

Government co-financed 'Hybrid' Venture Capital programmes: generalizing developed economy experience and its relevance to emerging nations

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Abstract

Policy makers guiding national enterprise and innovation policies have become increasingly concerned at the lack of venture (risk) capital available to new and early stage entrepreneurial ventures. At the end of the first decade of the 21st Century, the proportion of capital allocated by private, financial institutions to early stage venture capital (VC) has continued to decline to record lows across the advanced Western economies. Similarly, smaller emerging economies (e.g. Poland and the former Soviet satellite countries) have also experienced increased rationing in the supply of private venture capital from either domestic or foreign private investors. Observers rationalise the present trend with reference to the impact of a number of market failures that impede the efficient supply and allocation of risk capital finance. In marked contrast, in the BRIC nations (Brazil, Russia, India, China), foreign investors' interest is running (perhaps imprudently) at record levels. This sometimes 'breakneck' pace of development is occurring in countries where the internal venture capital infrastructure and the wider entrepreneurial and innovation ecosystems commonly remain rudimentary and under-developed.

As a public response to a perceived supply-side market failure, several governments have set up equity co-investment programmes to channel equity finance (VC) to capital constrained but high potential, young enterprises. This paper summarises Western experience in public/private (hybrid) VC programmes, notably in the UK, the USA and Australia. It reflects on the lessons learned from independent academic evaluations in order to produce a set of generic guidelines for policy makers. These guidelines are then used to look briefly at the rapidly emerging VC sectors in both China and Poland where national governments have intervened decisively in an attempt to influence the speed and direction of the domestic VC industry's development. The authors conclude that a 'policy surge' that has financed with significant public funds the rapid genesis of a nascent VC industry is in danger of wasting considerable funds if an equivalent focus and effort is not also applied simultaneously to improving key elements of the entrepreneurial and innovation ecosystems. Given potential disparities between research findings and extant policy actions, we implicitly raise the question of whether or not the governments of rapidly developing nations really can learn from developed nations' experiences.

Keywords: venture capital, hybrid funds, enterprise policy, entrepreneurship, innovation, China, Poland

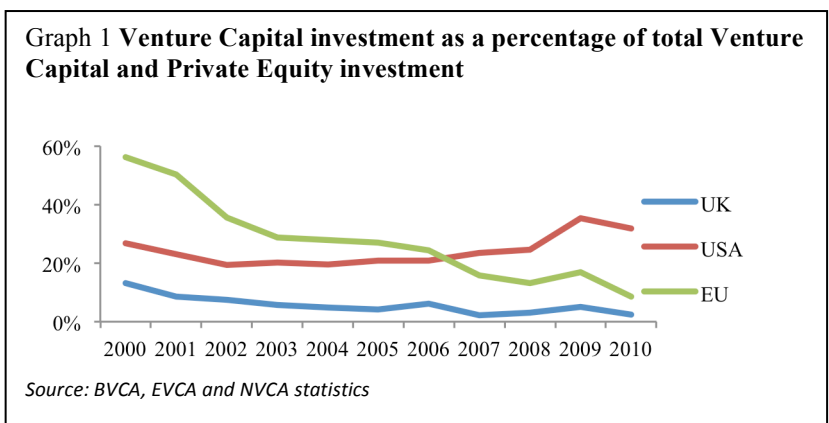
1. Introduction

It is widely recognised that small and medium-sized enterprises (SMEs), especially in 'high-tech' and/or 'new knowledge' based sectors, can have an important effect on innovation and economic growth including job creation (Acs and Audretsch, 1990; Acs, 2006; Audretsch and Keilbach 2004; Braunerhjelm et al, 2010). However, the dynamic and volatile environments in which such enterprises are born and (may) grow present several challenges to early-stage investors. Problems of information asymmetries and adverse selection can result in a supply of privately sourced, investment capital below the social optimum (Berger and Udell, 1998; Hyytinen and Väänänen, 2006). The managerial and investment talent needed by venture capital firms to identify both emerging technologies and to nurture high growth teams are scarce. Further, structural determinants suggest operational diseconomies of both small and large fund scale (Murray and Marriott, 1998; Lerner, Leamon and Hardyman, 2012). As a consequence of these constraints, the disappointing median industry returns to venture capital in the

new millennia has led institutional investors to question the attractiveness of this asset class (Elias, 2011). Since 2000, there has been a long-run drift away from ‘classic’ venture capital with venture capitalists often reluctant to provide seed or start-up, risk capital to high potential young firms (HM Treasury 2003; Cumming et al, 2009; Pierrakis, 2010). Venture capital (VC) has been overwhelming replaced by private equity (PE) investments in buy-outs and other mature company restructurings in the preferences of financial institutions’ ‘alternative asset’ decision makers. Accordingly, policy makers around the world have become increasingly concerned at the dearth of risk capital available to new and early-stage entrepreneurial ventures and its wider impact on national innovation capabilities (European Commission, 2010; OECD, 2010; BIS, 2011).¹

As a public response to this perceived ‘financing gap’, several governments have set up ‘equity enhancement’ programmes to stimulate equity finance to capital constrained but high potential, young enterprises. Such programmes continue to employ private sector VC firms as the commercial conduits through which public support and increased finance is directed (Brander et al., 2010; Jääskeläinen et al., 2007; Nightingale et al., 2009). These vehicles, founded on the seminal model of the USA’s Small Business Administration programme ‘Small Business Investment Companies’ (SBICs), are termed ‘hybrid schemes’ given that they involve a significant participation by the state as a ‘special’ limited partner (LP) or as a public guarantor for a significant proportion of the total funds raised and invested. Critically, after agreeing investment eligibility guidelines, the state delegates full operational autonomy to the general partnership (GP) which is mandated, and incentivised, to achieve commercially attractive investment returns to the investors (LPs).

There has been an increased adoption of these models by several Western governments since the year



2000 when the ‘dot.com collapse’ caused a parallel implosion in venture capital fund raising (Howcroft, 2001; Sohl, 2003). More recently, these so-called ‘equity enhancement’ models have also interested rapidly developing countries wishing to emulate the unique success of the US economy in employing risk capital to promote innovation and enterprise (Seward, 2009).

Yet, despite the importance of this recent policy trend, the level of independent and verifiable information available on VC fund management and its performance has been limited. We know that the returns to VC funds are highly skewed with a small number of funds responsible for the lion’s share of total capital gain². These funds have not only invested but have significantly helped shape both consumer behaviour and the emergence of new industries based on disruptive technological progress, e.g. e-commerce, internet telephony, social networking and on-line gaming.

The corollary of this long right tail is that a much larger number of VC funds have achieved below average returns. Their fund managers have no incentives to broadcast such a reality. Thus, they have little incentive to help in the publication and dissemination of accurate industry performance data. This dearth of data and analysis is also in part structural, i.e. VC funds commonly have fixed (10 year) lives and may take much longer to wind up and produce final net, ‘cash to cash’ returns. Finding a widely acceptable methodology for such investment return calculations is not a trivial task (Burgel 2000; Rosa et al, 2006). Further, the public release of financial information is party to several legal/fiduciary

¹ LONDON, Jan. 30, 2012 /PRNewswire/ -- Venture capitalists put euro 4.4 billion into 1,012 deals for European companies in 2011, a 14% decline in investment and 19% decline in deal flow from 2010, according to Dow Jones VentureSource. This marks the lowest annual deal count for Europe since VentureSource began tracking the region in 2000. (<http://www.prnewswire.com/news-releases/venture-capital-investment-in-europe-fell-14-in-2011-138309569.html>)

² Such top ten percentile funds are well known to the VC industry but are almost impossible to access for new investors.

constraints. The difficulties of accessing *comparative* performance information has also likely been aided and abetted by those majority of VC and PE funds and partnerships which have shown indifferent investor performance (*The Economist* Jan 29 2012, p 67-68).

2. Governments' motivation for involvement in venture capital markets

Although the primary role for governments in developing a functioning venture capital market is considered by venture capital practitioners, as well as many scholars, to be restricted to the creation and maintenance of conducive fiscal and legal environments for VC financing (Armour and Cumming, 2006; Da Rin et al., 2004; Gilson, 2003; Maula and Murray, 2003), there remains a widespread 'belief'³ by many national governments of the necessity for pro-active actions to support the emergence and operation of a national venture capital industry.⁴ Government support for venture capital markets is often motivated and legitimised both by the identification of a perceived 'market failure' or 'financing gap' that is experienced by early stage ventures (Cressy, 2002; OECD, 2006) and by the positive impact potential that venture capital is believed to have a on job creation, innovation, and economic growth (Kortum and Lerner, 2000). Although the evidence in the academic literature on the existence of financing gaps as well as on the effect of venture capital on economic growth is still being debated, there has been nevertheless been a significant growth across several developed countries in government supported programmes targeted at facilitating risk capital investments to new, high potential enterprises.

It is perhaps worth noting here that policy action usually precedes independent analytical confirmation of need. This reinforces the reality that the political necessity for change invariably trumps any deductive intellectual process supporting a change in policy. The case of 'equity gaps' is illustrative of this ranking. Academics continue to debate the existence and scale of equity gaps in the financial markets used by SMEs (Cressy, 1996 and 2002). Despite the ambiguity of research findings, industry and thus government are convinced of their existence and policy has proceeded accordingly.

In order to correct for perceived supply-side failures in domestic VC markets, several countries have set up governmental VC organizations to invest either *directly* in nascent and young ventures or *indirectly* as a limited partner in specialist VC funds focused on young entrepreneurial ventures. Yet, state controlled investment programmes with civil servants identifying and supporting national champions via direct and preferential investment activities is now viewed with considerable circumspection. The practice of government or its employees attempting to 'pick winners' at a firm level has been largely discredited (Avinimelech and Teubal, 2006). Similarly, direct involvement in new venture investment by government agencies carries a material risk of market disruption through the potential misallocation of capital and the consequent danger of 'crowding out' of private investors (Cumming and MacIntosh, 2006).

