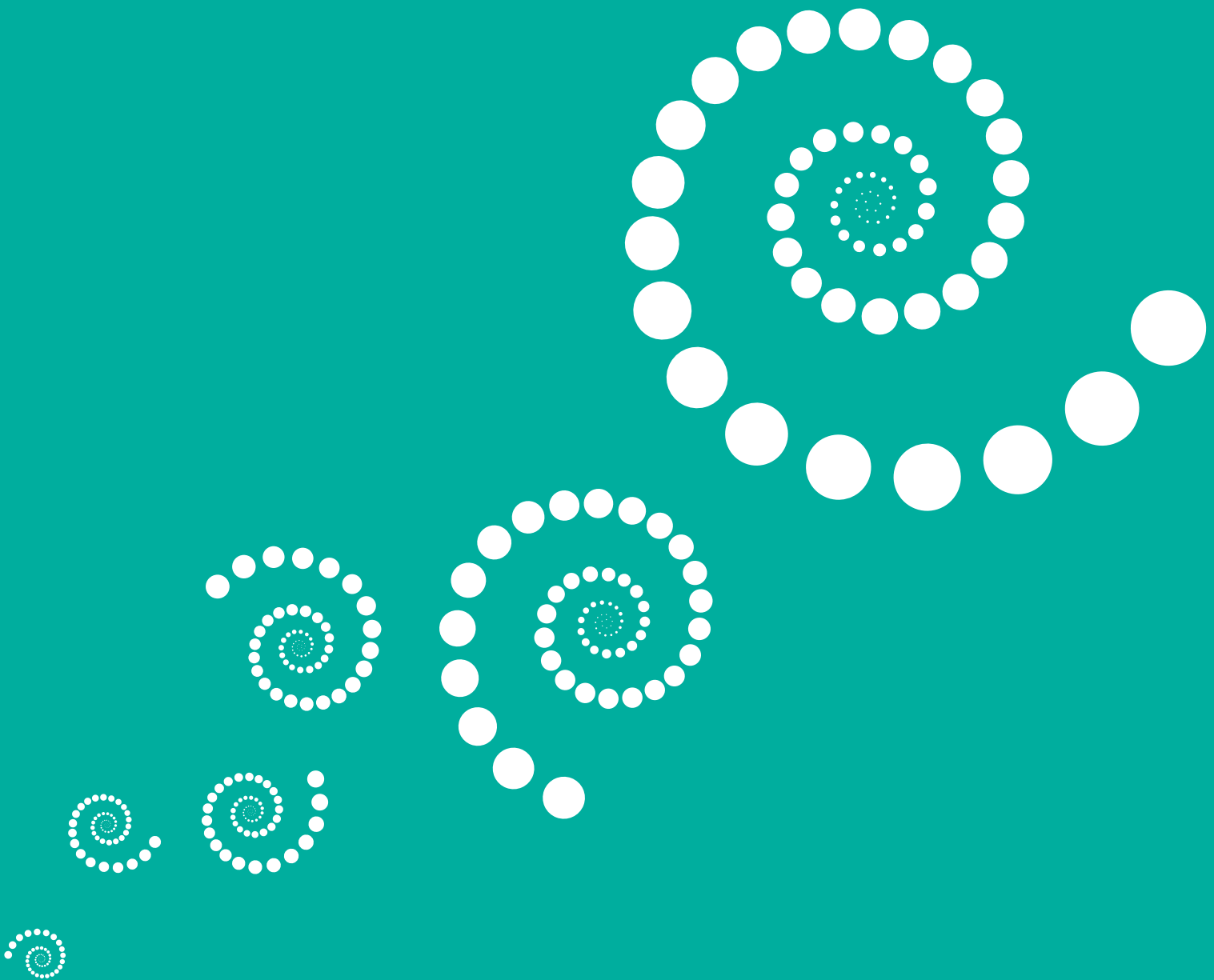


Reshaping the UK economy

The role of public investment in financing growth

Yannis Pierrakis and Stian Westlake



Reshaping the UK economy

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Foreword

There has been much discussion this week around public investment in high-growth start-ups.

The key challenge now is how to structure this type of investment and make sure it gets into the system effectively. Above all, public finance at this stage must lever private capital towards start-up businesses – otherwise it will be a wasted exercise.

NESTA's position as the UK's largest portfolio investor in pre-revenue companies, alongside our research expertise, means we are uniquely placed to gain an insight into this area. This report considers the most effective models of public finance supporting growth businesses.

Execution and implementation are all, and are what the market will be looking to.

Jonathan Kestenbaum
CEO, NESTA

June, 2009

NESTA is the National Endowment for Science, Technology and the Arts.

Our aim is to transform the UK's capacity for innovation. We invest in early-stage companies, inform innovation policy and encourage a culture that helps innovation to flourish.

Executive summary

High-growth, entrepreneurial businesses are essential to the UK's emergence from recession. But their success is dependent on several factors, one of which is the availability of appropriate finance. The availability of growth finance has declined drastically in the credit crunch, and too little has been done to revive it. It will be impossible to transform and rehabilitate the UK's economy without an equivalent change in our sources of capital.

This shortage will not resolve itself. If left unchecked, it will undermine the innovative sectors on which the long-term growth of the UK's economy depends. Government has an important role to play. Although there have been a large number of failed attempts by governments to stimulate the financing of high-growth businesses, there have also been notable success stories.

By drawing out the principles of these examples, this paper sets out a proposal that offers a timely, efficient and smart way for the Government to support and stimulate investment in high-growth companies.

The challenge for the UK is not to create new high-growth start-ups, but how to support the continued growth of these businesses. Doing so could provide a valuable economic stimulus.

High-growth, innovative companies offer a potent answer to the economic challenges the UK faces.

They generate a disproportionately large share of net new jobs.¹ Research suggests that between 2 to 4 per cent of all firms are responsible for the majority of employment growth. Their combination of high productivity and employment growth means that high-growth firms are also responsible for a substantial proportion of economic growth.²

Innovative businesses will only thrive where the right financial architecture is in place

These high-growth firms require significant capital up-front. And this is difficult to obtain through conventional sources of debt finance. These firms tend to have intangible assets and ambitious growth plans that require large amounts of finance, show a significant delay before generating revenue and consequently entail high risk. As a result, savings are inadequate and debt finance is inappropriate but venture capital is an alternative form of finance that is structured to address these challenges.³

Venture-backed businesses are disproportionately important for growth

There are between 800 and 1,100 venture capital-backed businesses in the UK. Their high growth potential makes them vital to our economic future. Over the five-year period to 2006/7, venture firms increased worldwide employment by 8 per cent a year compared with the 3 per cent growth achieved by FTSE Mid-250 companies. Their UK employment grew by 6 per cent, compared to a national rise of 1 per cent a year.⁴

Early-stage finance has been neglected and is suffering

The credit crunch has hit the venture capital sector hard. Most UK investors in early-stage technology companies have already invested most of their funds and are keeping most of what's left for the follow-on investments in those firms. And very little new money is coming into the market, since the rate at which new venture funds are raised has slowed dramatically. In 2008, VC fundraising was down 70 per cent on the previous year; 2009 looks set to be even worse.

What should the Government do?

The case for government support for venture finance is greater now than ever: private capital

1. Henrekson, Magnus and Johansson (2008) 'Gazelles as Job Creators – a survey and interpretation of the evidence.' IFN Working Paper No. 733.
2. BERR (2008) 'BERR Economic Paper No. 3 - High Growth Firms in the UK: lessons from an analysis of comparative UK performance.' London: BERR.
3. NESTA (2007) 'Making money at the early-stage: the challenge for venture capital in the UK.' NESTA Policy Briefing. London: NESTA.
4. BVCA (2007) 'The Economic Impact of Private Equity in the UK 2007 Report: a survey of 1,000 recipients of risk capital.' London: BVCA.

is hard to come by and the future of this vital cohort of 1,000 growth firms is threatened.

Although there is a clear shortage of finance for high-growth companies in the coming years, and a gap that public support could fill, the Government should proceed with caution

Many past interventions have fallen foul of a few common problems: trying to achieve too many goals; being sub-scale; limiting the pool of potential investments, being too generous with public money. They have also suffered from unrealistic time horizons. Avoiding these pitfalls is a prerequisite for any credible policy in this area.

The role of government is not to make smart investments, but to make sure smart investments get made.

Six decades after the first government efforts to support finance to small and medium-sized enterprises, there is still no consensus as to what constitutes an effective model of government intervention

The report seeks to provide some light into this issue by addressing the following questions:

1. What should the Government do to promote finance to high-growth companies and what choices does it face in supporting early-stage investments?
2. How can the Government create the conditions for investments in high-growth entrepreneurial firms?
3. How much money is currently needed in the early-stage market? What form should any investment take? Should government invest directly or indirectly? Should any third-party investment be in existing or new funds? How should private capital be leveraged?

We address these questions in turn, highlighting the main issues and providing recommendations, along with international case studies of attempts to stimulate the venture market.

Finally, we propose the establishment of a public-private fund of funds, making use of the best of private sector experience and avoiding many of the pitfalls of excessive direct intervention. The proposal could be put into action with an investment of £150 million of public money, and would begin stimulating growth businesses within a matter of weeks.

About the authors

Yannis Pierrakis is Head of Investments Research and Stian Westlake is Executive Director of Policy and Research at NESTA.

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Part 1: Overview

This report addresses the question of how to encourage and support growth businesses to lead the UK out of recession. In particular, it focuses on the financial architecture necessary to support growth, and demonstrates the importance of a functioning early-stage finance sector to the real economy. Although there have been many misadventures in government attempts to finance early-stage businesses, global experience suggests that public support has an indispensable role to play, and that it is possible to provide this support in a way that is limited, timely and effective.

We believe that:

- a. it is impossible to achieve a transformation of the UK economy without an equivalent change in our sources of capital;
- b. there is a vital but limited role for government in enabling this transformation.

High-growth, innovative companies offer a potent answer to our economic challenges. But such firms have often had difficulty obtaining finance, and these difficulties have increased considerably in the recession. The Government is now considering whether and how to stimulate investment in these businesses.

There are positive examples from around the world of how government can encourage early-stage investment, leveraging private capital and helping high-growth firms grow faster. But there are also many examples of failure. The final section of the report sets out principles for how the Government can effectively support the financial underpinnings of a high-growth economy, concluding with a specific proposal that incorporates UK and international

lessons with NESTA's own practical experience of venture capital investing.

Part 2: The importance of growth businesses

Innovative, fast-growing companies are a vital source of long-term economic growth and job creation.⁵ They are also central to the vision of new industries set out in the White Paper *New Industry, New Jobs*. The UK will continue to be an economy driven by the creation and exploitation of knowledge. Over the last 15 years the contribution of high-technology manufacturing and knowledge-intensive services to UK gross value added has increased steadily to over 40 per cent.⁶ The nature of these sectors is likely to change as global demand changes, and many of the big prizes will be won by new firms rather than incumbents.

