

# Venture capital in Australia

Dominic Regan and Gene Tunny<sup>1</sup>

Venture capital is an important vehicle for financing new and innovative high-risk ventures. While its size relative to the economy is typical for an OECD country, Australia's total venture capital investment is relatively smaller than that of the United States. The US, however, has a number of regions or 'clusters' with very high levels of venture capital activity, such as Silicon Valley and Boston, which benefit from a combination of hard-to-define favourable circumstances and historical developments. While a range of economic and geographic precursors are necessary for the development of successful clusters, they do not appear to be sufficient in themselves. There appears to be no right way to develop a cluster and no magic formula.

---

1 The authors are from the Macroeconomic Policy and Industry, Environment and Defence divisions of the Australian Treasury. This article has benefited from comments and suggestions provided by Greg Coombs, Graeme Davis, Matthew Flavel, David Gruen, John Hawkins, Kruno Kukoc, Tony McDonald, Joann Wilkie and colleagues in Industry Policy Unit. The views in this article are those of the authors and not necessarily those of the Australian Treasury.

## Introduction

Venture capital is an important contributor to many of the innovations that drive improvements in productivity and living standards. Many of the most successful and innovative companies in the global economy in recent years, including Google and Starbucks, were financed in their early stages by venture capital. Although not the only financing option available to entrepreneurs, it is an important vehicle for financing new and innovative high-risk, high-return ventures. It is the global successes such as Google, however, that have resulted in the perception that venture capital is associated with success. Of course, owing to the risky nature of the ventures, alongside the successes, venture capital has funded some spectacular failures, including eToys and Boo.com.

Venture capitalists provide the finance, at least initially, so that the ideas of innovators and entrepreneurs can be developed and brought to market. In Australia, venture capital has helped create and grow many innovative firms, including Austral (the world's leading manufacturer of fast ferries and passenger water craft), Wizard Home Loans, and Seek (the internet job-advertising service).

This article explores the factors affecting the relative size and nature of Australia's venture capital investment. It asks whether venture capital activity could feasibly develop in Australia on the same scale, relative to the economy, as the US. This article is an initial examination and forms part of a series of articles on the economic importance of innovation. It follows previous work on Australia's research and development effort (Davis and Tunny 2005) and links with a paper on entrepreneurship (Kukoc and Regan 2008) in this edition of *Economic Roundup*.

The next section defines venture capital and considers the characteristics that distinguish it from other forms of finance. Following this, some international comparisons of venture capital data are presented. The article then develops an hypothesis to explain the level of venture capital activity in Australia. The article concludes with a short discussion of some possible implications of the analysis.

## What is venture capital exactly?

For centuries, people have developed ways of pooling their money to undertake risky ventures. The East India Company was an early example, and the fictional voyage of the Pequod in *Moby Dick* was illustrative of the high-risk, high-return whaling ventures of the nineteenth century. Venture capital is simply a modern variation on a long-established practice of pooling money to finance risky ventures.

Venture capital is one means of financing that allows an idea, or intellectual property (IP), to be taken from its conception through to proof-of-concept and

commercialisation. Venture capital is 'high risk private equity capital for typically new, innovative or fast growing unlisted companies' (ABS cat. no. 5678.0). However, the lines between venture capital and other forms of private equity tend to be blurred making accurate measurement difficult. As the Productivity Commission (2007, pp 308-309) notes:

'Venture capital is a subset of the private equity market. Private equity covers professionally managed pools of funds seeking investment in high-risk high-return opportunities in unlisted companies or situations. Venture capital covers seed, early stage and expansion stage investment, usually IP based, with prospects for rapid growth, and with a higher risk/higher return profile than later stage private equity investment.'

Venture capitalists are either professional venture capital firms, consisting of a few partners, or 'business angels' – wealthy individuals with particular niche interests.<sup>2</sup> Typically, businesses financed by venture capital are engaged in speculative ventures and cannot obtain finance from traditional sources.

