risk capital sector there is a high probability that they will not be able to engineer sufficiently attractive incentives to ensure investment professionals' collaboration. Perhaps even more likely, less experienced public departments will devise incentives that are inappropriately generous, thereby diminishing the potential public welfare by the degree of over payment to their private agents.

Venture capitalists have very demanding interests as investors. Ideally, they wish for a very high return with negligible risk. They do not court risk but rather manage it professionally – for a price broadly measured in their significant ownership of the portfolio company's stock. Governments' interest in encouraging VC firms to invest in early-stage activities requires the incentivization of general partners who would otherwise seek to moderate risk by abandoning start-ups and moving toward later stage and more certain investments. Thus, it becomes important to understand the motivations of the private collaborators in order to design incentives that encourage them to meet government's desired outcomes.

In reality, the government will not attract the best venture capitalists to engage in hybrid activities, at least in countries with already-established private equity and venture capital industries. The investment record of such general partnerships ensures that they are well known to institutional investors. Indeed, established VC firms with an upper quartile performance have a waiting list of institutions wishing to be allowed to participate in their next fund raising. Thus, the partnerships available to the state are either VC firms with less enviable track records or, frequently, commercial but untested investment managers anxious to enter the VC/PE market and seeing a government leveraged fund as one means of entry. For such managers, the hybrid fund becomes a 'loose brick' in the wall surrounding the VC/PE community (Prahalad and Hamel, 1990). If such an investment team can be accepted and can subsequently demonstrate a clear competence as professional equity investors, they have the opportunity to raise substantial follow-on funds on the back of their own performance. Thus, publicly supported hybrid funds have become one of the few channels by which new entrants can enter a rapidly maturing VC and PE market.

Governments have belatedly recognized their negotiating power. Recent calls for the design and management of new hybrid funds in the UK's Enterprise Capital Fund scheme (Small Business Service, 2006) were put out to public bidding. The state by employing its own professional advisers was able to undertake due diligence on the investment teams that sought to be part of the scheme. Somewhat ironically, the VC firm applicants were subjected to the same type of scrutiny that they commonly impose on potential investee firms. The UK government through its involvement in a series of new VC fund programs since 1997 has been able to accumulate its own professional competence in both designing and staffing public/private investment funds. With

greater enterprise policy networking, venture focused skills sets are now being disseminated between policy makers from several countries. As the playing field has leveled, venture capitalists now need to understand the nature of the (public) beast as much as the policy makers need to understand their private sector agents.

9. **Kleiner Perkins, Atlas Venture, Apax and Technologie Holdings require their investors to wait ten years for full returns – the Government would prefer to wait one year**

The state as importunate

As noted above, in order to engage successfully with the VC industry and meet its own objectives, the state has had to learn the paradigms and heuristics by which this specialist form of entrepreneurial finance is conducted. These industry practices and routines often evolve for highly pragmatic reasons. Equity funding in a classic VC scenario will follow the well known J Curve (Meyer and Mathonet, 2005) with the cumulative value of the fund being less than the money committed for the first years of the fund's operations. Bürgel (2000) in one of the first forensic studies of VC performance analyzed detailed investment cash flows on a sample of some eighty UK based funds. He demonstrated that funds typically did not start to show a positive net gain in value until around the fifth year of operation. It is because of the long gestation of many young enterprises before demonstrating any significant commercial value (Miller and Friesen, 1984; Agarwal and Audretsch, 2001) that the GPs have to require of limited partners that their investment is locked in for an industry standard (in the US and Europe) of a minimum ten year period.

Yet, the time needed to demonstrate a clear investment performance and the time given to publicly supported funds to provide evidence of such an effect is often out of kilter. The provision of public financing to a private fund raises considerable governance issues. The state rightly wishes to see the positive consequences of its risk bearing actions. Yet, the demands made on such funds for evidence of success or, more vaguely, public value-added are often importunate and made unreasonably early into the investment cycle. Auditing the Present Value of a highly immature portfolio firm is illusory and the industry recommended practice of carrying investments at cost until an independent evaluation event is appropriate given the high uncertainty. It is a source of added pressure on less informed investors that failed investments are much more likely to be realized before investment successes. In the argot of the industry, 'lemons ripen before plums'.