High-growth firms are relatively rare in the UK economy. In 2005, there were 11,369 high-growth firms in the UK, representing 6.3 per cent of all firms employing ten employees or more.⁷ However, the impact of high-growth firms in the UK economy is very significant. New evidence⁸ suggests that high-growth firms in the period 2002-2005 created more than twice the number of jobs than slower-growing businesses.⁹ The UK share of high-growth firms in 2005 is higher than in the United States – 6.3 compared to 5.2 per cent. Indeed, it has the highest share of all other developed industrial economies for which data is available. But only a minority of firms in the UK manage to sustain high levels of growth for more than a short period of time. The biggest challenge for the UK is not the supply of promising firms, but how to help them succeed.

A number of factors are important to the growth of innovative firms:

- **Access to knowledge.** Proprietary knowledge (whether of new technologies, business processes, or other know-how) is

frequently a basis for rapid growth. Effective research universities with competent technology transfer offices are frequently identified as important sources of this knowledge. Just as important is the ability to generate breakthrough knowledge through interdisciplinary academic collaboration, or by effective models of open innovation among firms and between firms and universities.

- **Skilled workforces.** The skills agenda as highlighted in the Leitch Review¹⁰ is vital to the ability to build high-growth businesses. Growing firms, especially in high-tech sectors, are prodigious consumers of talent. But technical skill alone is not enough. The mindset of the entrepreneur is equally important: the UK's ability to nurture entrepreneurs who think across traditional disciplines and industries is vital for innovation.
- **Effective infrastructure.** Effective infrastructure for innovation is in some cases physical; superfast broadband supporting digital media, or proximity to Stansted airport helping Cambridge-based stem cell companies fly their bespoke products to distant hospitals. But more importantly, innovation is also driven by the networks and relationships that bind companies together. Take the role of effective supply chains. Toyota's supply chain is structured in such a way that suppliers have strong incentives to innovate (they are offered a share in the savings); GM's traditionally wasn't, and is suffering the consequences. Effective linkages between businesses and organisations (such as universities, basic research laboratories, applied research laboratories, technology transfer agencies,

5. NESTA (2008) 'Unlocking the potential of innovative firms.' NESTA Policy Briefing. London: NESTA.

6. Work Foundation (2006) 'Defining the knowledge economy.' London: Work Foundation.

7. NESTA (forthcoming) 'Mapping firm growth in the UK.' London: NESTA. The definition of 'high-growth' is that used by the OECD, referring to firms that increased revenues 20 per cent or more in each of the past three years.

8. Ibid.

9. In fact, in 2005-08 the gap between these two groups was less marked but high-growth firms still managed to create almost a quarter of a million more jobs.

10. HM Treasury (2005) 'Leitch Review of skills in the UK: The long-term challenge.' London: HMT.

governance organisations, banks and venture capitalists) are an important contributor to innovative capability.¹¹

- **Demand for innovation.** Companies are more likely to innovate successfully if they can count on deep markets for new products. This is partly a question of simple market size: better access to local and international customers through strong supply chains and foreign trade helps. But even more important is the extent to which customers demand innovative products. The importance of American consumers' hunger for new goods and services has been cited as an important factor for the US's economic growth.¹²
- **Availability and access to finance.** Many of the most innovative firms have long start-up phases. During this time, firms incur development costs but little revenue. They also lack significant assets that could be used as collateral for loans.¹³ This is particularly true of high-tech businesses, which have offered some of the best growth opportunities over the past 30 years. This makes the question of finance central to these firms' ability to get started and to thrive.

The financial element is particularly crucial, and it is on this factor that we will focus in this report. Public policy has dedicated significant energy to opening regional and global markets for trade, attempting to fill skills gaps, promoting academic science and technology, and developing infrastructure. The provision of finance for high-growth start-ups is a tougher challenge. As the White Paper, *New Industry, New Jobs*, states: "For this reason, access to finance is an important barrier for business to develop their full potential and the government clearly states that any constraint on the ability of UK-based businesses to exercise comparative advantage on the basis of high levels of skills or knowledge must be regarded as a serious impediment to the UK's economic success".¹⁴

11. Cooke, P. and Morgan, K. (1998) 'The Associational Economy: Firms, Regions, and Innovation.' Oxford: Oxford University Press.

12. Bhide, A. (2008) 'The Venturesome Economy.' Princeton: Princeton University Press.

13. Oakey, R. (1984) Innovation and regional growth in small high technology firms: evidence from Britain and the USA. 'Regional Studies.' 18, pp.237-251.

14. HM Government (2009) 'New Industry, New Jobs.' White Paper. London: TSO. p.10.

Part 3: Small but mighty: the place of venture capital in the UK's financial architecture

To understand how the UK's financial system needs to change to support innovation and growth, we need to consider the UK's financial architecture as a whole.

There are three main sources of finance available to business:

- Debt finance – most commonly the provision of a loan of some form that is subsequently repaid at a pre-agreed interest rate. These may be available from a High Street Bank or specialist finance providers. There are many sources of debt finance: the corporate bond market for the largest firms; bank financing facilities; small business loans; and small-scale entrepreneurs financing their businesses through remortgaging or credit card debt.
- Equity finance – whereby capital is provided to the company in return for a shareholding in the business by corporate investors, business angels, venture capital/private equity or public sector schemes. There are a wide range of services provided by the public markets, accessible through flotations or other share issues by the largest firms, through private equity, leveraged buy-outs, management buy-outs and buy-ins.
- 'Soft capital' – typically associated with grant funding or financial subsidies provided from the public sector through grants, R&D tax incentives, innovation vouchers or other means. Such financial support is typically available through Regional Development Agencies, government departments and devolved administration departments in Scotland and Wales.

New high-growth firms need different kinds of support depending on their stage of development. They thrive if there is a smooth progression from one type of funding to the next.¹⁵ Figure 1 (page 10) illustrates the journey of company growth from idea generation to profitability. Different sources of capital are relevant at different stages of the firm's development. The former Department for Innovation, Universities and Skills described this as an "escalator of financial support for innovative businesses at different stages of their growth".¹⁶

The red boxes in Figure 1 represent those steps where finance is hardest to obtain. They need particular attention from policymakers. Most investors and entrepreneurs observe that an 'equity gap' exists for investments from £250,000 to £2 million; others have identified a second equity gap that stretches up to £5 million (especially for the medical and pharmaceutical sector).

3.1 High-growth businesses have limited access to debt

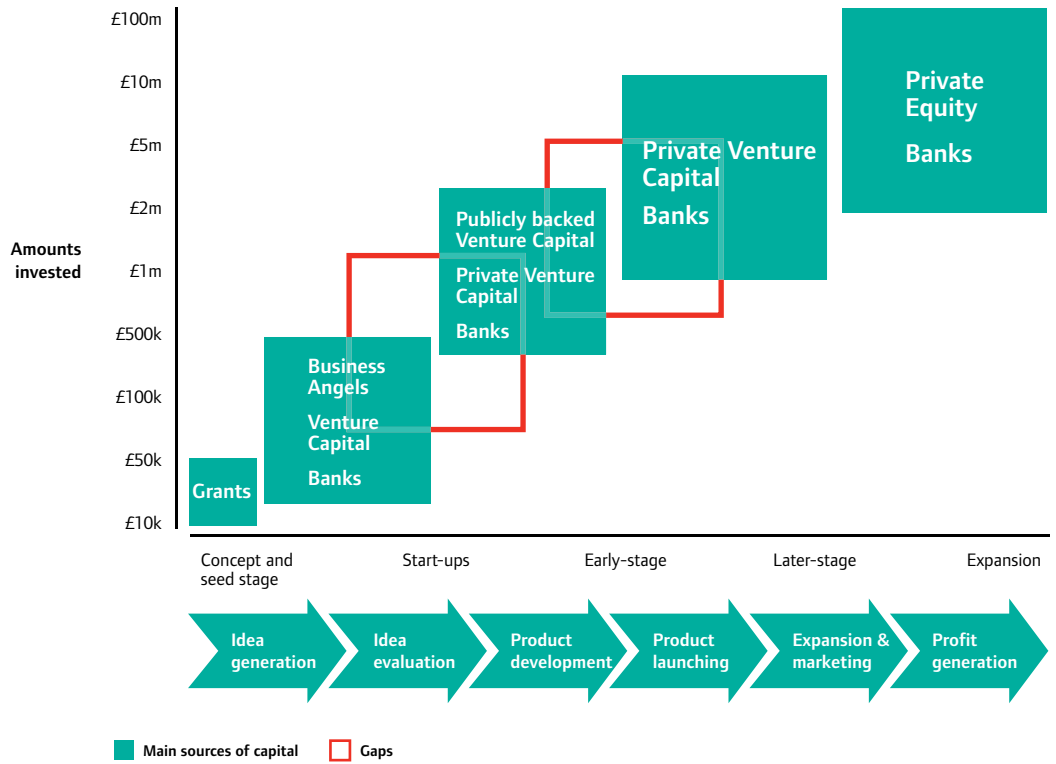
At first glance, finance for growth businesses appears to present only a limited problem. A recent European Commission report¹⁷ showed that only 19 per cent of UK small and medium-sized enterprises saw limited access to finance as a constraint. Although this figure was higher than that in other European countries (it was just 7 per cent and 9 per cent respectively in Finland and Denmark), it at least implied that the vast majority of the UK firms are able to secure external finance.

15. CBR (2009) 'Start-up finance: The role of Micro Funds in the financing of new technology-based firms.' Cambridge: CBR.