The amounts of money provided by venture capital firms are typically not large and are even smaller for 'business angels'. Venture capitalists typically take a significant stake in the ownership of the new firm and exert a considerable degree of influence. Venture capitalists also can increase their control over the firm through contractual arrangements, including penalties for under-performance. As Berlin (1998, p 21) notes:

'The severity of the penalties for not meeting objectives, which range from a reduced ownership share to being replaced altogether, provides the entrepreneur with powerful incentives to work exceptionally hard and also gives the venture capitalist lots of power to influence the firm's direction.'

The focus of venture capitalists is typically in bringing a start-up firm to an initial public offering (IPO), or having it merged with or acquired by another firm, after around three to five years of close involvement (Berlin 1998). Potentially, venture capital offers the 'best of both worlds' to entrepreneurs. By freeing entrepreneurs from working in a bureaucratic corporate environment, it allows them to leverage off the business acumen of venture capitalists. It also provides a focus on commercialising the innovation and increasing the market value of the firm – a focus that may otherwise be lacking.

---

2 Business angels are not included in the venture capital data used in this article. The OECD (2005) notes: 'As business angels are excluded, international comparisons may be affected since business angels in the United States have tended to invest much more than venture capital funds in new firms.'

## Venture capital in Australia

As with entrepreneurship (Kukoc and Regan 2008), venture capital is difficult to measure. The distinction between it and other forms of finance is not always clear. Following the 2004-05 Venture Capital Survey, the ABS concluded that previously published estimates included some later stage private equity and they renamed their publication to 'Venture Capital and Later Stage Private Equity' to account for this. The ABS notes, however, that the series remains consistent over time. With this in mind, we now turn to international comparisons.

### International comparisons

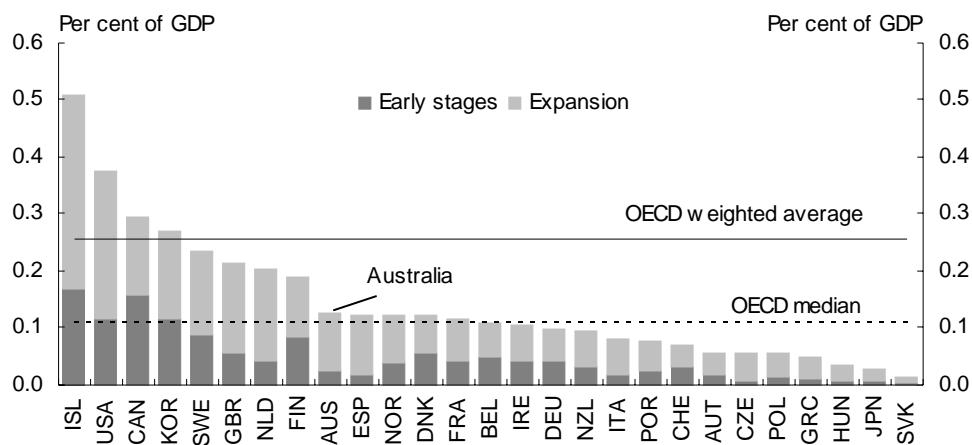
In the early 2000s, Australia's venture capital intensity (at 0.1 per cent of GDP in 2000-03) was around the average for the OECD, but was smaller than that of the United States (Chart 1a). In 2005, Australia's venture capital intensity was 0.05 per cent of GDP (Chart 1b).

Large year-to-year changes in venture capital intensity suggest a degree of caution is needed in interpreting venture capital data. Definitions of venture capital can vary across countries and the data can be volatile from year-to-year and estimates from different sources can differ significantly. This is illustrated in Chart 1b which updates Chart 1a with data for 2005. It shows considerable changes in venture capital intensities over time. Of course, where data are volatile, caution is needed in interpreting a single observation.

Australia's venture capital intensity was below the OECD median in 2005. Denmark, which in 2000-03 ranked below Australia, had the highest intensity in the OECD in 2005, while Iceland (ISL) moved from the highest intensity in 2000-03 to around the OECD weighted average in 2005. The United States maintains its position around the top of the ranking (moving from second to fifth place), but its venture capital intensity in 2005 was around half its reported level in 2000-03.

