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The Year of VENTURE

Is *Venture Capital* a **Public Good?**

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The role of venture capital (VC) is sometimes not as prominent in the media as large buyout deals, but its importance to the economy should not be understated. Venture capital is the flow of equity into innovative companies; it funds a breeding ground for ideas and inventions. And while VC is not strictly a 'public good'[1], this briefing outlines evidence from the academic literature to demonstrate that it brings a wide range of benefits to individuals, the economy as a whole, and society more broadly.

Growth and Value Creation

Venture capitalists have long maintained that their investment and expertise can lead to value creation and supports high-growth, innovative firms; an investigation into the literature and reports on venture capital supports this premise.

Engel (2002) shows that firms receiving venture capital investment achieve significantly higher growth rates, owing to the fact that VCs actively drive firms to grow faster than other investors. Similarly, a **NESTA/BVCA** report (2009) found that VC schemes with UK government backing had a positive impact on firm performance – while early disruptive changes produce an initial negative impact, firm performance rebounds strongly over time as a result of investments; the classic J-curve effect. **Martí and Alemany's** 2008 study returned similar findings – Spanish VC-backed firms, especially in the industrial, trade and services sectors, had significantly higher labour productivity gains than their non-VC-backed peers. Capital productivity growth rates for VC-backed firms were also greater than the benchmark, at statistically significant levels.

Romain and van Pottelsberghe (2004) take a different slant and attempt to quantify the economic impact of VC using international OECD-sourced data from 1990-2001. They find that the social return to VC significantly exceeds the social return attributed to business or public/government research and development (R&D). The authors credit the introduction of new products and process to market to VC investment. Yet more significantly, they show that increased VC involvement allows for a greater 'absorptive capacity' of firms to grasp the knowledge/ideas generated by universities. While these studies focus on growth and performance, **Dimov and De Clercq** (2006) also found that the technical expertise of venture capitalists actually lowers the relative number of failures in the portfolio.

Although research on raw company data accurately measures and demonstrates the impact VC investment has on companies, it is also interesting to look into the perceived benefits of venture capital from a portfolio company perspective. An **EVCA** (2002) survey found that:

- 95% of portfolio companies replying to the survey stated that, without venture capital investment, they could not have existed or would have developed more slowly.
- 72% of seed/start-up companies stated that they would have never come into existence without the contribution of venture capital.
- Almost 60% said that the company would not exist today without the contribution of venture capital.

Venture capitalists' commitment to investee companies also often continues beyond the investment exit. **Muscarella et al** (1990) found that after flotation, many VC investors continue to engage with the firm, taking on an active monitoring role on the board. They also found that the median VC-backed IPO was bigger than the control group (non-VC-backed IPOs), indicating strong value creation from VC investments.

As highlighted in this section, VC investment can produce high-growth businesses, which not only contribute to the value of a company but can also generate jobs.

[1]For instance, one characteristic of a pure 'public good' is that consumption of it by one individual does not reduce the opportunity for others to do the same.

Employment

A **NESTA** (2009a) report demonstrated that firms that had introduced a product innovation between 2002 and 2004 experienced a 4.4% average employment growth rate during 2004 to 2007. This is in contrast to the 2% average growth rate displayed by non–innovators. In the same report, NESTA also revealed that established high–growth companies employing 10 or more people have created 1.3 million new jobs in the past 3 years. Although this research is not confined to VC–backed companies, it gives a clear idea of how venture capital can impact employment through the creation of high–growth firms.

Both the **BVCA** (2007) and **EVCA** (2002) have conducted surveys on the impact of VC investment including its impact on job creation. The BVCA survey found that nearly half (49%) of portfolio companies asked said that their levels of employment had been higher due to venture backing. EVCA's survey found that on average, 46 additional jobs were created by each responding company following the venture capital investment.

These findings are supported by a later **EVCA** (2005) report and a study by **Belke, Fehn and Foster** (2009). The EVCA report estimates total employment contribution in Europe by VC firms and reveals that venture–backed companies account for 17% of the total employment in portfolio companies – close to 1 million jobs. Employment in venture–backed companies grew by an average rate of 30.5% annually over the period between 1997 and 2004. This is nearly 40 times the annual growth rate of total employment in the EU 25 member states (0.7%) between 2000 and 2004. Similarly, the Belke, Fehn and Foster study finds that the venture activity does improve overall labour market performance by increasing employment and lowering unemployment.