16. DIUS (2008) 'Innovation Nation.' White Paper. London: DIUS. p.38.

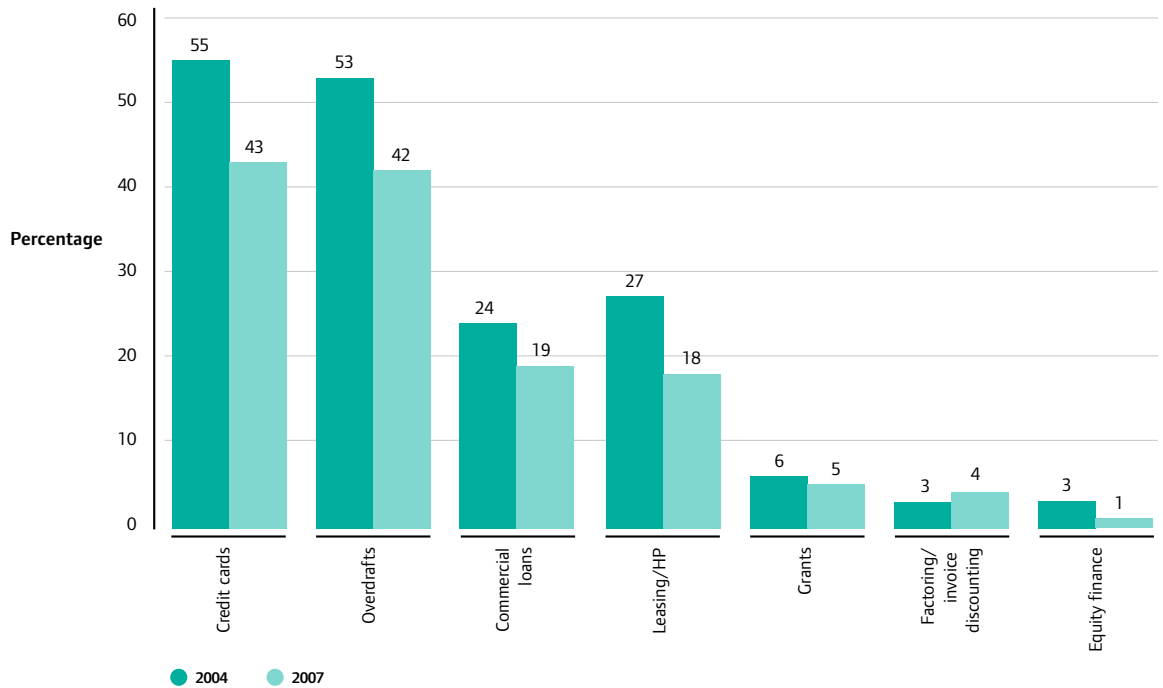
17. European Commission (2009) 'DG Enterprise and Industry, Interim Evaluation of the entrepreneurship and innovation programme.' Final Report. Brussels: EC.

Figure 1: Business finance architecture



18. CBR (2008) 'Financing UK Small and Medium-sized Enterprises: the 2007 Survey.' Cambridge: CBR.

Figure 2: External sources of finance – percentage of business using various financial products



Source: CBR 2008¹⁸

However, this figure conceals a difference between different types of firm. As Figure 2 shows, the majority of firms accessing finance relied on small-scale debt finance: credit cards, overdrafts and commercial loans.

The high-growth firms described in Section 2 often do not fit into this category, especially in their early years. These companies require significant capital up-front. And this is very hard to obtain from conventional sources of debt finance. They tend to have intangible assets, and show a significant delay before generating revenue making than a high risk investment.

These firms are, of course, some of the most attractive growth prospects, and include start-ups in the information technology, life sciences and advanced engineering sectors. They rely on early-stage equity finance: venture capital and angel investment.

Only a small proportion of businesses seek or receive venture capital finance.¹⁹ But if we are concerned about the foundation of new industries and the delivery of dramatic, transformative growth, we should focus on these particular companies.

Creating new industries also requires sustained investment over the long-term, continued commitment and long-term resources. The semiconductor and microcomputer industries are good examples of this lengthy and

capital-intensive process.²⁰ In both cases, it took up to ten years of continued risk capital investing before the industries properly took off. Virtually every other new industry since – biotechnology, personal computers, PC software, wireless communications, the Internet – have followed this pattern.²¹

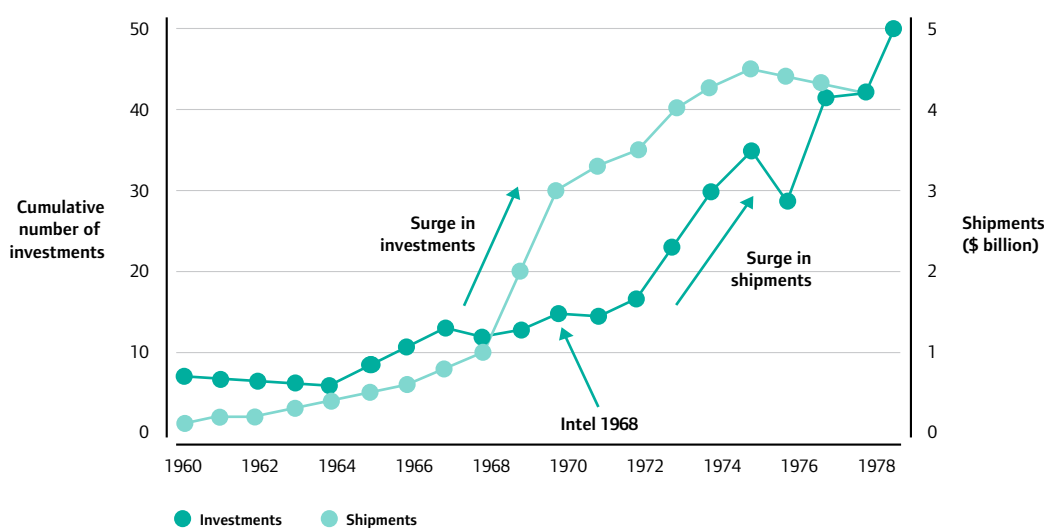
3.2 The vital one thousand

Different estimates put the number of businesses in the UK that are reliant on venture capital at between 880 and 1,100.²² These firms play an important role in economic growth and job creation.

The largest recent survey showed that over the five years to 2006/7, firms backed by venture capital increased their worldwide employment by 8 per cent per year, a much higher rate of growth than the 3 per cent reported by most mid-sized companies. Venture-backed firms' UK employment also grew by 6 per cent, compared to a national annual rise in employment of 1 per cent.²³

The evidence from the US, where venture activity has a longer pedigree, is even more compelling. The largest study showed that American companies that received venture capital from 1970-2006 accounted for 10.4 million jobs and \$2.3 trillion in revenues in 2006.²⁴ The total revenue of venture capital-

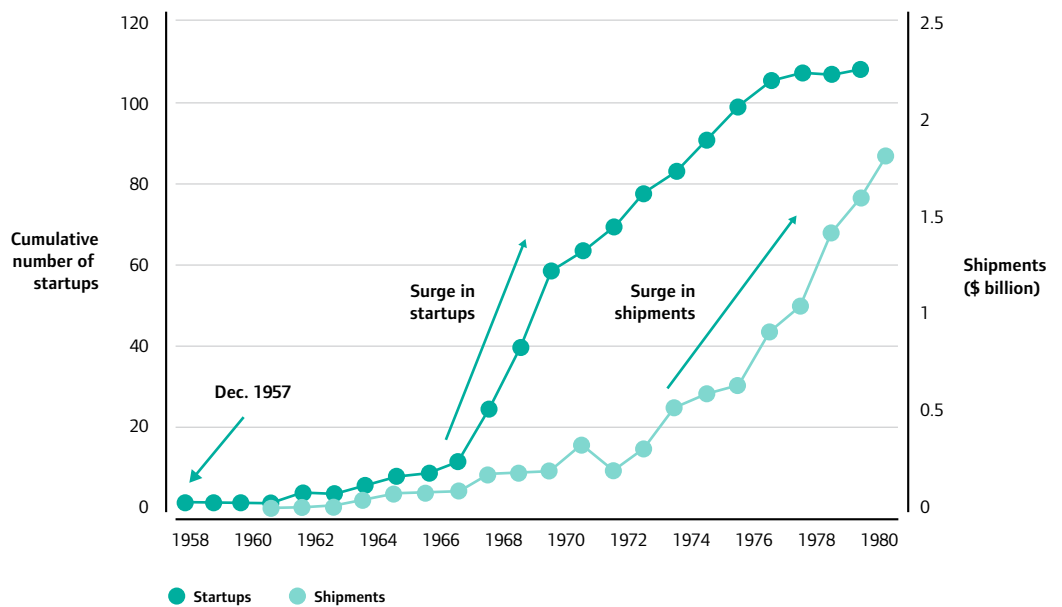
Figure 3: Semiconductor Industry: Cumulative Number of Venture Capital Investments and Industry Shipments



Source: Bygrave and Timmons 1992²⁵

19. European Commission (2009) 'DG Enterprise and Industry, Interim Evaluation of the entrepreneurship and innovation programme.' Final Report. Brussels: EC; and CBR (2008) 'Financing UK Small and Medium-sized Enterprises: the 2007 Survey.' Cambridge: CBR.
20. Bygrave, W. and Timmons, J. (1992) 'Venture Capital at the Crossroads.' Cambridge, MA: Harvard Business School Press.
21. Timmons, J. and Spinelli, S. (2003) 'New Venture Creation: Entrepreneurship for the 21st Century.' New York: McGraw-Hill.
22. Dow Jones as per January 2009.
23. BVCA (2007) 'The Economic Impact of Private Equity in the UK 2007 Report: a survey of 1,000 recipients of risk capital.' London: BVCA.
24. Global Insights, NVCA (2007) 'Venture Impact: The Economic Importance of Venture Capital Backed Companies to the U.S. Economy.' Arlington, VA: NVCA.
25. Bygrave, W. and Timmons, J. (1992) 'Venture Capital at the Crossroads.' Cambridge, MA: Harvard Business School Press.

Figure 4: Minicomputer Industry: Cumulative Number of Start-up Companies and Industry Shipments



Source: Bygrave and Timmons 1992²⁶

- 26. Ibid.
- 27. Kortum, S. and Lerner, J. (2000) Assessing the contribution of venture capital to innovation. 'RAND Journal of Economics.' Vol. 31, No. 4, Winter 2000, pp.674-692; Hellman, T. and Puri, M. (2002) Venture capital and the professionalisation of start-ups: Empirical Evidence. 'Journal of Finance.' 57, pp.169-197; Kaplan, S. and Stromberg, P. (2001) Financial contracting meets the real world: an empirical analysis of venture capital contracts. 'Review of Economic Studies.' 2002, pp.1-35.
- 28. See Ibid; and Timmons, J. and Spinelli, S. (2003) 'New Venture Creation: Entrepreneurship for the 21st Century.' New York: McGraw-Hill.
- 29. Bygrave, W. and Timmons, J. (1992) 'Venture Capital at the Crossroads.' Cambridge, MA: Harvard Business School Press.
- 30. Ibid. p.2.
- 31. Ibid.

financed companies comprised 17.6 per cent of the nation's GDP and 9.1 per cent of US private sector employment in 2006. Venture capital-backed companies outperformed their non-ventured counterparts in job creation and revenue growth. Employment in venture-backed companies jumped by 3.6 per cent between 2003 and 2006 as national employment grew by just 1.4 per cent. At the same time, venture capital-backed company sales grew by more than 11.8 per cent, compared to an overall rise in US company sales of 6.5 per cent during the same period.