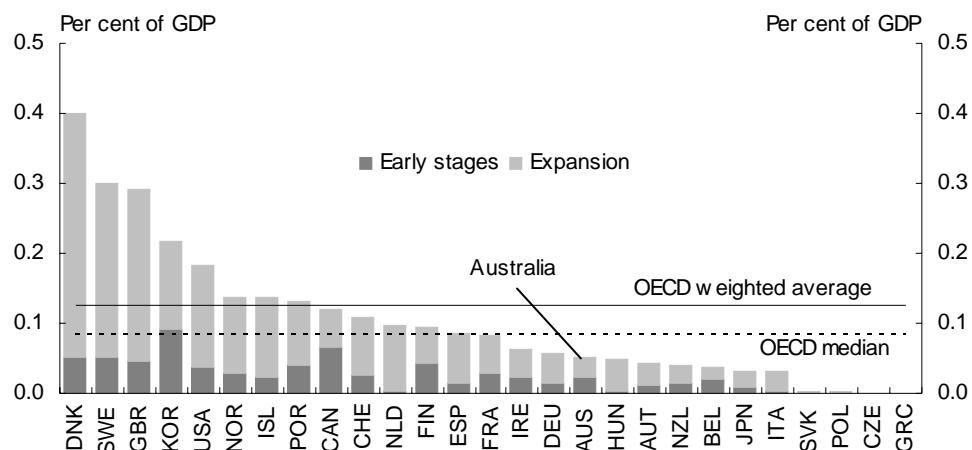
## Venture capital in Australia

**Chart 1a: Venture capital investment in OECD countries, 2000-2003**



Source: OECD (2005).

**Chart 1b: Venture capital investment in OECD countries, 2005**



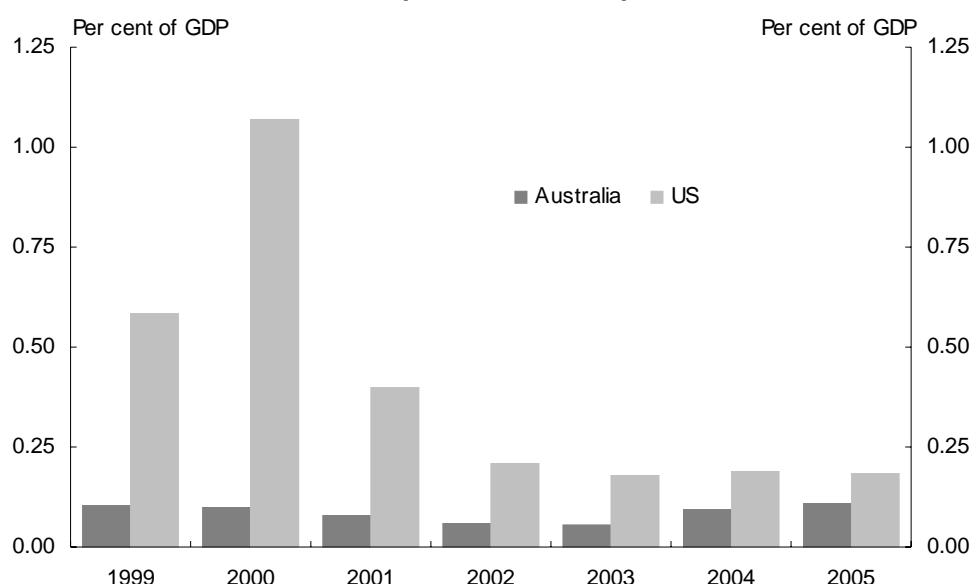
Source: OECD (2007).

The venture capital data in the charts above also capture investments in the expansion stages of businesses, including buy-outs of business. Arguably, some of these investments do not match the commonly-understood meaning of venture capital, as they are financing businesses that have already started up. Of course, in some cases the difference between early and expansion stages of a business may be difficult to define, as some businesses may take years to develop their initial idea.

