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Private equity:
Growth and innovation
Australian Private Equity and
Venture Capital Association Limited

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Executive summary

The Australian Private Equity and Venture Capital Association (AVCAL) seeks to promote a greater understanding of the role the industry plays in the Australian economy.

This report updates a 2013 report, *Economic contribution of private equity in Australia*, prepared for AVCAL by Deloitte Access Economics which demonstrates the valuable contribution of PE to the Australian economy. This latest report confirms that PE continues to be a key driver of growth, job creation and innovation across many industry sectors. While this report is a point in time analysis, it demonstrates the significant impact that PE investment plays in supporting businesses' expansion plans and funding important investment activity. PE managers also assist investee companies by providing strategic and management advice to help transform their business practices to enhance value and improve efficiency.

Based on the analysis completed using current data for FY2016, firms under PE ownership in Australia accounted for \$43 billion in total value added to the economy (equal to 2.6% of GDP) and supported 327,000 FTE jobs.

The impact of PE is reflected in the performance of firms under PE ownership. In FY2016, firms under PE ownership (referred to as 'PE investee portfolio companies') achieved average revenue growth of 20% and EBITDA growth of 8% over the year and firms expanded the size of their workforces, on average, by 24%. By comparison, over the same period,

economy-wide company gross operating profits fell by 2.6% (ABS 2017) and employment in the wider economy grew by 0.3%.

More than 85% of PE investee portfolio companies introduced some type of innovation in FY2016, significantly more than businesses in general (ABS 2016). They were also more likely to collaborate with others to unlock the innovation potential within their business, such as through new products and services. Collaboration partners include related businesses, suppliers, competitors, consultants, universities, and other research institutions. The type of collaboration includes arrangements to undertake joint research and development, marketing and distribution activities, and to integrate supply chains.

This report analyses the economic contribution of PE investee portfolio companies to gross domestic product (GDP) and employment in Australia. In FY2016, AVCAL recorded 375 companies under PE ownership, operating across various industries in each State and Territory within metropolitan and regional areas. The analysis in this report is based on a new survey of PE investee portfolio companies, representing around one quarter of the PE investee company population. Estimates based on the survey indicated that in FY2016 the average PE investee portfolio company in Australia:

- Had annual turnover of \$126 million
- Paid \$39 million in wages, to 459

full-time equivalent (FTE) employees

- Generated \$19 million in EBITDA for investors
- Contributed \$58 million in direct value added to the economy.

Conclusion

In FY2016, earnings and employment growth in PE investee portfolio companies outperformed that of the broader business community. PE investee portfolio companies are also more innovative – having introduced two to three times more innovations than businesses in general.

While the strong financial performance of PE investee portfolio companies is an indication of the value-added of PE investment, one of the best markers for demonstrating the extent of private equity's impact on productivity lies in making comparisons with the alternative; i.e. what would have happened if the private equity owners had not altered the company's trajectory. The survey found that over 70% of PE investee portfolio companies introduced new organisational/managerial processes in the year. Furthermore, a number of case study examples suggest that PE fund managers typically assist companies with strengthening their governance, developing their business and developing staff capability – all essential ingredients in helping to transition Australian businesses to be more globally competitive.

Deloitte Access Economics



Case study: The Link Group



General Partner: Pacific Equity Partners

In 2000, the ASX (then-Australian Securities Exchange Limited) invested in a joint venture with Perpetual Trustees to acquire a stake in its share registry division, subsequently renamed ASX Perpetual Registrars.

By 2005 the joint venture had run its course. While senior management at ASX Perpetual Registrars sought to expand the range of services, this was not a core business for the ASX. At this time, Pacific Equity Partners acquired ASX Perpetual Registrars and renamed the company Link Market Services (LMS).

Pacific Equity Partners, working closely with the management of LMS, identified a growth opportunity in the superannuation fund administration market. LMS believed there were inefficiencies in the way superannuation administration services were being provided, and saw opportunities to automate processes, shift to paperless reporting, and improve the effectiveness of call centres.

Meanwhile, in 2006, Pacific Equity Partners purchased Australian Administration Services (AAS) from then-owners Telstra. While AAS was one of Australia's largest superannuation administration specialists, it was at the time burdened by outdated IT platforms and inefficient processes. This meant that many clients, typically large institutions, were dissatisfied with the services.

Significant investment was required to repair these client relationships. Firstly, senior leaders played a stronger role in managing client relationships. Secondly, Pacific Equity Partners invested over \$300 million to rebuild the AAS IT platforms.

Third, LMS management overhauled AAS's operating structure, effectively streamlining 26 processing teams working largely in 'silos', into centralised teams that work together to deliver more consistent outcomes to clients.

Around the same time, Pacific Equity Partners saw opportunities to expand LMS's corporate markets services beyond its share registry services – leading to LMS's acquisition of Orient Capital in 2006. Orient Capital was a market leader in investor relations, and would allow LMS to offer its share registry clients value added services such as shareholder analysis and client relationship management.

In 2007, LMS, AAS and Orient Capital merged to form the Link Group. Over the past decade, the Link Group has successfully brought together over 30 complementary businesses that allowed it to grow its product offerings and expand its business globally.

During the course of the more than ten year investment period by Pacific Equity Partners, the Link Group's senior management worked with them "hand-in-glove" to transform its business – operationally and culturally. Pacific Equity Partners challenged management to focus on growth and provided capital or helped them access funding to invest in that growth.