Accordingly, the involvement of commercially motivated, private sector investors acting as 'agents' on behalf of government 'principals' has now become the predominant *modus operandi*. These 'indirect' public investments are done with the state's involvement being subordinate to the executive and commercial actions of experienced private sector investors including venture capital GPs. These hybrid VC fund programmes explicitly assume the greater efficiency of market driven modes of operation. However, if the public investor wishes to utilise a venture capital GP to channel funds to an area with a perceived market failure, a hybrid structure where the private and public sector investors invest under identical conditions may still remain insufficiently attractive for the private investors.⁵ Such a *pari passu* arrangement does little to alter the unattractive investment returns⁶ that led to the supply-side, market reduction in the first place. Thus, the involvement of the GP and any private sector LPs in the

³ The term 'belief' is used advisedly. Arguments for government involvement are often based on the example of the US. They very rarely include any econometric estimations as to the shortfall of investments or the welfare benefits of proposed programmes.

⁴ E.g. Lerner et al. (2005) state: "It is instructive to observe that all venture capital markets of which we are aware were initiated with government support."

⁵ At best, public money invested *pari passu* can increase the size and scale efficiencies of the fund but at the cost of introducing a (government) limited partner with often widely different interests to the other investors.

⁶ Given the investors' need for significant risk and illiquidity premia in order to provide venture capital.

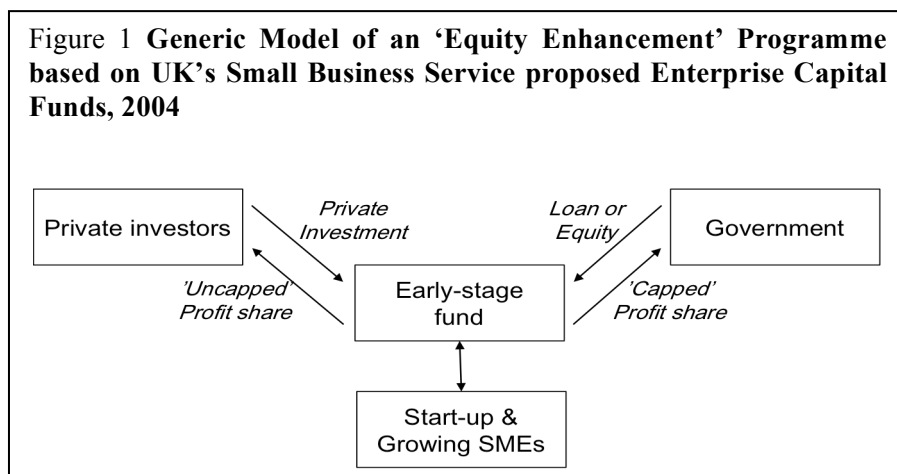
fund will often require the engineering of more attractive profit expectations in order for them to be willing to participate (Avnimelech and Teubal, 2006; Gilson, 2003; Maula and Murray, 2003; Murray and Marriott, 1998). Thus, it is common for the government investor in a Hybrid VC Fund (HVCF) to agree to have their own returns ‘capped’ in favour of a greater distribution to private LPs. (See Appendix 1).

3. Profit distribution structures for the Limited Partners

Given considerable policy experimentation to find effective prescriptions, the structures of the publicly and privately funded hybrid vehicles can vary markedly by country. In discussing the evolution of different profit distribution structures in government’s support of venture capital, it is important to acknowledge that the SBIC scheme has become an important benchmark programme.⁷ This basic model of an ‘equity enhancement’ programme by which the state’s involvement (either by direct investment or acting as a guarantor to other fund raisers) enables additional and cheaper funds to be raised - thereby creating a leverage advantage to private investors has been reflected in programmes world-wide (see Appendix 2). For example, the current activities by the UK government in devising the Enterprise Capital Fund programme to provide growing businesses with individual equity financings up to a £2 million ceiling is a British interpretation of the SBIC model. The state will invest a maximum of £35m in a single fund and the state’s commitment to the fund must not rise above two-thirds of the total value of the fund. (HM Treasury & Small Business Service, 2003; BIS 2012 SME Access to External Finance).

It is important to note that the SBIC has influenced several governments including the UK and Australia in their design of domestic HVCF schemes (e.g. the Enterprise Capital Funds and the Innovation Investment Funds, respectively). This is not to assume that the SBIC was an unparalleled success – which it most certainly was not. However, advocates of ‘equity enhancement’ programmes have adopted the blue-print of the SBIC and then amended it operation to their own needs and priorities.

The model for such ‘hybrid’ VC funds can be shown schematically below.



Essentially the generic model shows the flows to and from the participating parties in a hybrid VC programme including the SME recipients of the risk capital incentivised by the programme. The government uses a range of structures which have the effect of leveraging the consequent investment returns preferentially to

the private LPs which have participated in the fund.

Appendix 1 illustrates the main types of investment structures that have been used to facilitate the development of an early stage, venture capital industry. While the most common structure is one that involves no asymmetric profit distribution between public and private LPs, there are several mechanisms adopted by HVCFs that aim to enhance the expect returns of private LPs by one or more alterations to the distribution of profits, timing of investments, down-side protection, and the payment of fund’s operating costs.

⁷ Over the period 1959 – 2002, the SBIC programme helped raise \$37.7 billion directed to some 90,000 businesses (US Small Business Administration, 2003). The programme represented 8% of total US venture capital dollars and 64% of US seed capital financings in the eight years 1994 to 2002. Importantly, less than \$10 billion of the finance raised came from SBA guaranteed funds (US Small Business Administration, 2003)

One or more investor returns-enhancing mechanisms may be employed including:

- i. *Differential timing of the investment ‘draw downs’ of public and private investors.* The public commitment to the fund is drawn down first, followed by the private funding. This earlier commitment of public funds shortens the duration of the private investors’ investment and thereby increases the private LPs’ internal rate of return.
- ii. *Leveraging the returns to private investors with debt.* Structuring the government participation as a loan creates a leverage effect that increases the private LPs profit when the internal rate of return of the fund exceeds the interest rate on the debt.
- iii. *Capping the profits entitlement of the public investor.* This structure increases the relative share of any surplus that the private investors receive. This is realised by limiting the profits for the public investor. In addition, private investors may be invited to participate in an early buy-out option of the (successful) fund after compensating the public co-investor.⁸
- iv. *Guarantee of compensation to the private investor for loss of invested capital.* A guarantee from the public investor, rarely above 75% of the private investors’ total loss, provides a degree of ‘down-side protection’ by an unequal sharing of the costs of unsuccessful investment outcomes. Such schemes protect rather than reward investors by reducing the penalty of poor decision making. In so doing, they can create a ‘moral hazard’. Guarantees are usually an additional element to a hybrid fund programme agreed by government to give private LPs greater security against adverse outcomes.

4. Compensation structures for the General Partner

Government-assisted venture capital programmes are predominantly designed to encourage additional equity finance for new or young, high potential ventures. While the involvement of private investors increases the available financial resources, their allocation to attractive new ventures requires substantial expertise, industry knowledge and effort by the professional managers (GPs) of these VC funds. Although the investors in a fund can also occasionally act as its manager, e.g. in a bank-owned ‘captive’ VC fund⁹, these roles are typically separated. The venture capital industry is predominantly structured as limited liability partnerships (LLPs). Investors become the limited partners and venture capital managers are the general partners of the fund (Sahlman, 1990). In a typical LLP, the general partner effectively holds complete control over committed funds and the investment process of the partnership. The investors are legally constrained from a direct involvement in the operation of the fund in order to secure preferential tax advantages. Thus, full autonomy over investment activity is given to the GPs despite their typically providing no more than 1% of the fund’s total committed capital (Gilson, 2003; Sahlman, 1990).

While the GP acts as a professional intermediary mitigating the inherent uncertainty, asymmetric information and agency costs that would arise if institutions invested directly in new ventures, the contractually defined, non-involvement role of LPs introduces the same conflicting interests between the general and limited partners. The resulting problems of moral hazard and self-interested behaviour are addressed by *ex ante* contractual measures and by compensation structures that strongly incentivise fund managers to achieve attractive investment returns.

To align the interests of LP and GPs, in a typical fund structure the final compensation of the GP is highly dependent on the commercial success of the fund. The GP typically receives of a 20% share of the net capital gain of the fund. This participation by the GP in the investment returns is known as ‘carried interest’. Before being allowed to participate in any capital distribution, GPs are often contractually required to return the LPs’ total drawn-down capital with usually a minimum agreed level of interest, i.e. the ‘hurdle rate’ (Gompers and Lerner, 1999; Schmidt and Wahrenburg, 2003). Once the hurdle is met, the GP ‘catches up’ the distributed profits of LPs by receiving all of the capital gains until

⁸ The extremely successful Yozma programme in Israel (1993-1998) terminated with eight of the ten HVCFs purchased from government by the private LPs.

⁹ Such captive funds while once a major part of the VC/PE industry are now rare. Often GPs bought out these funds from their corporate owners.

the agreed carry ratio has been reached, e.g. 20:80. In addition to these capital gain incentives, the GP usually receives an annual management fee of approximately 2 - 2½ % of the total committed capital of the fund. This fee is primarily levied to cover the agent's costs in operating the investment activities of the fund. It is not intended by the LPs to be seen as a significant and separate source of profit for the managers.¹⁰

When a government supported, venture capital programme seeks to use private sector fund managers in order to invest in a market area or investment stage with traditionally unattractive (and/or highly uncertain) returns, the GP faces a similar situation to the private sector LPs. If the compensation structure is identical to those of venture capital funds operating at other (later) stages of the investment cycle, the returns to the management partners of a governmental programme are likely to be lower. This is particularly the case given that the targeted early-stage investments frequently employ smaller funds (i.e. lower fee incomes) and yield lower returns (i.e. a smaller 'carry') as found by Murray and Marriott (1998). Thus, the typical private sector structure will not be attractive in these challenging circumstances. If significant changes are not made to skew the risk reward trade-off there is a real danger of the adverse selection of less experienced venture capitalists with lower opportunity costs. Participation in government co-financed VC programmes is one of the very few ways that new GPs can enter the industry. Institutional investors will invariably ignore first time fund managers with no track record. Ironically, recent experience has indicated that if fund sizes also become too large the returns eventually start to decline (The Economist *ibid*; Lerner, Leamon and Hardyman, 2012). One reason for such diseconomies of large scale is that the GPs can receive considerable financial rewards simply based on the annual fee income generated. This contractually fixed income is not dependent on the fund's performance. However, as fund size increases, selection and governance duties rise in complexity if substantial numbers of investments are being made in early-stage enterprises.