All industries have their peculiar and specific practices and conditions. Again, public investors who are unaware of the heuristics of the industry are unlikely to do other than increase the destructive pressures on early-stage, hybrid fund arrangements.

10. **Specialist users of advanced technological products and services rarely insist that the technology they purchase was conceived, designed and manufactured in a nomadic community of two hundred souls on the north side of a fjord some five hundred miles from the nearest Starbucks**

The state as romantic or holy fool

The state has a constitutional responsibility to protect and nurture all of the diverse communities and groups within its borders. This is in part articulated in a redistributive function that transfers resources from the nation's centers of highest economic activity to regions or communities more remote or otherwise disadvantaged. A significant proportion of total public activity is allocated to these tasks and involves education, training, employment and capital investment activities across a range of public administration offices. At the same time as having a range of social policy actions, the state is also interested in stimulating future economic activity by investing in new innovative and productive capacity both at the research and commercial stages (Small Business Service, 2004). Resources to create new high-tech industries are attractive to all regions in an economy and no more so than for economically depressed regions that have often declined from an illustrious industrial past. Yet, the reality of scale and scope advantages, particularly within networked economies which demonstrate exponential benefits of proximity and growth, is that new investment in technology and other new knowledge assets is likely to be much more fruitful if added incrementally alongside other existing assets in so-called clusters (Porter, 1998).

Thus, policy makers face a conflict between their heads and their hearts. The more effective allocative decision would be to invest in existing areas of research excellence and hope that 'trickle down' development theories actually work. At best, most countries outside the largest ten world economies will only have a very small number, if any, of centers of genuinely world class technology-based activity. In reality, few policy makers will be left to make such important decisions without political sanction. The political process rightly must assume responsibility for redistributive actions regardless of technical optimization. In an ideal world, the stage is set for an informed debate over priorities, means and ends. The reality is often quite different.

Much of regional policy is more accurately understood as a social transfer masquerading as an investment in innovative capacity. This is beautifully articulated by one policy maker who said to one of the authors: I know that the fund has been created for early-stage technology investments but with a little money and patience this could once again be a first class television factory. The statement has the charm of truth. Essentially public money allocated for equity investments in new technology applications was to be diverted in order to sustain the operations of an uncompetitive factory producing a commodity product in a remote region of a highly developed Western economy. The region was also the home territory of a powerful, ruling party politician anxious not to see a major increase in local unemployment if the factory closed down. Here, an innovation policy program provided a convenient 'pork barrel'.

Publicly supported venture capital funds have been particularly vulnerable to being hijacked by social and regional interests. Venture capital is 'politically sexy' and smacks of modernity, highly educated and well paid work forces, clean industries and warm images of California. As a result, the less economically developed regions of most advanced Western economies (and some developing countries) are littered with small early-stage VC funds with weak managements,

weaker balance sheets and negligible deal flow. They commonly do not survive beyond the exhaustion of the public subsidy. (Such funds for obvious reasons are rarely in receipt of genuine 'matched' private financing.) They are the outward manifestation of policies that have uncritically seen the link between venture capital and innovation as causal and sufficient. The overlaying of a European economic development, investment infrastructure through the European Commission can add another layer of opportunity and some times policy confusion for European states. Indeed, the rules of much European development funds activity proscribes placing finance into areas which are not officially classified as economically disadvantaged. The term 'disadvantaged' can often be translated as meaning regions that have neither the supply nor the quality of universities, research laboratories, large and small technology businesses, knowledge workers or managerial manpower. Yet each of these resources is required for the construction and execution an innovation policy able to be assisted by venture capital activity. Thus, the very places that can use this funding least efficiently are often the places most likely to be in receipt of this form of financing. Hans Christian Anderson was prescient. It is not just kings that do not have new clothes. Regions can be equally naked.