Meanwhile, the ***Venture Impact 2004: Venture Capital Benefits to the U.S. Economy*** (2004) report found that US VC–backed companies outperformed their non–VC–backed counterparts during 2000–2003. In terms of job–creation and sales, VC–backed firms generated 10.1 million jobs and $1.8 trillion in sales. Moreover, VC–backed firms spent more than twice as much as their non–VC peers on R&D.

While the relationship between high–growth firms and job creation is well–established, innovation is arguably the force that underpins both. Business innovation spurs economic growth and sustainable companies; for consumers it means higher quality and better value goods and more efficient services.

Innovation

A report by **NESTA** (2009a) focuses on the importance of innovation and the positive effects it can have on companies and the economy:

- Innovation drives firm growth. Innovative firms grow twice as fast, both in employment and sales, as firms that fail to innovate.
- Firms that had introduced a product innovation during 2002 and 2004 experienced a 10% average sales growth rate between 2004 and 2007, in contrast to the 5.8% average growth rate displayed by non–innovators.
- High–growth firms generate spill–overs in their regions. Not only do high–growth firms create jobs, but they do so over and above their direct effect on employment.

Another NESTA report, ***Business Growth and Innovation*** (2009b), noted the following:

- The positive impact of high–growth firms on productivity as the resources of displaced weaker firms are reallocated to stronger firms. This process also encourages greater innovation and efficiency in surviving firms.
- The spill–over effects of rapid firm growth on the growth of other firms as well as on regional economic and social outcomes, such as employment and inactivity rates.

While this demonstrates the positive effects innovation can have, measuring innovation is hard. One common metric is to look at the number of patents issued to firms; the more patents, the more innovative a firm is perceived to be. A paper by **Ueda and Hirukawa** (2008) found that VC activity leads to higher innovation on two different measures: patents counts and productivity growth. Moreover, a 2005 **EVCA** report found that VC–backed companies in their sample applied for 14 patents on average, and were awarded 8. The same study noted that 569 patents are held by the 75 companies supplying information; this represents 'more than four times the number of patents granted in the EU 25 per 1 million employees each year (134 patents)'. Notably, only about 6,800 people are employed by these portfolio companies. Research by **Kortum and Learner** (2000) also supports this notion; the authors investigate the relationship between VC investment and patents. Using US industry level data, they show that VC and R&D have a significant effect on patents and estimate that a VC dollar is three times more valuable in generating patents compared with a non–VC dollar.

A 2009 **BVCA** report strengthens this argument with a summary of empirical research that compares US VC–backed companies to non VC–backed companies. It shows that the former are more innovative and produce more patents, are faster in developing their products and introducing them to the market, and have a higher rate of executive turnover which reflects faster managerial professionalisation.

Most research has focussed on the venture capital industry as a whole. Yet interestingly, **Brander**, **Du and Hellmann** (2010) find that government supported VC firms create more patents than VC firms that do not receive any government support. In terms of patent creation, similar research by the **World Economic Forum** (2010) found that companies with moderate government support outperformed those with only private venture backing and those with extensive government support. The optimal funding appears to be one comprising both private and public funding.

Summary and Case Studies

Venture capital yields significant benefits to both the wider economy and society. Capital and labour productivity growth rates in VC–backed companies exceed their benchmarks, while job creation has been robust – employment was nearly 40 times the annual growth rate of total employment in the EU 25 member states (1997–2004)[2]. Venture capital–backed firms also exhibit high levels of innovation through higher productivity, better resource allocation and a greater number of patents granted. It is for these reasons that venture capital has become a key economic priority, especially around concerns about access to finance for smaller companies, which have prompted government intervention. France has the most favourable tax and legal environment for VC in Europe[3]. Benefits to individual investors include an income tax reduction equal to 25% of the amount invested in the funds and a wealth tax reduction equal to 50% of the amount invested. Although much progress has been made to develop the venture capital industry in the UK, more needs to be done. New initiatives like the Patent Box and the East London 'Tech City' demonstrate the Government's continued support for venture capital.

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[2]EVCA. Employment contribution of Private Equity and Venture Capital in Europe (2005). [3]EVCA & KPMG, Benchmarking Study (2008).

The following case studies demonstrate the positive impact venture capital investment can have on individual companies.