5. Hybrid VC Fund Performance

Given the very considerable funds that have been directed towards HVCFs, it is remarkable how few independent and formal programme evaluations are available in the public domain. This may be, in part, because the VC instrument is still relatively new to government and there are few established evaluation methodologies with which government assessors or auditors are familiar. It also remains exceptional for governments to organise both the data collection and an agreed methodology for the formal evaluation of a programme at or near the time of its original introduction. Further, the perennial problem of gaining access to private information on fund performance continues to be material. GPs, as well as public policy makers, are generally loath to assist in any rigorous and independent evaluation where the data and subsequent results do not remain fully under their control. (Recent dismal performances in the VC industry internationally will have exacerbated this tendency to privacy.) Thus, while the venture capital industry is a popular focus for management scholars and academic researchers, the number of high quality evaluations of HVCFs remains very limited. Over the last decade, robust quantitative evaluations of HVCFs have been conducted in Australia (Industry Innovation Funds), Canada (Labour Sponsored Venture Capital Corporation) Finland (Finnish Industry Investments) New Zealand (NZ Venture Investment Funds) and the UK (seven hybrid VC schemes have been assessed including the Regional Venture Capital Funds, The High-tech Fund of Funds and the Enterprise Capital Funds).

Three of the present authors of this Kauffman policy paper have been involved in recent evaluations of both the Australian Industry Innovation Fund (IIF) programme (2009-10) and the UK's seven publicly supported VC programmes (2010-2011). The IIF was started by the commonwealth government in Australia in 1997 and has to date committed some AUD 644 million (including AUD 360.7 million of government finance) in venture capital to young Australian companies via a series of 16 fund partnerships with Australian GPs. It is still operational in 2012 and is on its third round of government

¹⁰ However, the annual fees rates to GPs have appeared remarkably insensitive to the growth of funds under management over time thereby creating a significant source of net income to managers independent of the investment returns generated (Zider, 1998, Gompers and Lerner, 1999).

support.¹¹ In 2009, data were collected on 102 Australian investee firms receiving some AUD 280 million of risk capital. This evaluation was funded by the Commonwealth's Department of Innovation, Industry, Science and Research (DIISR). Outside the USA, the United Kingdom is seen as having nurtured one of the world's most developed venture capital industries. The UK government has a history of fostering early-stage venture capital going back to the end of the Second World War with the creation of ICFC/IFC in 1945 (Coopey and Clarke, 1995). Since 1999, the UK government has designed and co-financed with independent VC general partners seven different, hybrid venture capital programmes to support the early stages of firm formation and growth. These programmes have invested in over 900 UK companies a total equity capital of £378 million. In 2010, the UK government (Department of Business Innovation & Skills) commissioned from the authors an interim economic assessment of the benefits likely to accrue to recipient firms and the state from these VC initiatives. The economic outcomes of firms receiving such finance were compared to 7,315 comparable businesses in a matched sample analysis.

At this stage, full results of the UK or the Australian evaluations are not in the public domain. However, it is fair to note that the respective governments have made a modest, net economic gain from their investment in these programmes. It should be added that these evaluations were conducted over a period of severe recessionary pressures and at a time when median VC returns were negative.¹² As the preliminary conclusions from the UK report note (2011):

“Even with modest assumptions, three schemes were found to have a net benefit to the economy within a few years of businesses receiving their investment. These are, the Enterprise Capital Fund (ECF), the Early Growth Fund (EGF) and a collection of smaller schemes including Aspire and the Bridges Fund. As the end year measured was in a very substantial economic downturn, it is likely that additional benefits lasting beyond this time period will mean that this assessment underestimates the potential benefits from these schemes, and also reduce the costs of other schemes such as Regional Venture Capital Funds.”

Similarly, the Australian report's summary noted (2010):

“The IIF programme was significantly more likely to provide initial and follow-on funding to capital constrained businesses than private sector equity providers. On average, IIF funds provide 1.6 more funding rounds than private sector investors. This public provision helps create a credible funding escalator and allows supported businesses access to investment capital to smooth their transition from start-up to early-stage development. In this sense, government is filling a market gap and there is likely to be little displacement of private sector investment activity, i.e. the intervention is accurately targeted and creates value.”

Both of these major VC programmes have received multi-million dollar assistance from government in addition to the substantial additional finance invested by private LPs. To date, the UK government has invested £338 million and the Australian government AUD 361 million in HVCFs. Both the IIF and the ECFs continue to be centre stage in their respective governments' policies to support the financing of 'young innovative companies'. Policies may have been redirected at the margin (e.g. downgrading regional activity in the UK or relaxing the requirement on recruiting new management teams for new funds in Australia) but they have not been impeded by the findings of two substantial independent evaluations.

6. Transferable learning from the Western Hybrid VC Experience

Several Western governments have now had well over a decade of experience in both designing and executing HVCFs with private sector partners. In the USA, given the introduction of SBICs in 1958, industry and government experience and expertise is considerably greater. However, with the fore-

¹¹ When this round is completed in 2013 the total capital committed under the IIF programme will be at least AUD 844 million with AUD 460.7 million (55%) from the government.

¹² 10 year returns on 1996 vintage years onwards in the UK were -2.5% for venture capital funds (BVCA 2011)

runner organisations of Investors in Industry (which became better known as 3i plc) having been created by the UK government in 1945, British experience on the public promotion of risk capital has credibly the longest and most successful track record of active policy involvement.¹³

Thus, we now have a body of evidence based on both success and failure of hybrid schemes that can allow us to look with increasing precision on the ‘pros and cons’ of contemporary hybrid VC programmes. It is our view that this form of VC organisation can generate the following benefits:

The ‘PROs’ of HVCFs

1. **Follows established VC industry (US & UK) model of Limited Liability Partnerships (LLPs).**
 - This allows private sector managers and their advisers to work with an internationally adopted format where the rules are known and where their contractual controls over portfolio firms, LPs etc. are clearly enumerated. The adoptions of such legal structures are a necessary condition of institutional investor interest.
2. **Funds are managed exclusively by professional investment executives (GPs) who are incentivised to achieve commercially attractive fund returns.** HVCFs model allows government to learn from private sector experience.
 - Governments have learned that VC is not a role for civil servants or other forms of ‘amateur’ investor. Early-stage activity is particularly challenging as the (wide) distribution and (low) median returns to this asset class indicate.
 - The adoption of private GPs also means that under-performing investment teams can be sacked by government if necessary.
3. **Government leverage plus asymmetric rewards to LPs creates incentives for private LPs to invest in early stage.** Asymmetry of rewards also improves the overall share of total returns to private LPs further increasing the incentive.
 - Rather than seeking to get skilled investors to act against their own interests (by investing in areas of poor returns), the effect of leverage and asymmetric distribution is to change the terms of trade in favour of the GPs. Being a ‘zero sum game’ government bears directly the costs of the private investors (LPs and GPs) greater rewards.
 - While improving GPs’ returns, such schemes are only likely to be of interest to new entrants to the VC industry. Incumbent players are more likely to concentrate on later-stage and more profitable/less risky investment activities.
4. **Public incentives also increase size of fund towards optimal operating scale.**
 - Government either invests £ for £ with other investors or may be prepared to be the single biggest investor at the start of the programme (e.g. in both IIF and ECF, the government invested over 50% of total funds raised). This gives the fund greater scale to cover the high establishment and other fixed, transactions costs that any VC fund incurs. It is likely that such economies of small scale are incurred by a stand-alone VC fund until well over \$100 million of funds under management (Murray and Marriot, 1997). Only in the large US VC firms are early stage deals done by funds controlling several hundreds of millions of dollars (Dimov & Murray 2007). The majority of HVCFs manage significantly less than \$100 million per fund.
5. **HVCFs allows government to concentrate efforts/support on the key early-stage focus.**
 - Over time, HVCFs have become a major part of early-stage VC market given the absence/reduction of private fund activity in early stage risk capital. In the UK, public funding represents >60% of total early stage VC (Cowling et al., 2011)

¹³ 3i plc’s forerunners were the result of a major policy investigation, The Macmillan Committee Report, which was published in 1931 and which coined the popular phrase ‘the equity gap’. 3i plc came originally from the creation of ICFC (Industrial and Commercial Financial Corporation) and the FCI (Finance Corporation for Industry) in 1945. 3i plc was floated on the London Stock Market in 1994 and immediately joined the FTSE 100.

- It is likely that GPs and LPs will increasingly defer to government and other investors (e.g. business angels) to assume the responsibility for funding seed and start-up activity other than in exceptional cases.
6. **Greater body of public sector VC fund experience** increasingly available to fine tune programme changes available from an expanding range of international HVCF operations
 - Work by the European Commission, OECD and the World Bank/IMF have each supported a body of informed knowledge as to how such VC funds may be initially structured and operated effectively.
 - Similarly, VC associations are also becoming better informed and more willing to collaborate with government on areas of mutual interest. Here, the British Venture Capital Association can be seen as an exemplar. Its practices have been widely followed including by AVCAL, the Australian VC and PE Industry body.
 7. **HVCFs have become an important component of the ‘funding escalator’ concept** of appropriate and timely finance for SME growth. (Murray et al, 2009; Veugelers, 2011)
 - The funding escalator concept argues the need for appropriate sources of funding for new and growing enterprises at different stages of the growth life cycle. As a number of studies have shown, the escalator is often replaced with a profusion of poorly coordinated funding and support schemes all broadly aimed at a similar target audience of young entrepreneurs and SMEs. However, few programmes are focused in a coherent and integrated manner at firms subsequently at different stages of growth.

Regardless of their merits, HVCFs are, and remain, primarily an instrument of government policy. As such, they will always be vulnerable to changing policy priorities from an incumbent government. Similarly, civil servants will frequently wish to meet several policy goals from a single vehicle. The picking up of extraneous ‘policy baggage’ (e.g. regional equality targets, social goals etc.) can confound the original economic objectives of the programme.