In explaining the misallocation of innovation funding and entrepreneurial finance activities into social programs, we are *not* suggesting that poor or less advantaged regions are left in a virtual laager of poverty and deprivation. In a decent and democratic society such discrimination should be unacceptable. What we are suggesting is that to suborn a specific set of (innovation) policy instruments in order to engage in separate (social) policy actions is likely to be suboptimal for both innovation and social policy, irrespective of the criteria employed. Frequently, the objective of local public servants is to maximize inward transfers of public monies regardless of the opportunity cost of their allocation. Thus, in the case of a VC initiative, antecedent questions determining the quality and volume of technological opportunities sufficient to sustain a fund structure with a reasonable probability of attractive returns are rarely asked. The criteria and operational conditions of public schemes can work to frustrate the goals they seek to achieve. A worst case scenario in such policy making may occur if a primary reason for the local establishment of such a fund is national/regional pride, i.e. *region X has one and they are certainly no better than us!* In these rather common circumstances, public attempts to subsidize the emergence of a local VC industry via the financing of a number of small stand-alone funds can result in little more than the temporary creation of a status symbol or policy 'fashion accessory'.

11. **The good thing about evaluating seed and incubator funds on the cost of capital (IRR) to the government is that it is relatively unambiguous, clear and simple. The bad thing is that such a method of evaluation is completely inappropriate.**

The state as irrational rationalist

Venture capital has become in the last twenty years a new 'asset class' primarily available for institutional investors that wish to introduce a further level of diversity and variance into their core portfolios of equities, bonds and other alternative investments (see the industry promotional literature of the NVCA, BVCA, EVCA). Early investors into upper quartile VC and private equity funds have seen highly attractive long term returns (Rosa and Raade, 2006). A core requirement of an asset class is sufficiently long term and credible quantitative metrics in order that professional investors and actuaries may be able to construct mixed instrument portfolios of

desired risk/return trade-offs. The very nature of a typically 10 year, fixed term VC fund is such that performance metrics are not instantly available compared to a traded public stock. However, over the investment cycle investors can gain an increasingly accurate representation of terminal fund performance from year five and beyond (Bürgel, 2000). Internal Rate of Return and capital gain multiples are the two most common measurements of VC fund performance (Fenn et al., 1995; Gompers and Lerner, 1999). Such measures which reflect the opportunity costs of investment allocations are entirely appropriate for commercial investors in their assessment of the effectiveness of the general partners of their funds. Over time, standardized investment guidelines imposed by VC and PE national associations on their members have reduced the idiosyncrasies and occasionally misinformation of GPs' performance reporting to institutional investors (LPs).

It is entirely reasonable that early-stage funds confirm to industry practice in their reporting procedures. However, when such funds are public/private hybrids, the information provided only allows for a strictly economic or commercial evaluation. While this is of pre-eminent importance to the private partners in such a relationship, it is only of partial value to the public investor. It needs to be remembered that most public limited partners agree subordinated returns in order to ensure the necessary leverage incentives to their private co-investors in the fund. For the public investor, often requiring a base return determined by the cost of the state's capital, a commercially attractive return is important only in ensuring the continued participation of the private partners. The objective of their public support of the hybrid fund is in the long run, public welfare returns contingent on the new investment activity. Thus, the state is primarily interested in creating an infrastructure and competencies conducive to the accelerated production of new knowledge assets and, critically, their effective commercial exploitation.