High-growth firms that rely on venture capital also have an important impact on innovation. A variety of studies have shown that venture-backed firms are responsible for a disproportionate number of patents and new technologies, and bring more radical innovations to market faster than lower-growth businesses that rely on other types of finance.²⁷ This is partly because high-growth firms are more likely to rely on venture funding because of their unique financial needs, and partly because venture capitalists use their influence as shareholders and business networks to encourage rapid growth and professional management.

3.3 New industries and venture capital

High-growth, venture-backed firms are also more likely to generate new industries.²⁸ Examples include personal computers, cellular communications, microcomputer software, biotechnology, and overnight delivery.²⁹ In the words of one US survey, their effects have included "the creation of hundreds of thousands of new jobs, new expenditures for research and development, increased export sales, and the payment of hundreds of millions of dollars in state taxes. By mobilizing and later recycling scarce risk capital and entrepreneurial talent, venture capital firms have transformed the economy".³⁰

Some venture capital-backed companies create products so revolutionary that they gave birth to new industries; others bring about evolutionary change in existing industries.³¹ Venture capital has played an important role in the development of some of the most significant scientific inventions and important industries of our times. It is one of the crucial ingredients in the mix of scientific discovery, entrepreneurial talent and finance that drives new industries, and has sometimes created ideas and inventions powerful enough to transform society.

Part 4: The role for government in early-stage investment

If the story were as simple as this, the message for policymakers would be clear: stand back and give venture capital funds free rein to invest, delivering profit for themselves and growth and innovation for the rest of the economy. However, the situation is more complex.

As Josh Lerner of Harvard Business School remarked: "It is instructive to observe that all venture capital markets of which we are aware were initiated with some form of government support. These markets do not appear to emerge without some form of assistance."³²

This section will outline the role of public money in the UK early-stage finance market, and how the credit crunch has exacerbated the market failures that public intervention sets out to address.

4.1 The role of government

The existence of an equity gap – the inability of small firms to access the finance they need to grow – has been a long-term challenge for UK governments. Successive administrations have acknowledged the importance of the venture capital industry and implemented various initiatives in support of early-stage venture capital investment, including seed and start-up funding. But six decades after the first government intervention in support of finance to SMEs, there is still no consensus as to what constitutes an effective model of government intervention.

Around the time of the Second World War, government thinking focused on plans to institutionalise business finance, by creating

new organisations to provide funding to small and medium enterprises (the Industrial and Commercial Finance Corporation, ICFC, which later evolved into 3i). Tax incentive schemes to promote investments and the availability of external finance to business were originally introduced in 1983 and were replaced in the 1990s by the Enterprise Investment Scheme and Venture Capital Trusts. Towards the end of the 1990s, a number of new initiatives were introduced, targeting different sub-segments of the early-stage market, namely the regional Venture Capital markets (Regional Venture Capital Funds), university spin-outs (University Challenge Funds) and very small businesses (Enterprise Guarantee Funds).

The introduction of Enterprise Capital Funds (ECFs) in the new century saw the Government's focus shift to incentivising private investors to co-invest with publicly backed venture funds, in the case of ECF by providing 2:1 matching of private capital. The effect of this and other policies has been to shift public sector investment from stand-alone public sector funds to co-investment with private investors.³³ This includes both ad hoc co-investing by free-standing public sector funds with private investors as well as co-investment funds which are required to invest alongside private investors.

The public sector has become considerably more important as an investor in both absolute and relative terms. Investments involving public sector funds, both as sole investors and with private investors (funds and individuals), have risen from 18 per cent of all venture capital investments in 2001 to 43 per cent in 2007. In short, private sector funding has become less significant, although still important, and public sector venture capital funds are becoming

32. Lerner, J., Moore, D. and Shepherd, S. (2005) 'A study of New Zealand's venture capital market and implications for public policy.' Report to the Ministry of Research Science and Technology. Wellington: LECG Ltd.
33. Pierrakis, Y. and Mason, C. (2007) 'Shifting sands: The changing nature of the early stage venture capital market in the UK.' London: NESTA.

more important but changing their approach from investing on a free standing basis to co-investing with business angels and private sector funds.³⁴

The credit crunch has made government action even more relevant to the financing of early-stage businesses. As we shall see below, it has made private capital for venture finance a scarce and dwindling phenomenon.

4.2 The impact of the global financial crisis on UK growth finance

Many small businesses face financial challenges in the recession, as banks (the main source of credit for most smaller firms) become more risk-averse. In early 2009, some 30 per cent of small firms faced liquidity problems,³⁵ and the CBI³⁶ predicts that the availability of finance will worsen for UK businesses: 28 per cent of firms that took part in their survey expect that existing finance availability will tighten further while 60 per cent expect availability of new and renewed credit to decline.

But the effect on high-growth firms and the equity capital on which they depend has been even more damaging. NESTA's research has shown that existing venture funds have very little money remaining to invest, and that the rate at which new venture funds are raised has slowed dramatically.³⁷ All of this raises severe challenges for the cohort of 1,000 high-potential firms, most of which will require new finance in the next 12-18 months.

We will look first of all at the causes of this funding collapse, and then at its effects.

The parlous state of finance for early-stage firms in the UK is a function both of the direct effects of the credit crunch and of longer-term trends. As we shall see, venture capital investment in the UK has paradoxically been hit both by the prolonged availability of cheap debt before the crunch, and by its sudden evaporation.

The effect of the credit crunch and the accompanying downturn is the most obvious cause. Falling stock markets and poorer trading environments make it harder for funds to sell or float their existing investments, which then require further investment to keep them running, severely limiting the amount available for new investments. In addition, some funds' limited partners (financial investors) are

suffering in the current liquidity crisis; there is anecdotal evidence that this too is affecting their ability to fund further investments.³⁸ Finally, some observers have also noticed a trend for institutional investors (who provide the money for some venture capital funds) to reduce the amount of money going into private equity of all kinds, which makes it harder to raise venture capital funds (even though the bulk of the asset class is dominated by leveraged buy-outs, a very different type of investment).

The effect of the credit crunch on other sources of venture funding, such as angel investors, has not been studied in depth, but it seems likely that the poor performance of most asset classes in recent years will leave these rich investors with less money to invest in high-growth firms.

The recent falling off of venture capital funding is particularly damaging because it comes on the back of a long-running period of disinvestment in UK early-stage finance on the part of many funders.

Although equity investments in unquoted companies trebled between 2003 and 2007 from £4 billion to nearly £12 billion, this expansion in investment activity has been in 'private equity' rather than 'venture capital', propelled by a huge increase in funding for leveraged buy-outs. Large, leveraged investments are financially attractive to funds, particularly if they generate fees based on their total assets under management: a £1 billion fund doing leveraged buy-outs will generate more income than a £75 million fund backing a similar number of early-stage businesses.

This has had the effect of driving up the average (mean) size of investment to £9 million in 2007, more than twice its 2001 value.³⁹ This trend has gone even further in the credit crunch, with entrepreneurs reporting venture funds taking equity stakes in revenue-generating technology firms in return for working capital – effectively filling the role normally played by banks rather than the traditional role of early-stage investors.

Early-stage investments have fallen since 2000 as a proportion of total private equity investment (apart from in 2006) and their share of total investment activity has been less than 5 per cent in recent years (Figure 5).

The variability of returns on venture investments has also limited levels of

34. Ibid.

35. See Eurochambres (2009) at: [HYPERLINK "http://ec.europa.eu/enterprise/e_i/news/article_8750_en.htm"](http://ec.europa.eu/enterprise/e_i/news/article_8750_en.htm) http://ec.europa.eu/enterprise/e_i/news/article_8750_en.htm

36. CBI (2009) 'Access to finance survey.' January 2009. London: CBI.

37. Pierrakis, Y. and Harrison, A. (2009) 'Venture Capital Fundraising Activity Slows in 2008.' London: NESTA.

38. Ibid.

39. Pierrakis, Y. and Mason, C. (2007) 'Shifting sands: The changing nature of the early stage venture capital market in the UK.' London: NESTA.

investment. Much of this has been caused by the very poor returns on investments made during the 1998-2001 technology bubble: given the long-term nature of venture capital funds, the effects of these deals continued to be felt through the 2005. Although there is some evidence that performance is beginning to improve, it will take longer for fund returns to rise significantly, since the first funds raised after the bubble (the 2002-03 vintage) are only just beginning to show returns, and even these may be too early to infer overall performance.⁴⁰

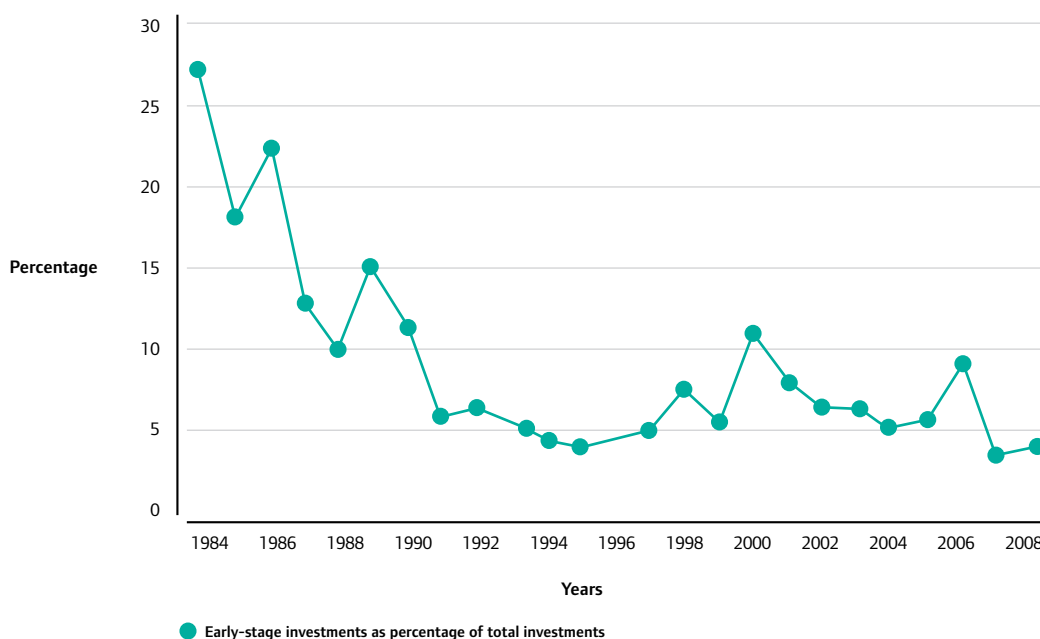
The consequence of all of this is a dramatic shortfall in the funds available for venture capital investment. As Figure 6 shows, 2008 saw a sharp drop in the amount of money raised for venture capital investment.