The ‘CONS’ of HVCFs

1. **Government liable to impose non-commercial constraints on goals of HVCFs.**
 - By definition, government intervenes to improve the probability of a desired policy action and goal. Such publicly desired outcomes may be inimical with the private interests of private investors or their managers. However elegant the resolved distribution of benefits may appear is largely the result of crude ‘horse-trading’.
2. **Government involvement in model design starts from a position of inadequate knowledge of VC industry operations.**
 - Accordingly, it is liable to misunderstand/misalign/ignore commercial incentives in the absence of informed industry advice. Government will also remain in danger of being ‘abused’ as a result of its imperfect knowledge in its initial negotiations with an informed and aggressively self-interested VC industry
 - Government remains vulnerable to receiving advice primarily from interested ‘industry practitioners’. Rarely, does government put equal weighting to independent academic research findings in defining new (or augmenting existing) policy directions.
3. **GP selection can be biased in favour of public sector, established interests/partners**, i.e. the poorly contested recruitment of unproven/ineffective public sector managers through established public sector networks
 - Government often falls into the trap of ‘killing two birds with one stone’. Namely, employing the existing staff in public programmes design to allocate finance to enterprise groups. Such staff very rarely have appropriate skill sets and industry experience at the required level of competence.

4. **Government finds itself having to select commercial VC fund managers** with the civil servant decision makers having negligible industry experience of the VC sector or its (and GP candidates') performance metrics.
 - The reality is that high quality, experienced and successful HVCF management teams (GPs) are scarce and extremely difficult to recruit to public programmes in an established industry.
 - A second reality is that the public sector has few means by which it may determine accurately who exactly are successful GP investors.

5. **HVCFs are often created at a sub-optimal, small scale** with, in consequence, a reduced probability of investment successes.
 - Government constraints mean that it has to set up funds within the context of the prevailing budgetary conditions. This often results in VC funds being set up that are too small to survive as a successful commercial entity (Murray and Marriott, 1998)
 - The mistaken belief in the rhetoric of 'fairness' often results in scarce VC funding being spread across a number of regions and sectors thereby diminishing its effectiveness by rationing its access to appropriate recipients.

6. **Supply-side response of HVCFs not matched with demand-side improvements**, i.e. improvement to the quality of entrepreneurial firms seeking finance (aka 'investment readiness').
 - The creation of additional finance via a VC fund is a 'supply-side' response. It makes no acknowledgement that the supply of private funds may be significantly constrained by the lack of attractive investment opportunities for willing investors, i.e. a demand-side problem.
 - Small business interests, and indeed many recipient GPs, have every interest in maintaining that the problem is lack of finance rather than the quality of entrepreneurial talent.

7. **Leverage benefits of HVCFs cannot correct completely for 'adverse selection' problems.** Nor do hybrid schemes address directly the problem of the asymmetry of interests between public and private investors regarding spill-over effects.
 - The incentives provided by government move the supply curve to the right. They do not address or resolve the conflict of interests other than by the contractual commitments imposed on both public and private parties.

8. **Governance and evaluation systems for HVCFs are often absent or inadequate.** Such evaluations that are undertaken are rarely designed and executed by independent professionals. Similarly, few such evaluations are publicly disseminated.¹⁴
 - The design of an appropriate evaluation system requires a technical knowledge of the evaluation techniques required plus an understanding of how they may sensibly be employed within the specific environment of the VC industry. Above all, the evaluators need relevant data to be collected from the launch of the programme. These conditions are rarely met and thus produce a direct and negative effect on the ability to undertake robust and rigorous evaluations.
 - Some government departments appear quite content that such limitations in the ability to conduct independent and robust evaluations continue.

9. **Government seeks rapid evidence of success within political rather than investment time cycles.** The full performance of a VC fund may not be known for more than ten years. Interim indications of VC fund success or failure will normally take at least five years (Burgel, 2000) but little can be guaranteed until all the fund's surviving investments have been fully returned to cash and paid to the LPs.

¹⁴ The transparency of the five Nordic countries, particularly Finland, in their rapid publication of the evaluation of public policy, enterprise and innovation programmes should be noted and celebrated here.

- VC investment cycles are at least double the duration of the time between governmental elections in most democratic nations. Thus, the execution of VC programmes needs cross party support to ensure necessary programme longevity.
10. **Experienced and skilled GPs migrate after first HVCF to larger private VC funds** outside governments' investment areas of interest. Thus, there is a constant drain of skilled managers and GPs from the HVCF programmes.
- However, such trained managers tend to remain in the industry. 3i plc and SBIC programmes each acted as major national sources of industry recruitment and training. These may have been the two programmes greatest and most valuable economic legacy.
11. **Syndication and integration with private VC partnerships remains limited** until HVCFs and their GPs are shown to be commercially attractive and successful.
- GPs running HVCFs will have to earn the respect of their commercial peers before such programmes will be invited to co-invest/syndicate with industry incumbents. The willingness of the VC industry to co-invest with publicly supported funds is a credible measure of a programme's success
12. **Private LPs and GPs retain suspicions that HVCFs are subject to political involvement** and influence which will work against commercial goals. Again, this explains private funds caution in co-investing with public supported funds.
- The default opinion of the VC industry, reflecting its strong free market values, is that government supported programmes will always be tainted by the biases, ulterior motives and/or covert actions of the public paymasters. HVCF managers will have to earn industry credibility and respect by their investment actions. Not all of them will be able or willing to do so.

7. Summary Conclusions on Hybrid VC Funds

Whether or not the case for HVCFs is proven from existing Western experience depends on the criteria against which these programmes are appraised. The preliminary findings of an ongoing UK evaluation (Cowling et al 2011) showed that the seven HVCF schemes have collectively performed at least as well as the average industry returns of UK, European and USA private VC funds over the last decade. Figures for Gross Value Added and the cost of additional employment impact of the investment programmes each allow the schemes to be judged as producing measurable net benefits¹⁵. Likewise, the advent of public support has ensured the continuing existence of an early stage VC sector. Without such support, it is unlikely that early stage VC activity including seed capital would have likely existed in other than a vestigial form outside the informal Business Angel sector (OECD, 2011). Such an absence of start-up and early growth capital would have had very material and negative effects on the ability of several advanced Western countries to engage in both enterprise and innovation programmes.

None the less, it would be unwise to suggest that HVCFs have, as yet, materially changed the economic landscape. While they have improved the entrepreneurial eco-system, their presence may be necessary but is certainly not sufficient for future economic growth. Such public supported, early stage VC funds remain only one of a portfolio of instruments that constitute a modern infrastructure focused on identifying and supporting potentially high growth firms.

The purpose of this paper is to look briefly at how Western experience in HVCFs may help policy makers in emerging nations design and implement effective publicly supported VC programmes. However, we must be mindful of the different contexts of emerging economies. Particularly, the public support of VC activity - while introduced to capture economic and innovation goals - must necessarily take on other objectives not necessarily assumed by Western governments in their own VC

¹⁵ The biggest 'dog' in the UK HVCFs was the Regional Venture Capital Fund programme which produced very poor economic returns and had negligible social impacts.

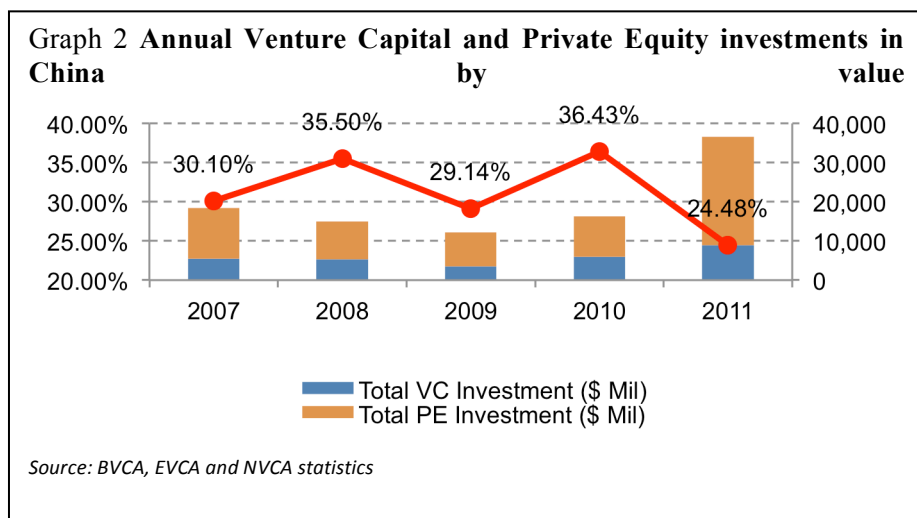
programmes. HVCFs in emerging nations have a major responsibility for providing education and training facilities for would-be VC managers and investors. (both public and private). This responsibility in Western economies with mature and well-developed VC industries is largely assumed by the industry itself via the national VC Association.¹⁶

8. The Application of Western models and experience to emerging economies: Enter the Dragon (China) and the White-tailed Eagle (Poland)

The above analysis can be used to comment on the recent ambitions to set up venture capital industries in both China and Poland. These two countries are chosen as major examples of change in Asia and in the former Soviet satellites of Central Europe. The People’s Republic of China (PRC) is currently pursuing a major programme of publicly co-financed VC funds. It is being advised by the IMF/World Bank on how such a programme might effectively learn from and copy ‘appropriate’ Western experience (World Bank, 2009). Likewise, Poland has an ‘infant’ VC industry which presently remains in an early development stage (Klonowski, 2005) but which the national government wishes to encourage. This Polish goal is supported by European Union programmes and USA investment.

It is the intention of our paper to identify areas of policy design and execution that, in the light of Western experience, may represent a particular challenge (Ahlstrom, Bruton and Yeh, 2007). Where possible, prescriptions and amendments may be suggested if sufficient evidence exists. Further, lessons from poor policy design and delivery mechanisms in advanced Western economies are drawn in order to help avoid replicating failed interventions.

8.1. The People’s Republic of China (PRC)



Private enterprises have experienced dramatic growth over the past thirty years under the ‘reform and opening-up’ policy. The total number of private enterprises in the PRC has grown to nearly 7 million in 2009 despite the global economic recession, which has significantly hampered the growth rate of private enterprises.