The volatile nature of venture capital investment is further illustrated in Chart 2 which shows that venture capital activity in the US has fallen significantly in the years since the dot-com boom of the late 1990s and early 2000s (Chart 2). It is possible that the OECD average shown in Chart 1a is significantly affected by the spike in US venture capital activity during the dot-com boom.

## Venture capital in Australia

**Chart 2: Venture capital investment, per cent of GDP**

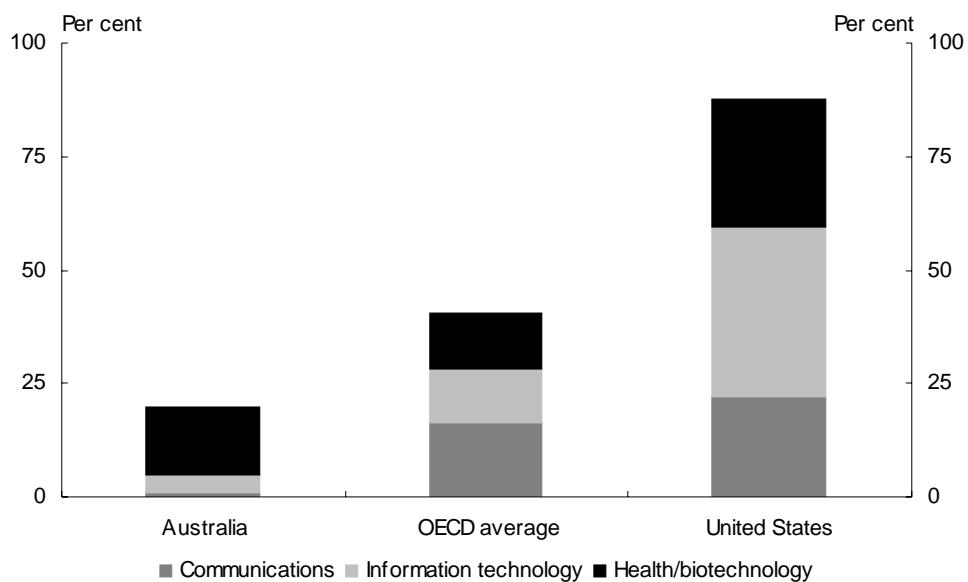


Source: National Science Foundation (2006) and Bureau of Economic Analysis (2007); ABS cat. no. 5678.0 (various issues) and cat. no. 5204.0.

Notes: Australian data are for the financial year beginning in the calendar year, and are based on ABS data, rather than the data sources underlying the OECD's data in Charts 1a and 1b.

Based on the available data, Australia's venture capital intensity appears to be around the median for OECD countries. At June 2006, the ABS estimates around \$11 billion had been committed to venture capital and later stage private equity funds (ABS, cat. no. 5678.0). However, only around \$7 billion had been drawn down and invested by the venture capital fund managers in around 900 different companies. It is possible that venture capital fund managers would have invested more if there were projects available that matched their criteria for investing. Therefore, if there is a problem with 'under-investment' of venture capital in Australia, it does not appear to be due to a lack of available funds.

The mix of venture capital activity that is conducted domestically will be influenced by Australia's industry structure. Only around 20 per cent of venture capital in Australia is in the high-technology sectors of health and biotechnology, communications, and information technology (Chart 3). In contrast, almost 90 per cent of venture capital activity in the US occurs in these sectors. Australia's lower venture capital intensity may be due to relatively smaller high-technology sectors, but this cannot be determined based on available data.

**Chart 3: Share of high-technology sectors in total venture capital, 2005**

Source: OECD 2007.

Another possible explanation for Australia's level of venture capital activity is that the scale and geographical dispersion of economic activity in Australia place a natural constraint on the development of a large venture-capital-financed, high-technology sector. Support for this view is provided by the concentration of high-tech industries and venture capital activity in a small number of regions within countries, such as Silicon Valley and Boston in the US. Given that high-tech clusters are few and far between even in the US, it is unsurprising that there do not appear to be similar clusters in Australia, which has an economy less than one-tenth the size of the US economy.