At the same time, existing funds are largely tapped out. Thirty-nine funds have been

actively investing in the early-stage space over the last five years. NESTA research suggests that there are only 13 that have over £5 million each left to invest and the total remaining cumulative funds available for investment are in the region of £400 million.⁴¹ In many cases, these funds are being reserved for unplanned follow-on investment in portfolio companies, and are unavailable to fund new growth.

These and other factors affecting the wider investment market have led us to conclude that funding for early-stage technology companies is already extremely low. The trend is likely to become more evident in 2009 as fewer funds are closing and significantly less money is available to firms. This underlines the need for emergency support to ensure that some of the UK's most promising technology can survive and thrive.

Figure 5: Early-stage investments as a percentage of total investments, 1984-2008

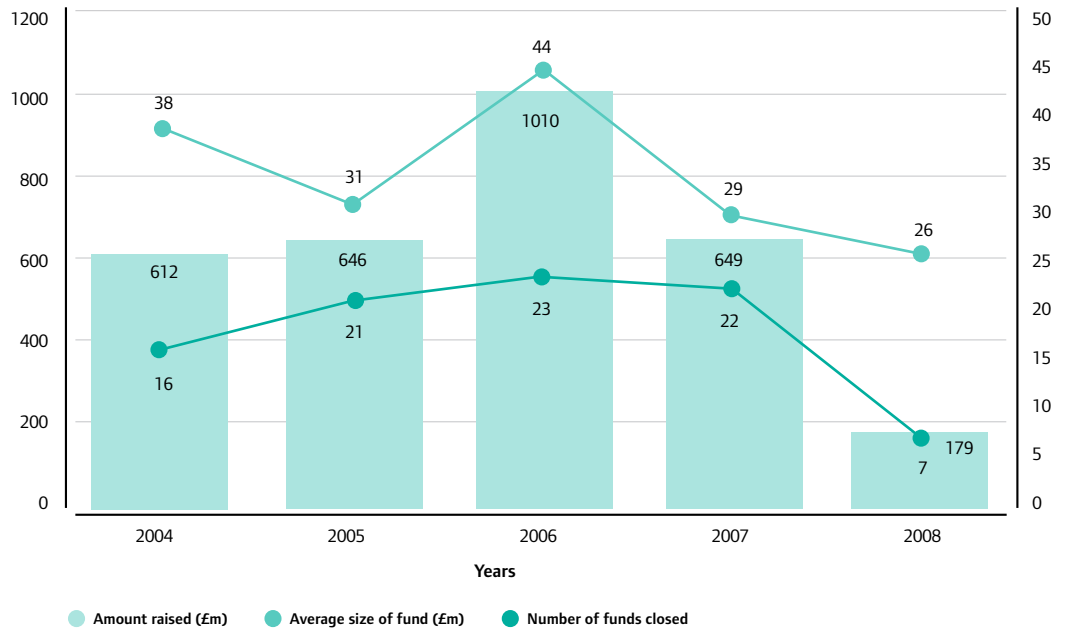


Source: Data from BVCA Investment Activity Reports various years

40. Venture capital fund returns for the period 1980-1997 were positive with 13.3 per cent Internal Rate of Return (IRR). During the period after the 'bubble' burst, the returns were negative with an average IRR of -6.6 per cent. This negative performance brings down the overall IRR. The vast majority of investment in this area - £3.3 billion or 60 per cent of total venture capital investment into the UK by independent funds - was in this particular timeframe (1998-2001). It appears as though venture capital is starting to break through the J-curve on 2002/2003 vintages with a pooled return of 0.3 per cent on these still immature funds. See BVCA (2009) 'Benchmarking UK Venture Capital to the US and Israel: what lessons can be learned?' London: BVCA.

41. Pierrakis, Y. and Harrison, A. (2009) 'Venture Capital Fundraising Activity Slows in 2008.' London: NESTA.

Figure 6: Early-stage fundraising



Source: NESTA 2008⁴²

42. Ibid.

Part 5: Cautionary tales: the risks of public venture capital investment

Although there is a clear shortage of finance for high-growth companies in the coming years, and a gap that public support could fill, the Government should proceed with caution. Governments' attempts to stimulate the early-stage finance market have a chequered history. It is important to take on board the lessons of past policies when considering how the state can create a supportive environment for growth companies.

Many past interventions have fallen foul of a few common problems: trying to achieve too many goals; being sub-scale; limiting the pool of potential investments; being too generous with public money; and having unrealistic time horizons. Avoiding these pitfalls is a prerequisite for any credible policy in this area.

The tyranny of multiple objectives

Many publicly backed funds (e.g. Regional Venture Capital Funds and University Challenge Funds) have multiple objectives: they may seek to deliver both a commercial and a social return, or to encourage regional development.⁴³ NESTA's experience of running and investing in funds suggests that it is very difficult to make successful investment while also pursuing other objectives. Indeed, the more objectives a fund has (either explicitly or tacitly), the less likely it is to satisfy any of them. Explicit non-financial objectives also make it harder to recruit an appropriate team: at present, investment professionals with the skills to undertake economic development work are rarely those with the best track records of backing and developing profitable companies.⁴⁴

Size matters⁴⁵

Public funds also frequently suffer from problems of size. Firstly, they can be too small to operate effectively, either not being able

to invest enough to justify their operating costs, or not spending enough on staff and operations to make good investments. Secondly, small funds are particularly likely to make small investments, which can often be self-defeating, as investees spend too much time looking for their next funding round and not enough time building their business. The 'drip-feed' model of finance, which is often justified as allowing investors to keep a close eye on company performance, often has the opposite effect, focusing management teams on financial issues that have nothing to do with the operations of the firm.

In a typical venture capital fund, the general partners receive an annual management fee of up to 2 per cent of the committed capital, which is applied to the firm's operations. Therefore, a venture capital fund should have a minimum £30 million under management which will provide a £600,000 operating annual budget. This could sustain the fund's entire operations, including salaries, overheads, marketing, investor management and meeting regulatory requirements.

But a £5 million fund (such as the University Challenge Funds) would not have this ballast. At this level annual income would be just £100,000, barely sufficient to cover basic administrative costs, let alone recruit the talent necessary for success.

Geographical limitations constrain returns

A number of publicly backed funds are geographically focused, with a requirement to concentrate on certain English regions or UK nations. Although venture capital certainly has a role to play in stimulating regional economies, limiting funds to regions has significant risks. Firstly, it is often associated

43. NESTA (forthcoming) 'Lessons Learned Booklet 1: On Building a Successful Early-Stage Fund.' London: NESTA; and CBR (2009) 'Start-up finance: The role of Micro Funds in the financing of new technology-based firms.' Cambridge: CBR.
44. NESTA (2008) 'Stimulating Venture Capital.' London: NESTA.
45. From NESTA (forthcoming) 'Lessons Learned Booklet 1: On Building a Successful Early-Stage Fund.' London: NESTA.

with being sub-scale and having mixed investment objectives, as outlined above. Secondly, it constrains funds' ability to source high-quality investments: economic activity frequently crosses the borders between regions, which in the UK are relatively small in geographic terms. This means that a fund that can only invest in its local region is likely to turn down many potentially attractive but non-local investments it encounters, reducing its chances of striking good deals.

Geographically bounded funds are also a factor in a wider and potentially troubling phenomenon: the predominance of public funding in particular UK regions. Figure 7 below shows that the overwhelming majority of early-stage venture capital investments in many UK regions and nations are publicly backed. This in itself is not necessarily a cause for concern: if the alternative is sensible investments not being made, public intervention may be justified. But combined with the other concerns about public funds (in particular, the vitiating effect of mixed objectives and small fund size on investment quality), this becomes more problematic.

Over-generous public support weakens incentives

Cash-strapped entrepreneurs unsurprisingly welcome public investment when private investment is scarce. But it is possible to invest too much public money into a fund. The Canadian Labour Fund programmes made a disproportionately large contribution through tax credits into public-private funds. This over-generous contribution allowed private investors to borrow the contribution that was required of them, and use the fund's management fee to offset part or all of the cost of borrowing. Thus they were ahead even before the fund began to make returns, which severely weakened their incentives to make smart investments, and defeated the object of involving the private sector in the first place. There is a strong case for requiring a significant private investment into funds to ensure incentives are well aligned.

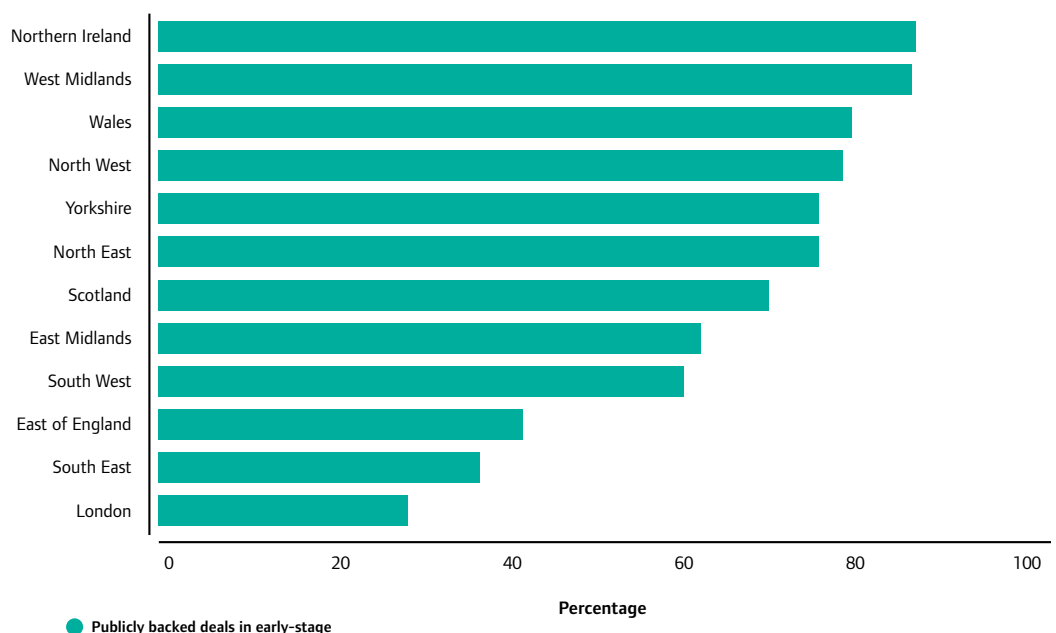
Many early-stage funds grossly underestimate how long it takes to exit an investment⁴⁷

Public investors should be aware that venture investing is a long-term proposal, unlikely to deliver returns to politically convenient

46. Mason and Pierrakis (forthcoming) 'Venture Capital, the Regions and Public Policy: The United Kingdom since the Post-2000 Technology Crash.'