The celebrated Israeli Yozma Program started in 1993 as a public initiative from the Office of the Chief Scientist before being privatized in 1997. It signaled these wider interests by offering, at its formation, to sell the public involvement in the ten new VC funds created by the program back to the participating private investors within the first five years.[20] In essence, the Israeli state acted as a catalyst in promoting the emergence of a VC industry. It then withdrew from a direct commercial involvement when the investment results clearly indicated the commercial viability of investment activities fueled by Israeli intellectual property and publicly supported, advanced research capabilities (Avnimelech et al., 2004). In the USA, the Small Business Administration's SBIC program is arguably the best known, and most emulated, of such state assisted schemes. However, the running of two quite separate SBIC schemes has added some confusion to outsiders. The *debenture* SBIC program, which was created in 1958 and uses the state to facilitate loans to licensed SBICs in order to leverage private capital, has been judged a success (US Small Business Administration, 2003). A second program, the *participating securities* SBICs, started as an experiment in 1994 and was designed to encourage early-stage investments by the SBA investing additional equity directly in the SBICs via a public investment. This latter scheme was terminated in 2004 after the sharp market turndown in technology stocks in the year 2000 left the SBA with a total investment exposure of over $11 billion. A strictly commercial appraisal would be positive to both the Israeli Yozma program and the UK's 3i initiative which was also successfully privatized in 1994. The SBA's debenture SBICs would be seen as commercially positive and the participating securities variant would be judged a commercial failure. Yet, such a

[20] While the Israeli government required a predetermined exit premium, private partners in eight of the ten supported funds bought out the public interest to become exclusively private VC funds.

partial conclusion would greatly underestimate the SBICs' impact on the three of the largest and most successful VC industries in the world. The US and UK programs were materially responsible for training the first national cohort of professional venture capitalists in the post war period up until the early/mid 1980s . Similarly, the Yozma program replicated an advanced risk capital investment infrastructure in Israel in by the late the 1990s. Their impact has been very considerably larger than an exclusive analysis of fund performance would suggest.

However, all too often, the state's efforts are measured against the benchmark of private investor interests. Wider cost benefit analyses incorporating mechanisms that price the externalities and spillovers of the fund's activities. For example, the training of investment managers, the orientation of university research departments to commercial spin-out activities, the construction of a professional SME support network of accountants, lawyers, patent attorneys etc., the dissemination of innovative practices throughout the wider business community are usually remarkable as evaluation criteria because of their general absence outside academic studies. This is not to argue that the performance of the fund is of secondary relevance to the state. A failed fund is likely to produce little of the desired externalities and spillovers noted. However, the investment activity's financial performance is a necessary but insufficient benchmark. Public program evaluations have to address both the advantages and limitations of using market measures in a policy context if they are not to draw erroneous policy conclusions.

12. It is evident that the Institutions of State can change and adapt to meet new ideas and opportunities. After all, the Dark Ages in Europe only lasted five hundred years.

The state as architect not mechanic

One can 'kick start' a motorbike but not a VC industry. It is all too infrequently noted that the evolution of a credible VC industry is measured in decades rather than in single years (see issues of path dependency in Meditation 2). It is also tempting for policy makers to concentrate on the 'tactics' of setting up a new fund without a wider understanding of the necessary 'strategies' that need to be put into place to create an environment compatible with risk capital activity. As noted, a frequent question posed by policy makers is how can one emulate the successes of a US or UK industry. In seeking to answer this question the new institutional economics of North (1990 and 2005) and others is of considerable utility. Institutional writers have recognized, in seeking to define conducive entrepreneurial and investment environments, the critical importance of 'context' and, perhaps above all, of 'the rule of law' (La Porta et al., 1997 and 2000). A growing awareness of the importance of context is also similarly being seen in the field of entrepreneurship research and policy formation (Phan, 2004; Audretsch, Grilo, & Thurik, 2007). To date, entrepreneurship as a subject area has largely been dominated by individual-level and dispositional approaches (Shane, 2004; Shane & Venkataraman, 2000; Sorensen, 2007).[21] Accordingly, the three conditions that Gilson (2003) argues must exist simultaneously if a VC industry is to emerge, i.e. entrepreneurs, funds for investment and an investment vehicle that creates the right incentives, are quite correct. However, they are 'necessary but not sufficient' conditions. Their creation and employment is only possible if institutional precursors allow an environment in which such resources can be mobilized.