The economic fundamentals underlying the development of high-tech clusters and venture capital activity have significant implications for public policy in this area, as discussed in the next section.

## The location of clusters and venture capital activity

High-technology industries tend to be heavily concentrated in regional 'clusters'. For example, there are highly successful ICT clusters in Silicon Valley and Boston and there is an aerospace cluster in Seattle. It is a firm's nearness, both in terms of location and relationships, to entrepreneurs, industry experts, financial and accounting specialists, marketers, and related businesses that determine the success of the firm and the intensity of a high-technology cluster (O'Mara 2005). Clusters such as Silicon

## Venture capital in Australia

Valley constitute a complex economic ‘ecosystem’, with a vast array of specialised businesses in related industries.

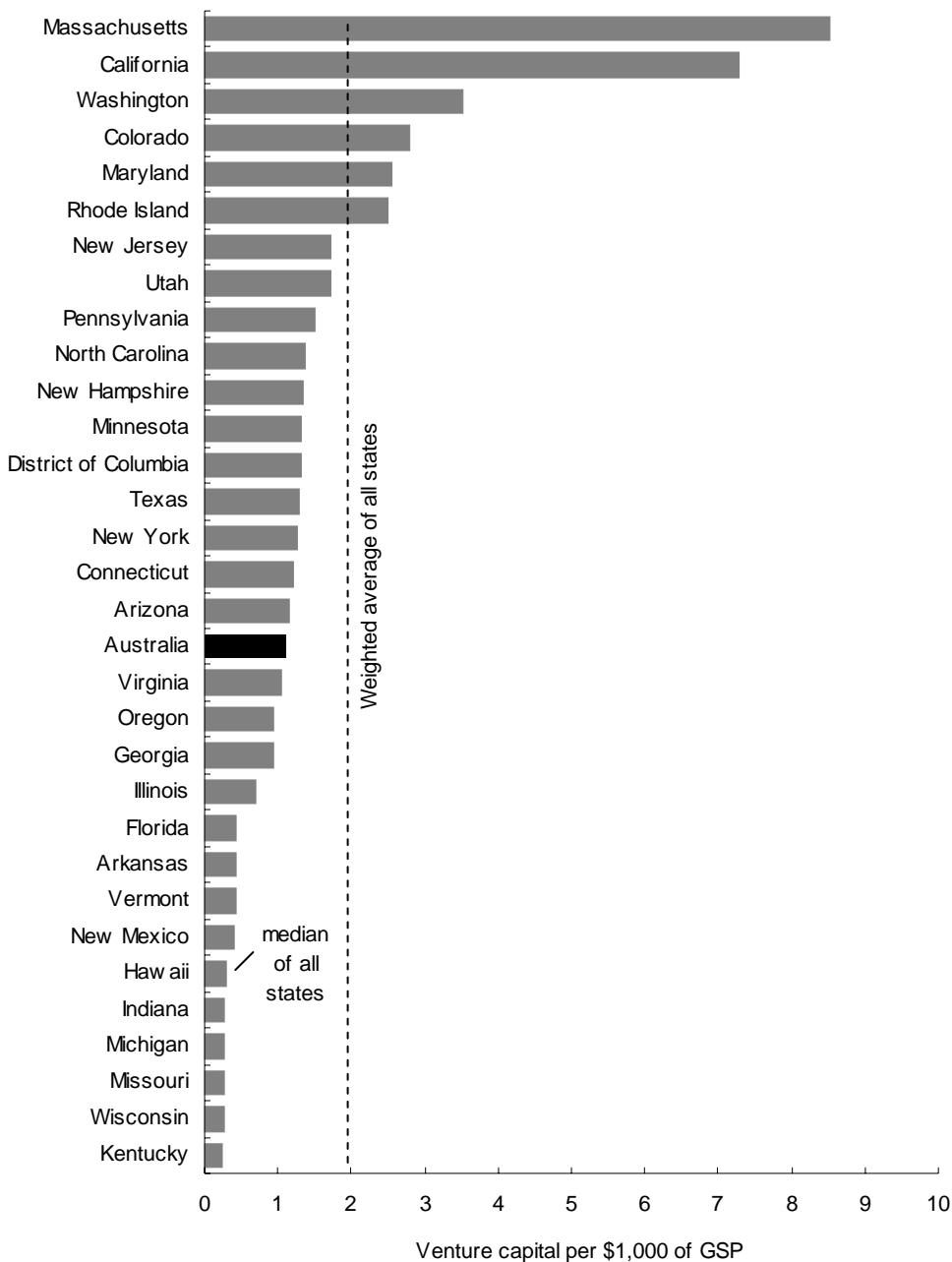
Regions that already have high-technology clusters tend to be more productive and attract a highly skilled workforce. They are also more likely to attract and sustain a large venture capital sector because the factors that result in clustering also are likely to reduce the risk to investors and increase potential profits. In this way they maintain their competitive advantage while driving the technological frontier forward.