47. Extracted from NESTA (forthcoming) 'Lessons Learned Booklet 1: On Building a Successful Early-Stage Fund.' London: NESTA.

Figure 7: Publicly backed early-stage investments as a proportion of all early-stage investments in the UK regions, 2000-2008



Source: Mason & Pierrakis 2009⁴⁶

timetables. The average time required for a venture-backed company to exit has more than doubled in the last ten years, from 4.2 years in 1999 to 9.6 years in 2008. Even highly successful technology-based companies can take seven to eight years from seed-stage to exit. It is not uncommon for life sciences start-ups to conduct five to seven years of trials; the company may not generate revenue until years after the initial investment, let alone provide a return when the investor wishes to sell his stake.

With meaningful realisations for a fund unlikely to occur until its sunset years, any early-stage funds that expect to achieve exits (and initial returns) within a few years are destined for failure. This can pose a challenge for publicly-backed funds, which can be subject to the shorter time horizons and resource constraints demanded by politics and external events. With performance management common in public policy, publicly-backed funds are often required to measure and report their performance within years of their launch. Doing so is both inappropriate and counterproductive: a fund may be perceived to be a 'failure' if it has not achieved any exits or return after a few years of investing. At best, this will be a distraction; at worst, it may compromise the fund's ability to make its existing investments pay off.

The shortcomings of many publicly backed schemes to stimulate early-stage investment offer valuable lessons for the future. We cannot afford to waste our limited resources and ignore the hard-earned lessons of previous funds and policies. Just as important is identifying what does work. This is the focus of the next section.

Part 6: Effective public investment in venture capital

48. Pierrakis, Y. and Mason, C. (2007) 'Shifting sands: The changing nature of the early stage venture capital market in the UK.' London: NESTA.
49. Toole, A. and Turvey, C. (2009) How does initial public financing influence private incentives for follow-on investments in early stage technologies? 'Journal of Technology Transfer.' 2009, 34, pp.43-58.
50. For further reading see: Lerner, J. (2002) When bureaucrats meet entrepreneurs: the design of effective 'public venture capital' programmes. 'The Economic Journal.' 112:F73-F84; and Cressy, R. (2002) Funding gaps: A symposium. 'The Economic Journal.' 112(477) (February), pp.1-20.
51. In an interview with NESTA researchers conducted in June 2009.

6.1 What works? A framework for what the government should do

In the previous sections, we identified the case for public intervention to help fill the gap in finance for growth companies. We also examined some key failings of past policies intended to encourage early-stage investment.

So, what should the Government actually do? How can the Government create the conditions for investment in high-potential entrepreneurial firms?

Public investments are essential to fill the capital gap⁴⁸ and may serve a 'bridging' function to facilitate external private investments in early-stage business.⁴⁹ Through its programmes, the Government ought to complement rather than compete with the private sector.⁵⁰ Its role should be to create the necessary conditions to attract private investors through incentives, lower risks and guaranteed rewards.

This chapter begins by setting out three principles for intervention, continues by illustrating the various choices that a government has to make when choosing what to do, and concludes by illustrating the proposed design and structure of investment.

Principles for intervention

Given the challenge facing high-growth businesses in the UK, the constraints that the recession is putting on public budgets, and the difficulties of previous public investment programmes that sought to pick winners, there are three principles that should guide public support for early-stage investment:

1. Timeliness

Programmes that take several months – or years – to deliver investment to businesses will not meet the needs of today's growth firms. In the words of James Foster, Chief Executive of XMOS, one of the UK's leading semiconductor start-ups: "The recession has severely cut venture funding for innovation, and new ideas are not getting funded. This industry will be dead in a year's time unless something is done"⁵¹ about investment. This means that the set-up time of any proposed intervention is vitally important.

2. Discernment

Early-stage investment depends on the ability to identify good investments and manage them well. The role of government is not to make smart investments, but to make sure smart investments get made. Any intervention relying on public money must ensure that it finds its way to companies most likely to grow and prosper regardless of how the investment is allocated.

3. Efficiency

Given the increasing pressures on government spending, any proposed solution must make the best possible use of government money. Each pound of public money should leverage as much private money as possible. Any intervention should be as time-limited as possible, encouraging private investment to take its place.

The choices facing the Government

Government faces a number of choices in supporting early-stage investment. Any scheme that aims to help fill the finance gap and encourage a functioning market to emerge must address the following questions:

- How much money is needed?
- What form should the money take?
- Should government investment be direct or indirect?
- Should indirect investment be in existing or new funds?
- How should private capital be leveraged?

We address these questions in turn, highlighting the main issues and providing recommendations, along with case studies of attempts to stimulate the venture market in Israel, New Zealand and Canada that cast light on the issues.

How much money is needed?

As described earlier, between 2007 and 2008 the amount invested in venture capital funds fell by over £450 million.

In 2008, 190 companies received at least⁵² £354 million in venture capital funding round 1 investment with a median investment of £850,000. In addition, 234 companies received at least⁵³ £641 million in further funding (funding rounds 2, 3 etc.). In this case, the median investment is £1.7 million.

In general, between a quarter and a third of all venture capital amounts are invested in new companies each year (Table 1) and the remainder goes in follow-on investments.

In section 4.2, we saw that the total remaining cumulative funds available for investment are in the region of £400 million.⁵⁴ We also illustrated that in 2008, only £179 million new money was raised. Consequently, the total 'investable' venture capital is in the region of £580 million.

Based on previous practice evident in Table 1 and on the assumption that all investable amounts currently available will be invested

this year, we anticipate that between £150 and £200 million of the £580 million would be invested in funding round 1 companies and the remaining £390-£440 million would go in follow-on investments. If 2008 levels of venture capital activity are to be sustained, an additional amount of £100 million needs to be dedicated to funding round 1 companies and an extra £200 million is required for follow-on investments.

Recommendation: an injection of £300 million to £350 million (whether of public funds alone or public and private funds) would meet the challenges of early-stage firms.

What form should investment take?

Previous policies to promote venture investment have included both government investment and tax breaks. Both have a cash cost to the Government, but the two options have a different time profile. Money invested can, with the right channels, find its way quickly to businesses in need of investment. Tax incentives will generally take longer to affect the system, not least because they rely on influencing the behaviour of investors. And if the tax benefit does not accrue immediately, the incentive to act will be further delayed.

Recommendation: Government involvement should take the form of investment rather than tax credit, in order to meet the principle of timeliness.

Direct or indirect investments?

If Government intervention is to take the form of investment, should this be done directly or indirectly? Direct investment, along the lines of ICFC or other government-run funds, involves the government setting up a body that invests money with businesses; indirect investment relies on using an intermediary to invest the money.

The concept of direct venture capital investments to individual firms was first

52. We used the Library House database (which has now been acquired by Dow Jones, Venture Source) to obtain these data. The amounts invested in some of those companies are undisclosed and therefore the total amount invested is higher than £354 million.

53. The amounts invested in some of those companies are undisclosed and therefore the total amount invested is higher than £620 million.

54. Pierrakis, Y. and Harrison, A. (2009) 'Venture Capital Fundraising Activity Slows in 2008.' London: NESTA.

Table 1: Proportion of funding round 1 investment, 2003-2008

	2003	2004	2005	2006	2007	2008*
Proportion of Funding Round 1 investments	27%	26%	15%	24%	23%	36%

* In 2008, two funding round 1 investments were reported for £50 million each

Source: Figures calculated using the Library House database which has now been acquired by Dow Jones, Venture Source

introduced in the UK with the creation of ICFC, which later evolved into 3i. Venture capital was virtually non-existent in the UK in the mid-1940s and the model of direct investments in companies was seen as a way of adding value creation to the companies and initiating a vibrant venture capital market in the UK.

In general, the model of direct investments requires the creation of new organisational infrastructure. This can be appropriate if a country entirely lacks venture capital skills and expertise and sees no way of importing them as in post-war Britain, when the ICFC was established: the country lacked not just small business finances, but also the skills to invest it and the wherewithal to administer the process.

The direct approach has its drawbacks. It takes too long to set up such a large organisation. On average, an individual investment manager needs three months to complete a single investment. If a venture capital portfolio is to be executed properly, a lengthy due diligence process is required. Technology specialists need to be identified and consulted. Careful investigation of the market is needed within the framework of the pre-investment process. Therefore, it will take 50 to 100 investment managers to invest £100 million in a year (based on £250,000 – £500,000 per deal and three months for each deal). The creation of a fund with such a large number of investment managers takes a long time to establish.

Secondly, there is the question of investment skill. A large public fund will face the dilemma of either hiring a large number of staff from private funds (which will be expensive, arguably defeating the purpose of establishing a public fund, and risking crowding out private investment) or deploying a large number of relatively inexperienced investment managers, which is likely to make for poor investments.⁵⁵

The alternative lies with delegating the decision-making though a public fund of funds, which could then invest in privately run funds, taking advantage of their expertise. This has been the approach of a number of successful programmes in other countries, including Yozma in Israel (see box), Finnish Industry Investors and The New Zealand Venture Investment Fund (see box).

Recommendation: Unlike in 1945, the UK today possesses a large number of venture funds and investment professionals. The case for creating a venture funder from scratch seems weak, particularly as setting it up could take years, limiting the likelihood of fast investments.

Instead, we propose putting public money into a fund of funds to invest in private venture funds, taking advantage of their expertise, and meeting the principles of timeliness and discernment.

55. Lerner, J. (2002) When bureaucrats meet entrepreneurs: the design of effective 'public venture capital programmes'. 'The Economic Journal,' 112.

56. 'The Yozma Program – Policy and Success Factors.' Presentation by Yigal Erlich. Available at: http://www.insme.org/documenti/Yozma_presentation.pdf

57. In an interview with NESTA researchers conducted in May 2009.

Israel

Yozma is one of the most powerful examples of how investment can foster the innovation system. This public-private fund of funds was established in Israel in 1993 and then privatised in 1997. Yozma was a new part of the Israeli innovation system with the specific aim of stimulating venture capital. The government established a \$100 million investment company and co-invested in new venture capital funds alongside private investors, typically providing 40 per cent of the fund's capital. This led to the creation of ten drop-down funds. Each fund received \$8 million investment from Yozma and \$12 million from strategic private investors.

The fund also made a small number of direct investments to stimulate the market at this very early stage of its development.

Predetermined exit conditions were introduced as an incentive for private co-investment: Yozma's partners had a five-year option to buy out the government's share at predetermined conditions. Eight out of ten investors exercised their option and bought out the government.⁵⁶ Yigal Erlich, the founder and now chairman of Yozma, argues⁵⁷ that the private funds were more interested in the return they could make than the possibility of loss, hence the decision to provide upside incentives rather than downside protection.