[21] We are grateful to Erkko Autio for guidance in discussions on the role of context to Entrepreneurial research.

That the importance of a transparent, open and honest trading environment to entrepreneurial activity might come as a revelation to academics would surprise most high technology entrepreneurs. An abiding concern as to the piracy of their intellectual property by dishonest firms both at home and abroad is one of the single most defining characteristics of the young innovative firm. The need to protect their intellectual assets and the associated economic rents strongly influences how, when and where they announce innovations, set up their businesses, protect their IP, sell their products and services and with whom they will trade and collaborate (Coeurderoy and Murray, 2008). The security provided by the institutional and legal environments to vulnerable young firms has a profound effect on their actions. Without the entrepreneur's confidence in the protection of the firm's valuable and innovative assets via recourse to national institutions that defend individual property rights regardless of the status of the owner (foreigner/citizen, large firm/start-up firm etc.), the economy's credibility is severely undermined.

Pettigrew recently observed that government agencies must focus on both policy and process.[22] The process by which a viable VC industry emerges still remains poorly understood, although recent research has begun to focus on the various motors involved (political, economic and commercial) and their interrelationships (Lingelbach, 2009; Lingelbach, Gilbert, and Murray, 2008). Market-oriented programs to stimulate VC tend to focus both on enabling contexts and incentives that will attract private sector involvement and co-investment.[23] Yet, the relatively small number of sustainable, national VC industries to date and the failure of several efforts to create more examples belie such confidence. Neither governments nor researchers appear to understand adequately the VC emergence process.

DISCUSSIONS AND CONCLUSION

Since starting to write this paper we have witnessed the onset of chaos in the global financial markets. In the face of the cataclysmic events starting in the Fall of 2008, which can for once accurately be described as 'without parallel', it could be argued that the relevance of this paper disappears. The authors also at first entertained a similarly gloomy prognosis. However, on greater reflection, we would argue that our paper is exceptionally timely. We have seen in the unprecedented two weeks of late September/early October 2008, several of the central banks of the world's largest economies purchasing large or controlling shares in several of their major private banks. At virtually a stroke, the growing international market liberalism of the Reagan - Thatcher years, which had continued from the early 1980s to the present day, seems to have stalled and started to reverse. The focus of our paper has been on how the state and the private sector may both learn to live with and gain benefit from each other's participation in the relatively arcane world of early-stage venture capital. A parallel model of public/private co-

[22] Seminar address at the Academy of Management's Annual Conference, Anaheim, California August 2008

[23] The UK government and the Small Business Service post 1997 would be an exemplar of market-oriented policies with a strong co-investment focus. The Regional VC Funds, The Enterprise Capital Funds, the High-Tech Fund and the more socially focused Bridges Fund were each launched with public money for a policy purpose yet managed by a strongly incentivized private sector.

investment is now being played out in the worlds' major financial centers and is underpinning the survival of many banks. Our observations and thoughts - albeit addressing a problem of a more modest scale - can be seen as both timely and relevant.

This paper is not intended to be an anti-government polemic. We do not take an ideological or a political stance. Our interest is purely instrumental. We are interested in the efficacy of government intervention as measured by the promotion of 'desirable' outcomes including, for example, the genesis and growth of new enterprises or the conversion of intellectual property from university laboratory or other sources of innovation into new or better goods and services via the medium of new market entrants. We have no interest in criticizing government efforts to promote early-stage venture capital activity. Rather, we write as interested academic observers committed to fostering a debate on the nature of productive public engagement in entrepreneurship policy. We clearly see a role for venture capital in the innovative process - be it from formal or informal sources. At the earliest stages of investment, we also see a role for the state to be both a supporter of, and an investor in, privately managed risk capital activity.