Combined with competitive pressures, the confluence of the innovator’s knowledge and the venture capitalist’s industry experience creates a ‘hothouse’ environment that drives rapid growth of start-up firms. While venture capital is seen as a risky business, it is the considerable expertise of the venture capitalists that reduces risks and creates successful firms with self supporting clusters.

High-technology industries tend to be global in outlook. It follows that high-technology clusters will attract ideas that originate in other regions or countries. Ideas generated by Australian entrepreneurs may be easier to fund and generate higher returns in the US, for example, because they can take advantage of the unique opportunities within clusters. However, Australian firms and consumers will ultimately benefit from the commercialisation of the ideas, irrespective of where they are developed, as Australians are typically early adopters of new technologies.

Australia could be expected to have a lower intensity of venture capital (as a proportion of GDP) than the US, as Australia may not be the logical place to locate many of the venture capital-reliant sectors. As noted in the introduction, there is a significant difference between the levels of venture capital in Australia and the US. However, if Australia were a state of the US, it would rank 18<sup>th</sup> in terms of venture capital intensity, and therefore above the median US state (Hawaii) (Chart 4). It is difficult to be precise, however, about exactly where Australia would lie, given the significant variation in the data from year-to-year and the uncertainties that underlie the venture capital estimates.

**Chart 4: Venture capital intensity, 2006**



Source: National Science Foundation (2008); ABS cat. no. 5678.0 (2005-06 data).  
Notes: We have not included all the US states in Chart 4 due to space limitations.

Looking at the distribution of venture capital across the US, only a few states drive up the overall US average to its very high level (Chart 4). The intensity of venture capital across the US varies considerably, with Massachusetts and California together accounting for over half of US venture capital investment. These two US states are

## Venture capital in Australia

home to unique regions associated with high-growth Information and Communications and Technology (ICT), biotechnology, and other high-technology industries.

In explaining why Australia does not match the intensity of venture capital in the US, the question is really why Australia does not have regions like Silicon Valley that attract unusually high levels of venture capital activity?

Regions like Silicon Valley have a comparative advantage in venture capital-financed activities because the closeness, or ‘propinquity’, of individuals with expertise in their field can significantly reduce the risk of the venture. This comparative advantage, combined with the global nature of high-technology industries, makes competing with regions such as Silicon Valley in ICT very difficult.

The importance of the agglomeration of economic activity, with its array of specialisations and linkages, suggests that it is very difficult to create clusters through direct policy interventions. O’Mara (2005) argues that replicating the success of Silicon Valley has proven exceedingly difficult, even in US regions with similar economic circumstances. In the US, efforts to create ‘cities of knowledge’ founded in Philadelphia and Atlanta, which did not have the hard-to-define precursors that Silicon Valley and Boston had (Box 1). Around the world, there are a number of examples of where, despite policy interventions, expectations of the emergence of high-tech clusters were not realised, including the so-called ‘Silicon Glen’ in Scotland and the Multifunction Polis in South Australia.

While a range of economic and geographic precursors are necessary to the development of successful clusters, they do not appear to be sufficient in themselves. There appears to be no right way to develop a cluster and no magic formula.