Particular attention was given to funds from the US aimed at establishing links with the US venture capital community and Yozma actively encouraged the involvement of the US in its drop-down funds. As a result,

most of the early-stage investments in Israel will not be sold to Israeli companies but to US companies, or will trade on US stock exchanges and some 70 per cent of investment in Israeli venture funds at the end of the 1990s came from the US.⁵⁸

Thanks to a number of successful exits by Yozma funds in 1996-1998, the venture capital industry networks in Israel were extended, multinational companies entered the Israeli market and collective learning by the Israeli venture capital industry emerged.⁵⁹ By 2005, \$10 billion was raised by venture capital funds and 60 venture capital funds were operating.

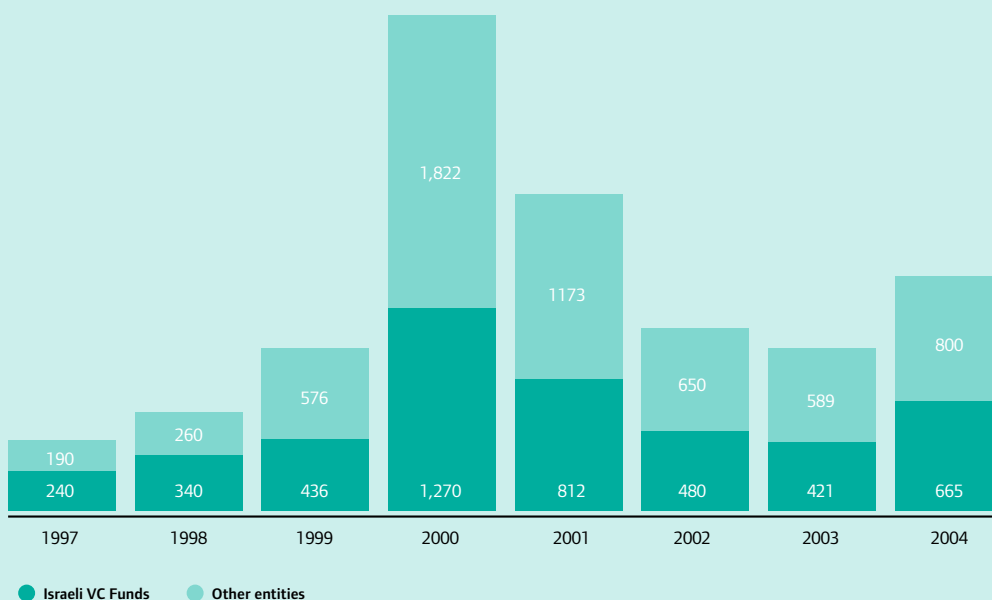
According to Erlich, the government intervention was the turning point for the venture capital industry in Israel. A high-tech development finance system with global and local links had been established. Private venture capital became abundant ending Yozma's role as a pump-priming body. Yozma was deemed ready to join the market, its public animator function successfully fulfilled.⁶⁰ As Cooke says, perhaps this is the apotheosis of the successful innovation

support policy, whereby it achieves the demise of its own public-sector venture financing body.⁶¹

The Israeli government intervention was relatively short – Yozma was privatised four years after its inception. Erlich believes that interventions such as Yozma need to be temporary and they should not replace the role of the private funds: “when there is a need, the government has to take action by intervening in the market but this intervention has to be temporary”.

Yozma's example shows that carefully directed government interventions can prove very successful. However, Yozma's success was not solely a result of its organisational structure or re-structure. It benefited from the creation and re-enforcement of suitable conditions for interactive learning between start-ups and the venture capital community, and the vital establishment of close links with American venture capital. Policymakers should further investigate the example of Yozma when considering suitable models for public intervention.

Figure 8: Total amount raised by Israeli high-tech companies (\$m)



Source: IVC Research Center, cited in Early-Stage Investments The Israeli Perspective, Yigal Erlich

58. BVCA (2009) 'Benchmarking UK Venture Capital to the US and Israel: What lessons can be learned?' London: BVCA.

59. Ibid.

60. Cooke, P., Davies, C. and Wilson, R. (2002) Innovation Advantages of Cities: From Knowledge to Equity in Five Basic Steps. 'European Planning Studies.' 10(2), pp.233-250.

61. Ibid.

New Zealand

The New Zealand Venture Investment Fund (NZVIF)⁶² is a venture fund that manages fund of fund investments as well as making direct investments. NZVIF was established by the New Zealand government in 2002 to create a vibrant venture capital market. Prior to its establishment there was no dedicated venture capital operating in the country.

NZVIF currently has \$200 million of funds under management and it is invested through a \$160 million Venture Capital Fund of Funds and a \$40 million Seed Co-investment Fund. NZVIF's investments are made either through privately managed venture capital funds or alongside experienced angel investors who are investing into New Zealand-originated, high-growth potential companies.

The NZVIF Venture Capital Fund of Funds only invests in funds which have been successful in raising matching capital from private investors. The amount that NZVIF invests is dependent on the overall fund size as well as its investment stage and focus. However, the maximum amount that NZVIF is able to invest in any venture capital fund is NZ\$25 million (£9.7 million). It invests in the Funds on the same terms as private investors, except that other investors in each Fund are provided with an option that is exercisable up to the end of the fifth year of the Fund to buy out the NZVIF investment on the basis of capital plus interest only (i.e. other investors can access any upside above this amount) and the Fund must operate within the investing profile across seed/start-up/early expansion as set out by NZVIF. It participates in investor governance decisions on the same terms as private investors, with the same voting rights. Investor governance arrangements reflect current market practice.⁶³

To date six such Funds have been established, with five Funds currently active. \$232 million has been invested through the programme (NZVIF plus private sector money) in 48 high-growth innovative companies.

The NZVIF Seed Co-investment Fund is an early-stage direct investment fund investing in early-stage high-growth companies. Established in late 2005, the fund provides \$40 million of matched investment alongside selected Seed Co-investment partners on

a 1:1 basis into seed and start-up high-growth companies. To date \$21 million has been invested together with nine Seed Co-investment Partners to 26 companies.⁶⁴

The latest commitment of the NZVIF fund of \$20 million has been made to an Annex Fund to support existing venture capital-backed portfolio companies which are seeking growth capital. NZVIF chief executive Franceska Banga said the Annex Fund is designed to assist companies which have previously received investment from NZVIF-backed venture capital funds and are looking for follow-on funding for their next stage of growth, such as establishing an export base offshore and developing international markets.

"A number of highly promising venture capital fund portfolio companies are at the stage of needing more capital to fund further growth. At the same time, four of the six venture capital funds which NZVIF has backed are close to fully invested. The Annex Fund will provide further capital which the fund managers can draw on to fund the next stage of growth for their companies. In the current investment climate, it is difficult for any company to raise capital. It is especially difficult for young growth companies. In the past they might have attracted funding from US investors at this stage of their growth, but in the current market that source of capital has dried up."⁶⁵

Since the inception of the NZVIF, there has been a strong and steady increase in the amount invested in the equity market. However, this increase is most apparent at the expansion stage. The venture capital stage has not yet seen strong growth similar to that experienced by other small economies such as Israel and Singapore.

The NZVIF programme and the VIF Seed Funds have contributed positively to the development of a larger pool of individuals with the necessary skills and expertise in seed and start-up investment.⁶⁶

The NZVIF example illustrates a very sound approach to government intervention in support of establishing and sustaining the venture capital market. It has delegated the decision-making to commercial funds,

62. The material of this analysis is drawn from the NZVIF website: <http://www.nzvif.co.nz>

63. Lerner, J., Moore, D. and Shepherd, S. (2005) 'A study of New Zealand's venture capital market and implications for public policy.' Report to the Ministry of Research Science and Technology. Wellington: LECC Ltd.

64. Ibid.

65. NZVIF (2008) 'Funding boost for VC backed growth companies.' Media Release, December 2008. Auckland: NZVIF.

66. Lerner, J., Moore, D. and Shepherd, S. (2005) 'A study of New Zealand's venture capital market and implications for public policy.' Report to the Ministry of Research Science and Technology. Wellington: LECC Ltd.

it requires private co-investments and it supports the establishment of a vibrant market structure.

Despite NZVIF's positive role in catalysing the venture capital sector⁶⁷ and its sound principles, the New Zealand venture

capital market is still at an early stage of development is not yet self-sustaining. This highlights the fact that venture capital markets take several years to evolve and should not be considered as one-off approaches.

Existing funds versus new funds

Assuming that public money will be invested in private funds, it needs to be decided whether these will be existing or new funds. New funds offer the possibility of leveraging more external capital; they are also likely to be able to absorb more government funding than existing funds that had not been planning to make large numbers of new investments. Existing funds offer the ability to invest money quickly, with no set-up period.

Recommendation: Both proposals have their merits (investing existing funds offers timeliness, investing in new funds offers more efficiency through greater leverage opportunities). Our proposal is to do both, reserving part of the fund for immediate investment, and the remainder for investment into new funds.

Canada

In 1983, the first Labour Sponsored Venture Capital Corporation (LSVCC, also known as Labour Fund) was created in Quebec. LSVCCs and PVCCs (Provincial Venture Capital Corporations) raise their capital from individuals – this is why they are also called 'retail funds' – who receive significant tax credits as incentives to invest in small and medium-sized companies.⁶⁸

Labour unions were involved in the governance of labour funds through board of director representation. However they were not involved in the day-to-day management. They were created to allow workers access to investment in venture capital and to fund businesses that would add jobs to the economy. Most of their investments in the 1980s were in the form of development capital in traditional sectors.⁶⁹

The Labour Funds had a number of problematic incentive issues.

- The incentives of the Labour Fund managers were not closely aligned to the incentives of their retail investors.
- The costs associated with the reporting requirements of being publicly listed securities were onerous.

- The high number of retail investors increased the cost of administration and the fixed period for holding could lead to mass exodus of retail investors at the end of the stipulated period once all of the tax incentives had been accrued.
- They provided retail investors with front-end tax credits. These incentives led to retail investors having incentives to invest in these funds for tax benefits that could be accessed irrespective of the performance of the fund, and thus distorted efficient investment behaviour.⁷⁰

The Canadian early experience with government interventions provides an illustration of the counter-productive effects of poorly designed policies. The overwhelming effect of the Labour Funds was to dramatically increase the size of capital invested in venture capital funds in Canada. The tax incentives for the LSVCCs programme led to an influx of inexperienced new investors. The excess competition for potential investment-ready firms crowded out private sector investment.⁷¹

The Canadian venture capital market has now recovered from the earlier problems associated with the Labour Funds. However,

67. Ibid.

68. CVCA (2009) 'Why Venture Capital is Essential to the Canadian Economy: The Impact of Venture Capital on the Canadian Economy.' Toronto: CVCA.