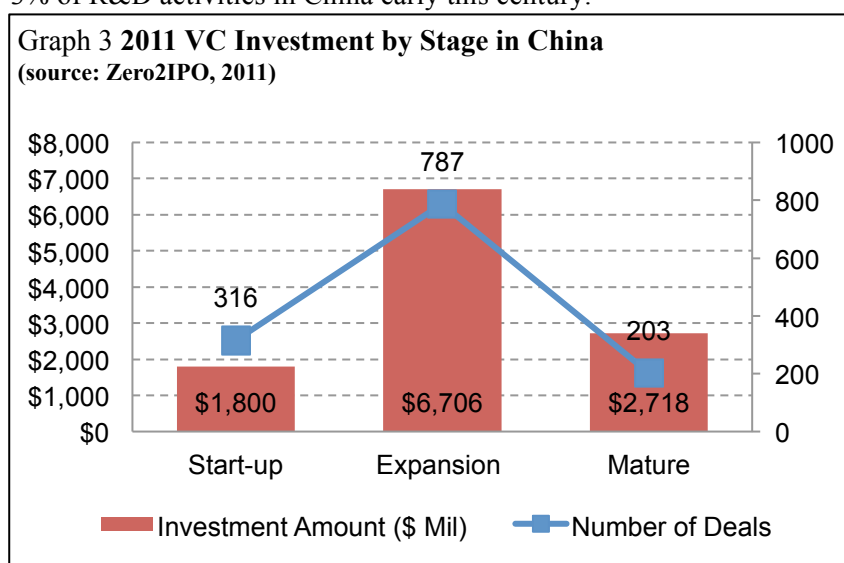
However, such growth is not at present accompanied by a supportive and conducive national institutional environment (Wang et al, 2007; Zhou, 2012). Given the fact that most private enterprises in China are SMEs, this lack of appropriate public support has the potential to become a major barrier to the continued growth of China’s transitional economy and particularly its ability to meet increased employment expectations from its citizens.

The Government of China realised the importance of venture capital in providing risk capital to new and early-stage entrepreneurial firms in mid 1980s. This early awareness shows considerable foresight.

¹⁶ It should be remembered that only a minority of developed economies also have well established VC industries. In the 1990s, venture capital was poorly developed in Australia. The setting up of the IIF in 1997 explicitly stated the development of fund managers with early stage VC experience as a fund selection criterion (Humphery-Jenner, 2012)

Since then, there have been several government initiatives to invest directly in high-tech start-up firms via state-owned VC funds, as well as efforts to establish a venture capital ecosystem from both policy and regulation perspectives. Government-sponsored VC has experienced two stages of development. The first stage involves *direct* government investment into the VC industry. Since the establishment of the first VC company (China VC Company for New Technologies) in 1985, governments at all levels in China have invested directly in VC funds as majority shareholders or directly in start-up high-tech firms.

Public investment mainly comes from three sources: state owned enterprises (SOEs), public service units (PSUs) and national and/or regional governments. Collectively, these sources represent over a third of total VC fund raised in China (Wang, Wang, and Liang, 2007). In this first stage, government-sponsored VC funds tended to target almost exclusively certain sectors (e.g. IT & internet companies). Only in some very rare cases did local governments invest *indirectly* in private sector VC funds to attract more private investment into high-tech firms. Although the VC industry has achieved significant growth during this period with the help of the public sector, venture capital only contributed less than 3% of R&D activities in China early this century.



‘Hybrid’ VC funds where the government co-invests with private sector investors did not appear to be an important policy priority until recently. After the Asia financial crisis of 1997-1998 the PRC realised that SMEs were more resilient to economic downturns than larger firms. It also came to believe that direct investment into the VC industry was not the most efficient way of supporting the growth of SMEs and high-tech young firms. From then on, the Government has

taken initiatives to play a more indirect and supportive role in investing in VC funds. This change is detailed in a document jointly issued by the Ministry of Finance and Ministry of Science and Technology on July 6, 2007: “Interim Measures for the Administration of Guidance Funds for Promoting VC Investments in Small and Medium-Sized Technology Enterprises”. This is the first document that outlines the means by which public and private sectors may co-invest in high-tech SMEs at the start-up stage of their businesses. Facing the challenges that constrain China’s ability to fully realize its potential in developing its innovative industries, the Government has also started to focus on strengthening the entrepreneurial eco-system in order to provide a conducive and supportive environment for the growth of the VC industry. Since 2006, several laws and other legislative refinements have been enacted to reform the structure, funding, management and exit mechanisms of China’s VC industry. For example the creation of ChiNext and several ‘over-the-counter’ share markets national wide have greatly widened exit routes for VC investments. Now around one in three IPO firms chooses to be listed on ChiNext which has raised over \$28 billion of finance for growth firms. At regional levels, provinces and municipalities have also developed preferential policies for start-up businesses and have similarly introduced policies to establish a more supportive business climate for entrepreneurs.

However, the removal of direct public intervention is not without cost. Once the Government has given up direct controls over investee companies, the natural pursuit of economic profit by private GPs has seen HVCFs’ investment targets tilted towards later-stage investments. In case of China, of the 1391 new investments in 2011, 990 were for business expansion and later stages. These private equity type investments constituted over 80 per cent of the total value of all venture investments (Graph 3). This

pattern of investor behaviour in China directly mirrors the actions of LPs in the West over the last decade since 2000 as venture investment has been replaced by private equity activities of management buy-ins and buy-outs (Cumming et al, 2009).

There are currently two major public-private co-investment programmes operated in China, namely: the ‘**Venture Capital Guidance Funds (Guidance Funds)**’ and the ‘**New VC Funds**’.

Guidance Funds

In order to support early-stage venture firms in the PRC, the Chinese Government has set up several Guidance Funds that co-invest with private-sector venture capital funds which specialise in early-stage investments. The Guidance Funds are defined as “policy-oriented investment funds established by the government and commercially managed, whose primary goal is to channel private-sector capital into the entrepreneurial finance market by supporting the development of private venture capital firms.”¹⁷ According to government legislation, there are three prominent features of the Guidance Funds:

1. The Guidance Funds have no specific economic/monetary objectives other than their stated policy objectives. The government will only ask for a minimum return¹⁸ to cover the cost of capital.
2. The Guidance Funds must not directly invest in entrepreneurial firms, i.e. public funds can only participate as LPs.
3. The Guidance Funds co-invest with private funds in commercially viable ways, which means they will not subsidise private VC firms in the form of grants, deduction, downside protection and so on.

The Guidance Funds operate with private investors using a Fund of Funds structure (FoF), where the state provides part of a pool of finance with other private investors. This public and private finance is subsequently allocated by a FoF manager to a number of independent VC funds. The core policy objective of the Guidance Funds is to increase the supply of venture capital finance to early-stage enterprises suffered from market failure by using the leveraging effect of public funds. The primary investment focus of the co-invested VC funds is seed and start-up firms. The sources of public funds include dedicated grants to support VC firms and the VC industry, as well as individual, corporate or institutional commitments.

There are two major channels through which the Guidance Funds invest in a joint public-private VC fund. The first and the most frequently utilised co-investment mode is equity participation (equivalent to the SBIC’s ‘participating securities’ but as a FoF). These funds are typical ‘hybrid’ VC funds in nature, where the government (national or local) participates as a special LP whilst the responsibility for daily operation and investment of the fund are undertaken exclusively by professional investment managers (GPs) who work on a purely commercial basis. The sources of income for the Guidance Funds will be/is presumed to be sourced from the capital gains arising from successful investments. The public and private LPs will share any profit (i.e. net capital gain) based on pre-determined contractual terms. The second means of co-investment is a loan guarantee (equivalent to the SBIC debentures). In this mode, the government contributes to the capital pool in the form of loans and the return to the public exchequer is the interest income from the loan plus the eventual repayment of the loan. Government funds participating as loans will effectively create a leverage effect on the returns of *successful* private investor. However, leverage also means that poor fund performance will also increase the total losses to private investors.¹⁹

Besides a selection preference on targeted sectors (i.e. high-tech and new knowledge-based) and investment stages (i.e. seed, start-up and early stages), other criteria may apply when Guidance Funds choose private VC funds in which to invest. Generally, those criteria fall into the following categories:

¹⁷ National Development and Reform Commission, et al. (2008).

¹⁸ The minimum implicit return is common in most HVCF schemes. Given the risks of early stage VC, government appears delighted to require the most modest of positive return expectations.

¹⁹ In practice, government often assumes a larger percentage of losses than private LPs in unsuccessful funds.

- Fund size: minimum paid-in capital (usually RMB 30–100 million, i.e. \$5-16 million);
- Management team: minimum size, investment experience, track record, international experience, etc.;
- Prior fund performance: above industry average or certain threshold (20% annual IRR);
- Investment horizon of the fund: 10–15 years.

The level of public fund participation varies but generally the percentage of public finance should not exceed 30% of total fund raised. Usually a Guidance Fund must not be in a controlling position in the joint investment fund. The life of a co-invested VC fund is normally 5 to 10 years²⁰, after which the public fund will seek to exit or liquidate its position usually through the sale of its holdings or via share buy-back. The distribution of profit between public and private investors depends on the proportion of public funding and the form of public participation. After paying back the subscribed capital to both public and private investors, the government will receive a return either in the form of interest payment if it participates as loan guarantees, or a share of the profit (*pari passu*) in case of equity participation. Occasionally, other forms of profit distribution are used, such as ‘share buy-back’ options²¹.

Although the first Guidance Fund was established in 1998, the major development of Guidance Funds did not emerge until 2005, when the Chinese Government finally lifted the barrier for such funds to be set up at both ‘national’ and ‘prefecture’ (i.e. city) levels. Since 1998, 31 Guidance Funds have been established with a total capital of RMB 31.9 billion (\$5 billion), or about RMB 1 billion (\$150 million) per fund on average. These funds range in size from RMB 500 million (\$75 million) to RMB 9 billion (\$1.4 billion). The founders of these funds were primarily local governments but some state owned financial institutions have also been founders.

‘New VC Funds’

In 2009, the Chinese Government (Ministry of Finance, MOF and National Development and Reform Commission, NDRC), along with the governments of seven provinces, initiated the New VC Programme. The pilot phase of the Programme involves setting up 20 public-private co-invested VC funds in the selected provinces. The objective of the Programme is to promote the creation and early-stage funding of companies in specific technologies/sectors identified by the Ministry of Science and Technology (MOST) as being strategic to the nation.²²

The most significant difference of the New VC Funds from the Guidance Funds and other public-invested VC funds is the strict sector preference of each fund which is dedicated exclusively to one particular high-tech sector deemed by the state as having strategic importance and good growth potential. This specialisation is in contrast to the more generalist focus of previous publicly supported VC funds across several high-tech industry sectors. On the industry/operational level, the New VC Programme continues to adopt Western models and experience of ‘hybrid’ VC funds especially in isolating government influence from the commercial and operational management of the funds.