CLEANTECH

Marine Current Turbines Ltd

Marine Current Turbines Ltd, a leader in the field of tidal and marine current turbines, received £2.7 million in funding from the Carbon Trust's Marine Renewables Proving Fund in 2009. The company has developed new technology that provides a means to generate electricity from the huge and sustainable energy resource of flowing currents in the seas and oceans. While the basic principle seems straightforward – installing windmill–like apparatus under water – the practical difficulties of successfully doing so at sea are considerable. Marine Current Turbines has an excellent track record of developing and scaling up this technology, including installing the world's first tidal turbine on Loch Linnhe, the world's first offshore large–scale tidal turbine off the coast of Devon, and the world's first commercial scale tidal turbine, the 1200kW Seagen system, in Strangford Narrows, Northern Ireland in April 2008. The Seagen system has delivered over 2000MWh into the UK national grid.

The company is now working on the world's first commercial scale project, a planned array of Seagen type turbines. They plan to install Scotland's first tidal energy farm in 2013, targeting a strait of water between the Isle of Skye and the Scottish mainland. The tidal farm will have the capacity to generate electricity for up to 4,000 homes in the Highlands & Islands by using the power of the fast tidal currents that pass through Kyle Rhea 14 hours a day. This progress has been achieved with public funds, initially from the European Commission but mainly from the UK government (DECC). However, most of the risk and some 75% of the costs have been borne by VC funds (including The Carbon Trust), corporate partners (including EDF Energy, Siemens and Npower) and some private shareholders.

HEALTHCARE

The Practice

The Practice plc has been delivering primary healthcare services to the heart of the local community since its founding in 2005. The business model – managing surgeries and walk–in centres on behalf of GP doctors and running long–term primary care services contracts for Primary Care Trusts – enables doctors to concentrate on practising medicine without any of the administrative burden. The Practice operates nationwide and they have already developed strategic partnerships with South–East and Midlands based Primary Care Trusts (PCTs). Leicester City, Solihull and Redbridge as well as Croydon, Suffolk and West Hertfordshire PCTs have recognised the value and the high quality services that The Practice offers. The Ministry of Defence and the Prison Service have also allowed The Practice's medical staff to dispense clinical services in secure settings. MMC Ventures first recognised the value of The Practice in 2006 and have since provided £3.4 million worth of expansion capital. Since the initial investment, Chilvers & McCrea Ltd (a private healthcare provider) was acquired in 2010, meaning that The Practice now provides care to around 150,000 patients from 50 surgeries. They have also won a contract to manage four surgeries for NHS Leicester City worth £5 million over five years, and have made major inroads into secure healthcare provision following the acquisition of Drummonds Medical Limited – a specialist in this area – in March 2010.

LIFE SCIENCES

Astex Therapeutics

Founded in 1999, Astex Therapeutics is a biotechnology company pioneering fragment-based drug discovery. It has used its own platform, Pyramid, to discover and develop new small molecule drugs for the treatment of cancer and viral infections. Its product portfolio is impressive with five oncology medicines being developed in four years, of which three are being tested in clinical trials and two are at pre-clinical development. Astex has received support from VC investors to the tune of £80 million from several funding rounds with the likes of Abingworth, Oxford Bioscience Partners and the University of Cambridge. Alongside the VC support, corporate investors such as Bayer Schering, Novartis, AstraZeneca and GlaxoSmithKline have also fostered the company, recognising the value of Astex's research capabilities. Over the past year, Astex's research programme has grown after being awarded funding from the Multiple Myeloma Research Foundation, The Wellcome Trust and Cancer Research UK.

CONSUMER

LOVEFiLM

LOVEFiLM is another remarkable VC success story. In little over 8 years, this British based company has become the dominant player in the European market in its respective field. Its subscription-based model and internet-based service allows users to rent DVDs and video games on a range of viewing mediums for a monthly charge. LOVEFiLM has received tremendous VC support from the likes of DFJ Esprit and Index Ventures whose capital has enabled the business to grow further. Since VC investment in 2004, LOVEFiLM has grown immensely through strategic partnerships with retailers such as Tesco and television manufacturers like Sony. It has also diversified its services to offer more digital downloads/ streaming and is rapidly pushing into new markets, for example in Germany and Scandinavia. Alongside this, the company continues to strengthen its existing presence in the UK through the acquisition of Amazon's DVD rental business. Its latest financial results indicate that its revenue increased by 32.9% to £97.2 million in 2009, while operating profit rose to £8.9 million for 2009 – a stellar performance when the recession was at its fullest.

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