By design or not, government has become a major player in shaping and stimulating the environment in to which the 'classic' venture capital industry has emerged. We recognize that, in the US, government policy has gone well beyond simply creating a conducive environment for the creation and financing of new enterprise. Indeed, US public policy on enterprise and innovation has been highly interventionist both at federal and state levels (Lazonick, 2008). Similarly, UK investors and entrepreneurs in the second largest VC industry in the world have also benefited directly from purposeful and sustained intervention by the British government (Murray, 2007). The public administrations of both countries have seen the provision of risk capital for innovative young firms via the agency of profits seeking, private organizations as being important and, on occasions, too important to leave to the vagaries of the capital market.

Advocates of state intervention can and do argue the need for public support in order to catalyze the emergence of a new industry. The citing of market failures as a justification for the state's active intervention is often but not always credible. Yet, the harsh reality remains that the emergence of an active and viable early-stage 'classic' VC industry seems to be the exception rather than the rule among the developed economies of the world. This emergence process is not trivial nor has it found to be easily emulated. Even a nascent industry has lots of 'moving parts' and it is embedded in complex market and social processes including simultaneity requirements (Gilson, 2003), diffusion of the VC model (Rogers, 2003), cyclicality (Gompers and Lerner, 2005), and the need for co-production between government investors and fund managers (Lingelbach, Gilbert, and Murray, 2008).

We also share Pettigrew's (2008) concern that government often focuses too much on policy goals and too little on the process by which policy outcomes are realized. Government support for VC is an example of a process of change. Yet, both government and academia have, until recently, given too little thought to what kind of process VC emergence might be and what are the implications for better policy. Instead, reflecting the dominance of economics in VC research, bureaucrats and academics alike have focused their attention on getting the market to work efficiently. While this focus may be necessary, it does not seem to be sufficient especially given the slow pace at which VC as an asset class has grown and internationalized in comparison to other financial innovations of a similar vintage.

A process-oriented research agenda in VC might seek to answer the following general questions:

- What type of process is VC emergence?
- What are the constituent processes of VC emergence?
- How has the process of VC emergence varied by country and over time?
- What are the policy implications of the different ways in which VC has emerged?
- In what ways can government policy accelerate or retard emergence?

Thus, there are several preconditions that appear to have to be met before the state can hope to intervene positively in a nascent or immature market. It must have the resources (including capital, information and technical knowledge) in order that it is able to analyze and negotiate a resolution of present weaknesses in supply and demand. Its intervention must also demonstrably support private market interests in order to realize the necessary actions to improve the effectiveness of the market.

Above all, the state must communicate, and be prepared to justify publicly, the logic of its actions to its commercial partners. It is in its inability to formulate of a consistent, evidence based policy, - including the consequent choices for prescriptive action - that the state is frequently most culpable. As we have tried to demonstrate with our 'twelve meditations' an efficient market is a hard and implacable task master. For a government to become involved as a co-producer with private agents in the provision of risk capital services, it must be as informed and as professional as its commercial peers. Such skills are delegated to others by public servants at their peril. The state's social goals can only be reached by first achieving its partners' commercial objectives.

Early-stage venture capital activity remains one of the most intellectually and practicably demanding areas of investment finance. Many governments are novitiates in these activities and presently remain bereft of enlightenment. The Buddhist master will remind his students regularly that at the centre of the eight-spoked 'wheel of life' or Dharmachakra, lie three symbolic creatures. These are the pig, the snake and the cockerel. This last symbol specifically exists to impress Buddha's followers of the evil to mankind of ignorance. We would issue a similar reminder to policy makers.