So far, the first 20 New VC Funds have raised RMB 1 billion (\$150 million) each from the national and provincial governments. As a prerequisite for public participation, a matching private contribution must be made to the co-invested fund and the ratio of private to public (national and provincial) capital must be 3:2 or higher. As a result, the 20 pilot funds will raise RMB 5–9 billion (\$750 million to \$1.35

²⁰ This is a very (unrealistically) short period if VC funds are investing in seed and start-up companies?

²¹ Private investors have the option to buy back government's share of the VC fund after the 7th year of investment at predetermined price (typically nominal price + interest).

²² These technologies are: information technology, advanced materials, life sciences and clean technology.

billion) in total²³, with the average fund size between RMB 250 – 450 million (\$38 – 68 million). In requiring these conditions, the New VC Funds closely follow contemporary Western practice.

The New VC Programme is still at the initial stage of operation. Therefore, the actual management structure and operating model of the funds in practice remain unclear. Currently, the government has a preference for a Limited Liability Company (LLC) over a Limited Liability Partnership (LLP) structure for the fund management. The government also sets the minimum fund size to be RMB 250 million (\$38 million). The investment horizon of each fund also depends on the vehicle employed to manage the fund. For example, funds managed as LLPs usually have a limited life of 10 to 15 years whilst funds managed as LLCs can have a flexible life or even be without a stated termination date, i.e. ‘evergreen’ funds.

However, there remains a great deal of uncertainty surrounding many aspects of the Programme. For example, it sets no specific economic objectives and there seems to be no limit on deal size. Also, there is limited information on how profit or loss will be distributed between public and private investors, or between investors and fund managers. Western HVCF experience suggests that these issues will be of material importance to the success of the programme.

What is clear is that the PRC has made a very substantial commitment to venture capital activity both in policy and financial terms in the belief that this type of intervention will deliver rates of innovation and economic growth that will sustain the level of new jobs that the newly urbanised population demands. In this regard, China is little different from the majority of advanced Western economies. What is presently rather more uncertain is the level of efficiency by which these HVCFs will be managed or governed.

8.2. The Republic of Poland

The contemporary shape of the venture capital industry in Poland, like China, needs to be understood in an historical perspective. Given Poland’s recent independence as a sovereign state, the industry is relatively young compared to those in the West. Additionally, the foundation for its VC operations were in part established by foreign institutions. In 1989, the Danish Parliament created the ‘Investment Fund for Central and Eastern Europe’ (IØ). Further in 1990, the ‘Polish–American Enterprise Fund’ was established on the initiative of the US Congress. The objective of both programmes was to support economic and social reforms by providing investment funds²⁴. In 1992 the European Bank of Reconstruction and Development (EBRD) along with co-partners set up CARESBAC – Polska, a fund with an objective to invest in medium and small size companies in Poland²⁵. Interestingly, according to Klonowski (2005:337) those initial efforts were not explicitly intended to stimulate the local venture capital industry. Rather, the emergence of a VC industry was an unplanned spill-over.

Throughout the mid and late 1990s, the development of national VC industry in Poland was still strongly influenced by international institutions. The European Bank for Reconstruction and Development (EBRD) and the International Finance Corporation (IFC) financed a significant proportion of Polish funds (i.e. European Renaissance Capital, Central Poland Fund LCC; Environmental Investment Partners, Nova Polonia Equity Fund, Polish Enterprise Fund IV, Technologieholding Central and European Funds, SEAF CCE Growth Fund). Some of the funds were also financed by the European program PHARE-STRUDER operating between 1993 and 1999

²³ This is equivalent to 20 to 30% of all VC raised in China.

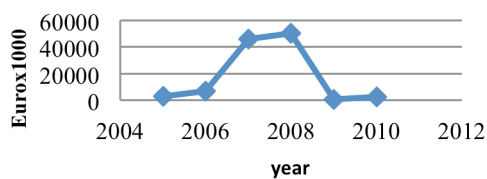
²⁴ <http://www.ioe.dk/Menu/About-IOE/Background/IOE>

²⁵ http://seaf.com/index.php?option=com_content&view=article&id=46&catid=30&Itemid=146&lang=en

(Regionalne Fundusze Inwestycyjne (Łódź) sp. z oo and Regionalne Fundusze Inwestycyjne (Katowice) sp. z oo)²⁶

Given the remit of developing Poland as a market economy, the government started to perceive a domestic venture capital industry as an important part of the national economic system. Venture capital thus became part of the national strategy²⁷. It was a tool to be used to help achieve more advanced goals such as promoting entrepreneurship, building strong local capital markets, and increasing the level of innovation in the economy. High tech/innovative sectors were a priority. While ensuring new firms access to seed and start-up VC funds, the government has also stated that its strategy is limited to actions to activate/encourage private funds and not replace them by public expenditures. Such policy

Graph 4 Annual Venture Capital investments in Poland by value



Source: EVCA statistics

statements clearly reflect the market based VC experiences of Poland's donor nations and organisations.

In 2004 Poland joined the European Union. This opened the door to access of a variety of European structural funds. The two most important forms of assistance from the perspective of financial support for the emergent Polish venture capital

industry were: the Sectoral Operational Programme - Improvement of the Competitiveness of Enterprises, years 2004-2006 (SOP-ICE); and the Operational Programme - Innovative Economy (OP IE 2007-2013).

The Sectoral Operational Programme - Improvement of the Competitiveness of Enterprises, years 2004-2006 (SOP-ICE):

- The priority 'axis 1' focused on creating business environment institutions which could provide high quality business services for enterprises;
- Among other activities, support was given to institutions providing financial services to enterprises, including seed capital.
- The Polish Agency for Enterprise Development (PARP) was designated as the coordinator of the programme.
- The provided support could not exceed 50% of the qualifying costs.

The programme has supported six Polish seed funds which finalized 47 investments worth 105 million PLN (\$43million). This investment activity was expected to last for 5 to 7 years. In the majority of cases, funds completed the forecast number of deals. The high risk associated with the project and the economic crisis of 2008 were indicated by the fund managers as the main reasons for reduced deal flow. Polish entrepreneurs receiving HVCF finance highlighted the improvement in company liquidity, increased turnover and support for growth, as the major benefits of the availability of risk capital. In many cases, equity finance prevented staff redundancy or even bankruptcy in the recipient enterprises. Additionally, these respondents highlighted the general support from the venture capitalists as a major benefit, followed by legal advice, tax advice and overall help in establishing the company (Gajewski & Szczucki, 2009). It is interesting to note from their observations that Polish recipients may well see venture capital primarily as being a form of state or European Commission supported subsidy for vulnerable or ailing small firms. This would be a very different understanding of the role of risk capital compared to a venture capitalist based in Sand Hill Road, California.

²⁶ <http://www.parp.gov.pl/files/74/81/100/venture.pdf>

²⁷ See: Ministry of Finance (2004) Strategia rozwoju rynku kapitałowego 'Agenda Warsaw City 2010'; Ministry of Regional Development, (2006) National Development Strategy 2007-2015.

Indeed Polish entrepreneurs would like to see VC as sort of ‘good uncle with loads of money’ rather than a demanding business partner.

Operational Programme - Innovative Economy (OP IE 2007-2013)

This programme pointed out the need to introduce new instruments supporting the establishment of innovative companies. In the opinion of the Polish government, the low share of innovative companies in the private sector was due to poor financial conditions as well as limited interest in R&D investments. The venture capital funds operating in the Polish market were unwilling to undertake the risk of an early stage project, thus there was a need for public intervention. Again, this argument is based on the conclusion that there is a failure of supply-side actions. It does not address the equally plausible analysis that Polish companies in ‘new knowledge’ sectors are unlikely to be internationally competitive as this stage of Poland’s development.

The priority 3 section of the Programme is designed to provide capital for high potential SMEs, which are characterised by high level of innovation, low book value, high potential, and high risk. Priority 3.1 provides capital for institutions which in the first stage will search and select innovative projects and help to establish new enterprises then later invest in newly established firms. The benefiting institutions are incubators, academic incubators and innovation transfer centres, technology accelerators, and technology parks. The allocated funds are 110 million Euro; the maximum public investment into a new firm has to be less than 50% and not more than 200, 000 Euro in total. Priority 3.2 supports directly high risk funds by allocations from the 180 million Euro, National Capital Fund (KFK) which is discussed in more details below. Priority 3.3 concentrates on supporting the infrastructure for investment into SMEs. It provides 50 million Euro in order to set up and support institutions providing consulting services enhancing cooperation between investors and entrepreneurs (MinisterstwoRozwoju Regionalego, 2009; Ministry of Regional Development, 2007).

The National Capital Funds (KFK)

The National Capital Fund was established by the Polish Government in 2005 and operates as a fund of funds (FoFs). The Bank Gospodarstwa Krajowego holds 100% of the shares. In 2007, the Polish government supplied 53.4 million PLN (\$16.8 million) for investment in venture capital funds. This resulted in signing contracts with two private funds with capitalization of 100 million PLN (\$31.4 million). In 2009, an additional 180 million Euro (\$237.2 million) was supplied to the fund from the European Union Programme followed by 53 million CHF (\$57.9 million.) from the ‘Swiss – Polish Cooperation Programme’.