### **Box 1: High-tech clusters in the United States**

According to O'Mara (2005) so-called 'cities of knowledge' like Silicon Valley had their genesis in the US's Cold War defence policies. The opportunity to work in well-funded military research harnessed an academic science sector that united behind national security goals. The initial military focus created large spin-offs for civilian industry, leading to the creation of an entrepreneurial culture that brought together universities, industry and, importantly, a well-educated middle class. These collaborative arrangements were supported by a range of incentives from all levels of government, though it is unclear how important particular policies were.

The bringing together of industry and academia, along with favourable public policies, was important to the creation of successful US clusters, but did not translate into success everywhere. Philadelphia and Atlanta both had a large defence industry and strong academic links (with Pennsylvania University and Georgia Tech), but they failed to develop significant clusters. There are other factors at play that are much harder to define, let alone reproduce.

Along with these important ingredients, O'Mara suggests that Silicon Valley's success may be due to a number of cultural and socio-economic factors. These include the favourable climate of California with its rapidly expanding population of skilled and educated people attracted by the promise of a pleasant middle-class suburban environment. California also had more stable social conditions, in contrast to the socio-economic problems of Pennsylvania, including poverty, deteriorating urban areas, and declining industries.

The lesson for policy advisers is that it is very difficult to create clusters through policy interventions. The Productivity Commission (2007, p. 313) notes:

It is not the role of government to 'de-risk' highly risky commercial ventures. This is also an area where good program design is hard to achieve. Quite apart from the usual business program risks for government of potential crowding out of private finance and administration costs, governments may also face the risk of subsidising projects with poor commercial prospects.'

Recent analysis suggests that factors such as labour market flexibility and competitive tax regimes might be more important drivers of venture capital intensity than providing a larger pool of funds (Da Rin, Nicodano and Sembelli 2006). Bankruptcy laws may also have an impact (Armour and Cumming 2006).

## Conclusion

The costs that drive Australia's relative venture capital intensity are real and are not a function of policy settings. Given these real impediments, it is not surprising that Australia would come somewhere in the middle of a distribution of US states by venture capital intensity.

The levels of venture capital financing and high-technology activity are related to economic and geographical fundamentals. Artificially increasing the venture capital intensity of the economy to some international benchmark would be unlikely to produce positive outcomes.

Broadly speaking, innovation and economic growth are underpinned by sound economic framework policies. These include sound policy frameworks for fiscal and monetary policies, competitive markets, education, intellectual property, and tax, among other policy areas.

## References

- Armour, J and Cumming, D 2006, 'The Legislative Road to Silicon Valley', *Oxford Economic Papers*, vol. 58, pp 596-635.
- Berlin, M 1998, 'That Thing Venture Capitalists Do', *Business Review*, Federal Reserve Bank of Philadelphia, Jan/Feb, pp 15-26.
- Bureau of Economic Analysis 2007, *National Economic Accounts*, <http://www.bea.gov/national/index.htm#gdp>, accessed 25 January 2008.
- Da Rin, M, Nicodano, G and Sembenelli, A 2006, 'Public Policy and the Creation of Active Venture Capital Markets', *Journal of Public Economics*, vol. 90, pp 1699-1723.
- Davis, G and Tunny, G 2005, 'International Comparisons of Research and Development', *Economic Roundup*, Spring, Australian Treasury.
- Dolman, B, Parham, D and Zheng, S 2007, *Can Australia Match US Productivity Performance*, Productivity Commission Staff Working Paper.
- Kukoc, K and Regan, D 2008, 'Measuring Entrepreneurship', *Economic Roundup*, Summer, Australian Treasury.
- National Science Foundation 2008, *Science and Engineering Indicators 2008*.
- OECD 2005, *OECD Science, Technology and Industry Scoreboard 2005*, Paris.
- OECD 2007, *OECD Science, Technology and Industry Scoreboard 2007*, Paris.
- O'Mara, M 2005, *Cities of Knowledge: Cold War Science and the Search for the Next Silicon Valley*, Princeton University Press.
- Productivity Commission 2007, *Public Support for Science and Innovation*, Research Report.