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Figure 1: Generic Public-Private 'Hybrid' Early-Stage Venture Capital Fund Structure

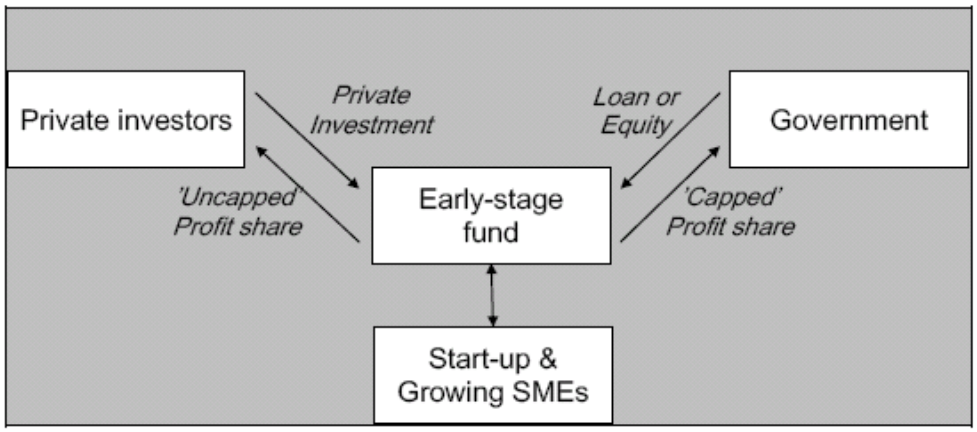

Table 1. Examples of Profit Distribution Structures in Government Supported 'Hybrid' VC Funds

Feature	Description	Profit distribution effects	Examples (present and past)	Category based on effects on profit distribution
Public investor co-investing with private investors	Government matching the investments made by private investors	Helps in setting up a fund. Also helps to build a sufficiently big fund to benefit from economies of scale. Investing in *pari passu* with private investors does not have direct profit distribution effects	Public participation: <50% of the fund: Europe/EIF Finland/FII Israel/Yozma; >50% of the fund: Australia/IIF and Pre-seed Fund USA/SBIC and SSBIC UK/regional venture capital funds	*Pari passu*
Timing of cash flows	Ordering of the cash flows so that the public investor puts the money in first and gets the money out last	The IRR of the private LP can be enhanced through timing of cash flows improving the attractiveness of the fund	UK/regional venture capital funds	Distribution structure 1: Differential timing of the investment of public and private investors
Public participation as a loan	Government provides its share of capital as an interest bearing loan	The loan with interest creates a leverage effect on the return of private investor when the returns from the fund exceed the interest rate. Correspondingly, losses are increased with low performance	USA/SBIC UK/ECF	Distribution structure 2: Leveraging the returns to private investors with a loan
Capped return for public investors	After all the investors (including the public investor) have received a pre-agreed IRR, the rest of the cash flows are distributed to private investors only	Capped return for the government increases the expected IRR for private investors. This distribution increases the compensation for good performance. This in turn creates a strong incentive for the private investors to incentivise the general partners to make successful investments and add value to the portfolio companies	UK/regional venture capital funds Australia/pre-seed fund Chile/CORFU	Distribution structure 3: Limiting the profits entitlement of the public investor
Buy-out option for private investors.	Private investors are given the option to buy the share of the government at (or until) a specific point of time at a predetermined price (typically nominal price + interest)	The effects on the IRR of the private LP are similar to the "capped return" structure. However, there are two additional benefits: (1) the buy-out option gives both the public and the private LP an opportunity to demonstrate success earlier and more visibly than in the capped return alternative; (2) in the case of success, government gets a quick exit from the fund and can reinvest the money instead of waiting for its returns on fund termination	Israel/Yozma New Zealand/New Zealand venture investment fund	
Downside protection	Government underwrites losses from the portfolio	Downside protection helps support the IRR, when partial loss of invested capital is probable	Germany/WFG Germany/tbg & KfW Denmark/the equity guarantee program	Distribution structure 4: Guarantee of compensation to the private investor for loss of invested capital
Fund operating costs	Government subsidises the management company to cover some of the costs in running the fund	Subsidies create an effect similar to the structure with asymmetric timing of cash flows. Magnitude of the effect depends on the size of subsidy	Europe/European seed capital scheme	Not examined

Source: Jääskeläinen, Maula & Murray, 2007

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