Name of the fund	Amount invested (PLN/\$) millions	Number of deals
BBI Seed Fund	60 PLN (\$18.9)	6
Helix Ventures Partners	40 PLN (\$12.6)	4
AM Black Lion	100 PLN (\$31.4)	3
Skyline Venture	30 PLN (\$9.4)	1
Internet Ventures	100 PLN (\$31.4)	1
Opera Venture Capital	100 PLN (\$31.4)	0
Aquarium Venture Fund I	100 PLN (\$31.4)	0
Venture Capital Satus	50 PLN (\$15.7)	0
Nomad Fund	40 PLN (\$12.6)	0
GPV I	84 PLN (\$26.4)	0
Innovation Nest	40 PLN (\$12.6)	0

Funds finances by KFK: (<http://www.kfk.org.pl/>; state for 11/01/2012)

KFK invests in funds which concentrate on innovative SMEs registered²⁸ in Poland. The lifespan of a co-financed fund is estimated at 10-12 years and the portfolio firm investment period is assumed to be for 4-5 years. There are several limitations on the portfolio companies. The investments must be in companies at the seed, start-up or expansion phase. The maximum firm investment is Euro 1.5 million There is a possibility of combining both equity and debt

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²⁸ The reference in the legal act (Ustawa z dn. 4.03.2005 o Krajowym Funduszu Kapitałowym Dz.U. 05.57.491) states that the portfolio firms have to operate under Polish tax regulations. Nothing is said about the origins of capital.

financing. However, debt cannot exceed 30% of the investment sum and is treated as additional source of finance. It means it has to follow an initial equity investment.

Preferences are given to private investors in the HVCFs. They are both repaid their principal sum and rewarded with any capital gain before the public LPs. In implementing these investment conditions and processes, KFK is applying operational standards used by the EBRD and the European Investment Fund²⁹.

At the end of 2011, five funds co-financed by KFK have invested into 15 portfolio companies. The aim for the year 2016 is an investment target of 200 portfolio companies. At the current stage, due to its short operation span, it is impossible to comment usefully on the performance of KFK. It might be hoped that KFK will follow, in its actions as well as its declarations, the good practices and standards of its international financial sponsors.

Poland's accession to the European Union in 2004 resulted in the situation where the majority of public money supplied to Polish VC funds came from the structural funds. Present concerns about the functioning of the domestic VC industry seem to be more related to non-financial aspects. Although Poland represents the most developed economy among the transition economies in Central and Eastern Europe, venture capitalists still report significant barriers for effective operation. The legal system is perceived as problematic in respect to venture capital transactions. Legal processes are slow and uncertain. Accordingly, pan European VC funds prefer to use offshore deal structures (Klonowski, 2006a). Although private funds have choice of local or offshore legal structure, funds supported by public money have to operate within the Polish legal domain. This adds to the operational constraints on HVCFs. Another general problem indicated by venture capitalists is the underdeveloped entrepreneurial tradition in Poland. This is a clear legacy of its history within the Soviet hegemony. This contributes to negative behavioural patterns such as neglecting accounting standards, and weak enforcement of the law (Klonowski, 2006b). Additional user criticism refers generally to the organization of government support of SMEs. The bureaucratic character of the programmes as well as the time and resource consuming process of document preparation are especially criticised by Polish entrepreneurs and investors (Klonowski, 2010). Each and every one of these concerns illustrates the presently limited development of the Polish entrepreneurial eco-system compared to advanced economies in Northern Europe and beyond.

In the case of Poland, the legacy of a recent history that has been inimical to a free market process or ideology, cannot be ignored. A transition of ideologies is a huge economic, political and cultural task. This is a reality to which an almost³⁰ unified Germany can clearly attest. Thus, while models from advanced Western economies can be instituted if the will to finance such actions is present, there is little guarantee or prospect of the immediate creation of well-functioning and successful early stage VC operations regardless of a substantial public co-investment.

9. Commonalities between China's and Poland's enterprise policies

Despite very different histories and provenances, China and Poland illustrate clearly a number of generic issues that appear to transcend national contexts. Both countries in the last ten years have recognised a major shortcoming in their economic and development infrastructures. (Arguably, China recognised limitation in areas of innovation much earlier than this date.) They have each moved to create significant policies, backed up by specific legislation, in order to mobilise both public and private money to 'kick start' a VC industry in their respective countries. Both governments have centred on the need to support Young Innovative Companies particularly in key areas (sectors) of science and technology. The financing vehicles are HVCFs via Fund of Funds through VC firms and thus to recipient entrepreneurs, start-ups and growth companies. Criteria borrowed from established VC

²⁹ <http://www.kfk.org.pl/aktualnosci/sppw/prezentacja-ze-spotkania-sesja-pytan-i-odpowiedzi>

³⁰ Income per head for East Germany is still only 70% of West Germany after transfers of \$1.7 trillion since 1990 (see The Economist March 31st 2012, p. 43).

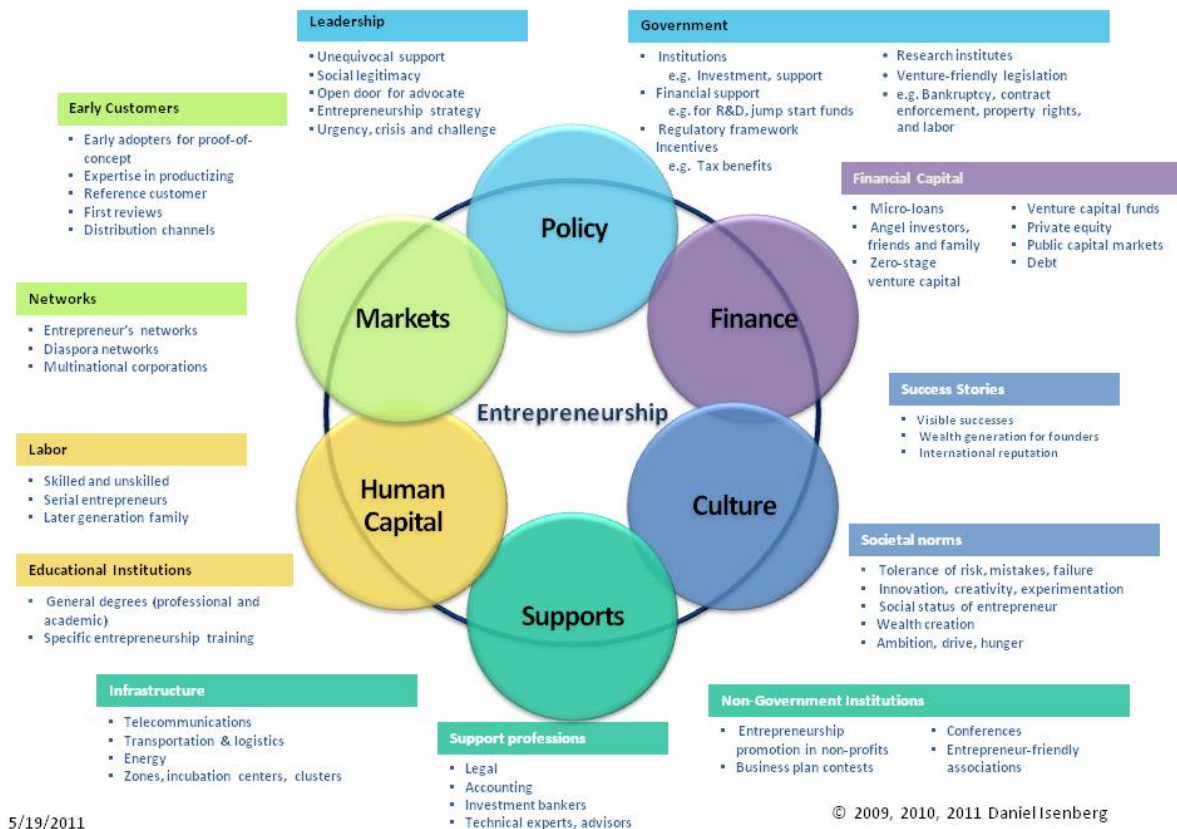
industries, and from Western advisers, suggest a number of operational criteria in organising HVCFs e.g. target stage of investment, sectors of interest, minimum size of funds, managerial experience and track record in areas of relevant activity, distribution policies etc. These criteria are likely to be directly based on Western experience – *there really are no other reference points!* The information suggests that the government only requires returns that will cover the state’s (or its donors’) cost of capital. Ideally successful funds can be reinvested to create ever-green funds or at least an attractive track record that would encourage the return of LPs to a new fund raising by the same GPs. Both countries are keen to ensure that there is some regional distribution of the funds available to new entrepreneurs and their businesses.

If we turn to the enabling environment, or the entrepreneurial eco-system (see Fig. 2), we have much less information provided by the summary policy statements. What we do know is that the prevailing legal structures in both countries are likely to be of only limited utility in facilitating and encouraging new enterprise given their limited relevance to, or even direct discrimination against, young enterprise. Both countries have had different forms of socialist and centralised political and economic authority in their very recent histories. Both of these national polities have traditionally been inimical, and indeed very aggressively hostile, to the interests of private entrepreneurs. None of the literature above appears to mention any commitment to changing society’s attitude to the status of entrepreneurs. Similarly, no observation is made on demand-side policies that would make investing in Polish or Chinese entrepreneurs a more attractive or less risky proposition to external investors than it presently appears to be.

It may well be that both countries are putting considerable and further emphasis on building up appropriate entrepreneurial ecosystems that will allow the substantial allocations of equity finance to be used effectively and profitably thus meeting both investor and policy makers’ goals. On the limited evidence at our disposal, we cannot comment for or against the merits of Chinese and Polish actions in this area. However, if we assume that they are likely to attempt to follow a Western route in order to encourage the formation and establishment of a nascent VC industry, we already have some ‘straws in the wind’. It appears that the response from both governments is that the provision of sufficient early-stage VC is, as noted, essentially a *supply-side problem*. That is, a finance shortfall that can be corrected by the setting up of new and more focused VC funds albeit with public help. A similar view was held both in the USA and the UK as the Western world’s two largest VC industries. However, such a simple diagnosis has come under increasing pressure in these countries as continued support for supply-side policies does not appear to have resolved the issue. Recent changes to improve the demand side capabilities of the UK and USA economies via a series of direct changes to the ecosystem (bankruptcy laws, network support, training for entrepreneurs etc.) have clearly indicated that a supply-side response is necessary but not sufficient to address the need for a more informed and effective entrepreneurial resources. Accordingly, entrepreneurship policies in both the USA and the UK while continuing to support HVCFs *in addition* actively support networking, business advice, reductions in ‘red tape’, promotion of entrepreneurial ethos across all tiers of public education and other means of improving the economic, political social and legal environments facing existing and potential entrepreneurs. (See, for example, *Start-up Britain* and *Start-up America Partnership* which are government and industry co- sponsored programmes both started in 2011.)³¹

Figure 2 Domains of the Entrepreneurial Ecosystem

³¹ <http://www.startupbritain.org/> and <http://www.s.co/about>



Perhaps more worryingly is the disparity in institutional legitimacy between UK/USA reference points and the situation currently pertaining in China and Poland. We know that institutions can positively and negatively influence entrepreneurial behaviour (North 1990) including the take up of venture capital (Bruton et al, 2005). We also have evidence that the take up of venture capital is weaker in more collectivist and uncertainty avoiding societies (Li and Zahra, 2012). What we have seen in China and Poland is a government initiated surge to improve the effectiveness of venture capital as a means of encouraging enterprise and innovation in both emerging economies. Goals are set, sectors are identified, fund managers are recruited, finance is raised, public authorities are co-opted and private partners are persuaded. Everything is moving at double quick time.