69. Lerner, J., Moore, D. and Shepherd, S. (2005) 'A study of New Zealand's venture capital market and implications for public policy.' Report to the Ministry of Research Science and Technology. Wellington: LECG Ltd.

70. This analysis is included in Lerner, J., Moore, D. and Shepherd, S. (2005) 'A study of New Zealand's venture capital market and implications for public policy.' Report to the Ministry of Research Science and Technology. Wellington: LECG Ltd; and its material is drawn from Carragher, A and Kelly, D. (1998) An Evaluative Comparison of the Canadian and American Private Equity Markets. 'Journal of Private Equity.' Vol. 1 No. 3; and OECD (2003) 'Venture Capital Policy Review: Canada.' STI Working Paper 2003/4. Paris: OECD.

71. Ibid.

its problems are not limited to Labour Sponsor Funds and are more complex. These funds have been restructuring during the recent years, as the rest of the industry, and the industry people are thinking more in terms of complementarity than 'crowding out' the private investors.

Canada wishes to evolve from a resource-based economy to a knowledge-based economy. To achieve this, it has massively invested in publicly funded R&D. By means of a series of policy actions such as tax credits and government venture capital funds, both federal and provincial governments have supported the development of the venture capital industry.⁷²

Recently, many funds of funds have been set up in various provinces, such as British Columbia and Alberta, which both have a fund of funds established with \$90 million and \$100 million respectively. The funds have specific attributes, minimum size and focus on technology. They also have to establish links with the best US funds. In June 2008, the Ontario government announced a new \$205 million Ontario Venture Capital Fund. The fund is comprised of \$90 million government investments and a \$115 million infusion by institutional players. Later this year, a \$250 million co-investment fund was created by the Ontario government to support companies operating in clean

technology, life science, digital media and ICT. In Quebec, a new \$700 million fund was created with a matching \$250 million contribution from the Caisse de depot et placement du Quebec and the Solidarity Fund QFL and \$200 million from the Quebec government. A further \$100 million from other investors may be added to the fund.⁷³

Gilles Duruflé from North American Venture Capital Summit argues⁷⁴ that ten years ago the Canadians were in favour of having geographical limitations: "There was a fear that the best companies will be taken by the Americans. It is a strong belief that neither Canadians nor Europeans are willing to be the incubator for the Americans. Canadians have now changed the way they see things and believe that in order to build strong companies they need to be more open. There is still a fear that the best companies will move to the US, but you have to balance that with the fact that you also need to be open to get the right people on board."

An exciting piece of information of the Canadian case is the fact that the funds that receive backing from the Business Development Bank of Canada (BDC) are allowed to invest 80 per cent in Canada, with 20 per cent able to be invested in other North American companies as a means of generating enhanced returns and fostering the transfer of best practices.

72. CVCA (2009) 'Why Venture Capital is Essential to the Canadian Economy: The Impact of Venture Capital on the Canadian Economy,' Toronto: CVCA.

73. See <http://www.financialpost.com/news-sectors/story.html?id=1583306>

74. In an interview with NESTA researchers conducted in May 2009.

75. Duruflé, G. (2009) 'Facing Head Winds: the Canadian VC industry in the present crisis.' Presentation at the CVCA Annual Conference, 28 May 2009.

Table 2: Latest government responses to the VC market in Canada

		Government allocation	Other anchor LPs	Private sector LPs (incited)	Total	
BC	Gov FoF	\$90m			\$90m	
AB	Gov FoF	\$100m			\$100m	
ON	Private FoF	\$90m		\$115m	\$205m	} \$455m
	Co-inv fund	\$250m			\$250m	
QC	Private FoF	\$200m	\$500m	\$125m?	\$700m	} \$800m
	FoF	\$50m	\$50m	\$25m?	\$100m	
Fed.	Invt in late stage fund	\$75m			\$75m	
Total		\$855m	\$550m	\$115m	\$1,520m	

Source: Gilles Duruflé 2009⁷⁵

How to leverage private capital: At the fund of funds level, the government has the option to either act alone or leverage its contribution with private capital. Clearly, leveraging private capital is better value for the Government. The challenge is to provide terms on which private capital will be willing to invest. The low returns in the venture capital market makes them unattractive for private investments as it entails high risks and small rewards. The risk is inherent and it will always remain in this area of the market but market professionals and high-skilled venture capital investors can reduce it. The issue of small rewards to private investors is something that government can effectively deal with by providing the appropriate structure to diminish low returns.

Recommendation: Our proposal is to encourage private co-investment into the fund of funds on a matching basis, with the public upside being subordinated to the private one by accepting a capped return. A more modest co-investment into new funds can then be accepted (perhaps on a 1:3 basis, since significant private money will already be invested from the fund of funds. This will ensure the fund of funds plays a catalytic role in encouraging private money into the market. The aim should be (as it was in Israel's Yozma programme) to encourage the private sector eventually to buy out the public sector.

6.2 A proposal: the UK fund of funds

Early-stage venture capital is important because its activities have been shown to generate significant spill-over benefit to firms. However, the returns in the UK are low and not encouraging the creation of a venture capital industry as vibrant as that in the US. Therefore, the government needs to support this industry in several ways.

- First, by injecting money into existing funds that are in immediate need of cash to support their portfolio companies.
- Second, by increasing the availability of money in the early-stage market by setting up public-private matching schemes.

Building on lessons learned from successful models implemented elsewhere (such as Israel, New Zealand and Canada) and on some basic elements of the existing government interventions that have worked well, the

interventions should complement rather than compete with private venture capital funds.

The analysis in Section 5 shows that the new funds should be based on three principles:

1. In order to avoid the tyranny of multiple objectives, the funds should only focus on financial returns.
2. The new funds should be large enough – at least £40 million – in order to operate effectively, be sustainable and make follow-on investments.
3. The created funds should not have any geographical restrictions on where they can invest within the UK.

Based on the principle of public-private partnership, the aim of the proposed fund will be twofold:

- To provide much needed funding to existing venture capital funds that are struggling to raise additional money to follow-on their investments.
- To foster private venture capital investments in the early-stage market.

The fund of funds could provide a major boost to high-potential growth sectors. Separate funds could be created to provide vital early-stage equity funding to innovative firms, particularly in the areas identified by the government as promising ones: advanced engineering, electronics and biosciences.⁷⁶

Main fund

£150 million of government commitment should be used to leverage £150 million from private investment creating a fund of funds of £300 million. To assist fund managers to attract private sector investors, the government should subordinate its investment position in the fund of funds by putting a cap on its investment return, thereby boosting the anticipated return to private sector investors and agreeing to bear 'first losses' (similar to existing regional venture capital funds).⁷⁷

This structure will help reduce the high risks that early-stage investments contain. This is based on the same principle as the Enterprise Capital Funds model which requires approved funds to raise matching funding from the private sector.

76. HM Government (2009) 'New Industry, New Jobs.' White Paper. London: TSO.

77. An effective subordinate government role could imply that:

- Private LPs get their money back first plus a preferred return
- Government gets its money back second
- Any remaining capital is split

The main fund would invest in two ways in funds operating in the early-stage technology venture capital space: existing funds and new funds.

Existing funds

One third of the fund (£100 million) should be used to support existing venture capital-backed companies that are in desperate need of investments in order to survive the turmoil. This capital will provide a significant injection to the market which only managed to raise less than £200 million last year compared with over £600 million the year before.⁷⁸ There are currently hundreds of companies fundraising but due to the limited 'investable' money available in the market it is very likely that these ventures will collapse.

Existing funds which are privately managed and have a track record of success should receive up to £20 million each from the fund of funds to invest in existing promising companies from their portfolio. The fund of funds will match the value of their existing portfolio (in order to avoid state aid).

New funds

The remaining £200 million should be used to stimulate new ventures through the creation of six funds that will receive £30 million each.

- £100 million should be invested this year and the remainder over four years.
- In addition to the £30 million, each new fund will attract a further £10 million from private investors bringing the total capital of

each fund to approximately £40 million and leveraging the government money by 40/60.

- By attracting further private investments, new funds will raise the total leverage of private money to £220 million (£150 million at the fund of funds level plus £70 million at the new funds level).

Due to their size, these funds will be able to make follow-on investments without the danger of dilution.

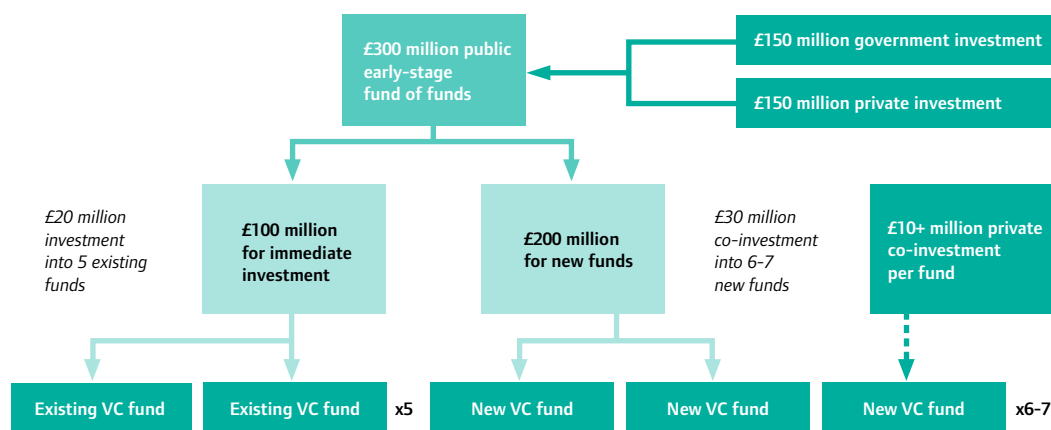
The funds should be directly targeted at investing in early-stage companies that are falling into the 'equity gap'. As such, it should make investments in companies seeking less than £500,000, with a target level for first investment of between £250,000 and £500,000. The funding limit on the amount that can be currently invested in a single company by public sector funds constrains follow-on investing in a co-investments situation. Very often, publicly backed fund portfolio companies cannot be followed up in the funding ladder and are abandoned before they are ready to attract private investment and as a result collapse. Therefore, the new funds should have the ability to make follow-on investments through to exit.

We believe this proposal offers an affordable, efficient, immediate way to provide finance to UK high-growth businesses. It should kick start our wider early-stage investment market.

It is needed urgently. And there are huge potential rewards in growth, new jobs and new industries.

78. Pierrakis, Y. and Harrison, A. (2009) 'Venture Capital Fundraising Activity Slows in 2008.' London: NESTA.

Figure 9: Proposed structure of the fund of funds



NESTA

1 Plough Place
London EC4A 1DE
research@nesta.org.uk

www.nesta.org.uk

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