To the dispassionate outsider, the system looks perfectly primed to replicate with uncanny accuracy virtually all the major mistakes of the last 50 years of Western VC policies.

The potential exists for a great deal of public funds to be lost into the twin abysses of inefficiency/poor decision making and corruption. Honest, industrious and professional VC investors in Europe and North America have struggled to produce median returns above 0% since the year 2000. Such figures may be acceptable when social returns (infrastructure build, spill-over effects, innovation capabilities and other positive externalities etc.) are highly valued and matched against investment costs. Yet, the ability to produce these parallel societal benefits in under-developed, entrepreneurial ecosystems is likely to be severely restricted and impaired. In their absence, such programmes are in real danger of wasting a great deal of public money with little impact on the desired and intended policy outcomes.

10. Dispassionate Advice to a 'Precipitant' Policy Maker

Given the experience of over sixty years of public and private VC activity since American R&D Corporation and FCI/ICFC (the forerunners of 3i plc) were created post World War II in Boston and London, respectively, allied to a burgeoning body of academic research work on VC since the late 1980s, we would suggest some guidelines for the development of a nascent, national VC industry and, particularly, the role of government as both policy maker and co-investor:

1. **Do your home work.** Understand how existing VC markets work including how, why and when do they both make and lose money. Policy makers need a deep strategic and operational understanding of the industry they wish to encourage. This knowledge needs to be internalised in specialist agencies of government if any effective governance or learning mechanism is to be created. This learning is not done by buying brief access to consultants.
2. **Recognise that it is not countries that have a VC industry but regions.** The USA does not have a VC industry. Rather it has a very small number of regions with dense concentrations of highly skilled investors working in complementary and reinforcing networks strongly linked with world class, knowledge producers in universities, companies, laboratories, the military etc. In this context, Southern California and Greater Boston both have a relatively autonomous VC industry, Arkansas and North Dakota and the great majority of American states do not. In Europe, London, Munich and Paris provide comparable but not scale equivalent VC concentrations (as does Israel) to their American East and West coast cousins.
3. **Make repeated experiments and learn from both their good and bad outcomes.** In concentrations of highly regarded universities and industrial producers, government should attempt to recreate and foster the environmental conditions that characterise Palo Alto, CA and Cambridge MA, Tel Aviv or Cambridge, UK. Such experiments need to be tracked and evaluated. This requires investment in analytical skills and reliable data sets of industry activity. Failures can be particularly informative.
4. **Seek to change the prevailing culture by a continuous celebration of the values of enterprise and innovation, and reward exemplars accordingly.** Such a cultural change should infuse education, industry and government. Rewards should reinforce the veracity of the message particularly to the young.
5. **Always Promote Meritocracy** which also means penalising graft, corruption, theft (particularly of intellectual capital) unwarranted privilege, special interest groups and mindless (or self-seeking) conformity. It also means granting fair (open and competitive) access to scarce resources at all levels of society.
6. **Plan for the Long Game.** Creating a viable VC industry and changing the environmental conditions that will foster and enable enterprise requires a persistent long-run commitment lasting decades. Consistent and visible goals have to transcend party politics and economic cycles to remain salient regardless of the political persuasion of the incumbent government. (See the ongoing and continuous, positive public commitment to Enterprise by successive US Presidents and UK Prime Ministers.)
7. **Not Only But Also...** Venture capital is a valuable source of financing for a tiny minority of young innovative companies. The majority of firms will (rightly) never consider VC finance as appropriate to their circumstances. And the majority of firms which seek risk capital will be unsuccessful in attracting investors. But, the majority of growth firms in an economy will also not use formal VC funds. (Germany has built up a superb 'mittelstand' business community with one of the relatively smallest VC industries in Europe when referenced to its GDP.). Venture capital is only one source of specialist finance available in an environment offering a spectrum of debt, equity and asset-based financing services for both start-up *and growing* firms. Governments should ensure the availability of diverse sources of appropriate funding.

This advice may appear contentious, naïve and unrealistic from several perspectives. At worst, as academic observers, we might well be accused of being 'Ivory Tower revolutionaries'. Yet, let us remind our potential detractors of the very recent histories of China and Poland. In 1992, Deng Xiaoping undertook his famous tour of the Southern Provinces which resulted in the 'unthinkable' economic reforms that laid the foundations of China stellar growth. Lech Walesa, based in the shipyards of Gdansk, and via the often illegal Solidarity labour movement in the 1970s and 1980s became a key catalyst in the demise of the Soviet hegemony over Eastern and Central Europe.

11. Concluding Comments

We have argued that the state can have a positive role in increasing the provision of early stage venture capital in a market characterised by difficulties of significant risks and uncertainties, low investment returns and high illiquidity. By co-investing with private investors and using the specialist competencies of professional venture capitalists, it is possible to increase the supply of risk capital finance available for high potential young firms via 'hybrid VC funds'. Advanced Western economies have considerable experience of creating and managing programmes to promote HVCFs. We have looked briefly in this paper at the 'pros and cons' of such a financing vehicle as seen from the evaluation of a number of major programmes. We have then looked at the appropriateness of these lessons from the new context of HVCFs being created in several emerging economies. We use China and Poland as two examples of emergent countries which have recently instituted such hybrid VC schemes.

A clear lesson from the experience of advanced Western economies is that supply-side measures alone cannot create a viable VC industry. In addition, there have to be major changes to the entrepreneurial ecosystem that also allow for significant improvements in the quality and prospects of the firms seeking VC finance. Under-pinning these improvements is the need for a major cultural change which embraces the (individualistic) act of entrepreneurial endeavour. Given the non-market, political and commercial legacies of both countries, these changes will require continued and very substantial support from both public and private advocates of the highest authority.

Finally, we encapsulate our recommendations into seven points of advice for policy makers with a remit to expand national VC activity. Our observations while brief are supported by the findings of substantial academic and industry research. Whether or not, governments are interested in our analyses is beyond our control.

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Appendix 1: Examples of existing profit distribution structures in government supported ‘hybrid’ venture capital funds

Feature	Description	Profit distribution effects	Examples (present & past)	Category based on effects on profit distribution
Public investor co-investing with private investors	Government matching the investments 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 <i>pari passu</i> 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	<i>Pari Passu</i>
Timing of cash flows	Ordering of the cash flows so that public investor puts the money in first and gets the money out last	The IRR of the private investor can be enhanced through timing of cash flows improving the attractiveness of the fund.	UK / Regional Venture Capital Funds	<i>Differential timing of the investment of public and private investors</i>
Public participation as a loan	Government provides its share of capital as a loan with interest	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	<i>Leveraging the returns to private investors with a loan</i>
Capped return for public investors	After the all the investors (including the public investor) have received certain 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 portfolio companies	UK/regional venture capital funds Australia/Pre-seed fund Chile/CORFU	<i>Limiting the profits entitlement of the public investor</i>
Buy-put 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 predetermined price (typically nominal price + interest)	The effects on the IRR of 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 the returns on fund termination	Israel / Yozma New Zealand / New Zealand Venture Investment Fund	
Downside protection	Downside protection means the government underwriting losses from the portfolio.	Downside protection helps support the IRR, when partial loss of invested capital is probable.	Germany / WFG Germany / tbg & KfW France / SOFARIS Denmark/ The Equity Guarantee Programme	<i>Guarantee of compensation to the private investor for loss of invested capital</i>
Fund operating costs	Government subsidises the management company to cover some of the costs from 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	<i>(Not examined)</i>

Appendix 2: List of the Hybrid VC Schemes Examples (incomplete)

Country	Name
1. United States	Small Business Investment Company (SBIC)
2. United States	New Markets Venture Capital Programme (NMVC)
3. United States	Rural Business Investment Programme
4. United Kingdom	Regional Venture Capital Funds (RVCFs)
5. United Kingdom	High Tech Fund of Funds
6. United Kingdom	Enterprise Capital Fund (ECF)
7. Australia	Innovation Investment Fund (IIF)
8. Australia	Pre-Seed Fund (PSF)
9. Australia	Renewable Energy Equity Fund (REEF)
10. Australia	Innovation Investment Follow on Fund (IIFF)
11. Finland	Finnish Industry Investment Ltd (FII)
12. Canada	Labour Sponsored Venture Capital Corporation (LSVCC)
13. Denmark	The National Danish Investment Fund (Vækstfonden)
14. France	CDC Entreprises
15. France	Fund for the Promotion of Venture Capital (FPCR)
16. Germany	ERP Start-up Fund (ERP Startfonds)
17. Germany	KfW Venture Capital Programme
18. Germany	High-tech Start-up Fund
19. Germany	ERP-EIF Dachfonds
20. Poland	National Capital Fund (NCF)
21. Israel	Yozma
22. Netherland	TechnoPartner Seed facility (Technostarter)
23. Netherland	Regeling Durfkapitaal (Venture Capital scheme)
24. Ireland	Seed & Venture Capital Programme (SVC)
25. New Zealand	New Zealand Venture Investment Fund (NZVIF) -Seed Co-investment Fund
26. New Zealand	New Zealand Venture Investment Fund (NZVIF) - Venture Capital Programme
27. Sweden	Swedish Industrial Development Fund (Industrifonden)
28. Scotland	Scottish Seed Fund (SSF)
29. Scotland	Scottish Venture Fund (SVF)
30. Scotland	Scottish Co-investment Fund (SCF)
31. Norway	The Seed Capital Scheme