The Link Group listed on the ASX in 2016. From FY2005 to FY2016, the Link Group's sales grew from \$54 million to \$750 million – an average annual growth rate of around 24%. Over the same period, their annual earnings grew nearly tenfold. The number of employees also rose from around 300 to 4,300.

▶ Economic contribution of PE investee portfolio companies



Total contribution made up 2.6% of Australian GDP in FY2016

PE investee portfolio companies in Australia accounted for

\$43 billion of total value added to the economy, comprising \$22 billion of direct value added, plus flow-on effects to other firms in the economy contributing indirect value added of \$21 billion

Providing around

327,000 FTE

jobs, directly employing 172,000 workers and supporting jobs for another 155,000 workers in related firms

Annual turnover of

\$47 billion

These companies added roughly **19,800 FTE jobs** from the previous year - 11% of Australian FY2016 employment growth

▶ Performance of the average PE investee portfolio company



Over the year to FY2016, firms under PE ownership outperformed the wider economy, having achieved:

20% Average revenue growth

8% Average EBITDA growth compared to economy-wide company gross operating profits falling 2.6%

24% Average increase in the size of their workforce compared to employment in the wider economy growing 0.3%

▶ Innovation activity of PE investee portfolio companies

More than 85% of PE investee portfolio companies introduced some type of innovation in FY2016



PE investee portfolio companies are significantly more likely to introduce innovations compared to businesses in general

More than half of all PE investee portfolio companies collaborated with others to deliver innovation, compared to only 15% of businesses in general

▶ Profile of the average PE investee portfolio company

In FY2016, the average PE investee portfolio company in Australia had:



Annual turnover of
\$126 million

Generated
\$19 million
in earnings for investors

Paid **\$39 million**
in wages, to **459** full-time
equivalent (FTE) employees

Contributed
\$58 million in direct
value added to the economy

Introduction

Aim of the report

The Australian Private Equity and Venture Capital Association (AVCAL) seeks to promote a greater understanding of the important role that private equity (PE) and venture capital (VC) plays in the Australian economy.

AVCAL commissioned Deloitte Access Economics (DAE) to analyse the economic role of PE, in particular the contribution of private equity investee portfolio companies to the economy and the role of PE fund managers (also known as 'general partners' or GPs) in supporting transformation and innovation in these firms.

This report updates a 2013 report, *Economic contribution of private equity in Australia*, prepared for AVCAL by Deloitte Access Economics. Some of this background research is reproduced in this report.

Defining private equity

PE investment can take various forms. PE covers growth/expansion, generalist, buyout/late stage, turnaround, secondary and mezzanine funds (AVCAL 2016). The PE industry is defined here as PE fund managers that invest directly in and help to set and guide the strategic direction of investee portfolio companies. PE funds raise capital from a range of sources including institutional investors, fund of funds and individual private investors.

PE is different from venture capital (VC). PE funds invest in established businesses which are usually already generating a profit. They typically provide capital for growth, more management focus, strategic direction, and capabilities for 'bolt-ons' and 'roll-ups' (AVCAL 2015).¹

PE funds sometimes finance their investments through a combination of debt and equity. On the other hand, VC funds generally invest in the early stages of a business lifecycle, such as when they are developing new technologies or products (AVCAL 2015). These businesses have a higher risk profile, but have the potential to offer high returns if successful. VC funds generally do not use debt in their transactions.

However, the boundary between the investable universe of assets for VC and PE funds is not always clear cut. For example, a PE firm may invest in the early stages of a business' expansion. For the purposes of this study, VC has been excluded.

PE investment has proved to be valuable where firms face the need to expand or refocus their operations in what may be fluid economic and commercial conditions (DAE 2013). These firms may have an opportunity to develop (e.g. based on a new technology) or need to restructure in a fundamental manner (and would find it more difficult to do so as, say, a publicly-listed entity). Moreover, private equity funds are able to swiftly mobilise management expertise and capital, and provide focus and urgency – as seen in the (Appen) case study on page 9.

Thus, private equity contributes by adding value to investee portfolio companies and providing additional flexibility to the way in which firms are managed. Improvements in the performance of investee portfolio companies will have flow-on impacts through the wider economy.

¹'Bolt-ons' involve acquiring similar businesses and merging with existing Investments, while 'roll-ups' involve acquiring or consolidating a number of businesses in a fragmented market.



Case study: Appen

General partner: Anacacia Capital

Appen is an Australia-based language services company that provides artificial intelligence, linguistic models and language consulting services for use by technology companies and world governments. Its data and services are used in the development of speech recognition, synthesis and voice search systems (Language Resources), and used to power search accuracy/relevancy for global search engines and social media companies (Content Relevance). Appen has high profile global clients servicing eight of the world's ten largest technology companies.

Appen was founded in 1996 by linguist Dr Julie Vonwiller and her engineer husband, Chris Vonwiller. Prior to Anacacia's investment, Appen was reliant on its founders to run the business and make strategic contributions. As Julie and Chris approached retirement they sought a more hands-off role in the business – the need for succession planning was front of mind.

Anacacia Capital acquired a majority share in Appen in 2009, with the founders retaining a meaningful share of the business. At the time of investment, Anacacia Capital and the Appen founders agreed to introduce a new CEO, which would allow the Appen founders to take a step back from operations but remain involved as active non-executive directors. Anacacia Capital led the CEO recruitment process through its networks. Anacacia Capital introduced a new Appen CEO in 2010 and the CEO invested into Appen alongside Anacacia.

Anacacia Capital also worked to further improve governance, including assisting in the hiring of a new CFO and boosting the finance team in 2011, putting in place a non-executive board of directors and appointing to the board two directors from Anacacia Capital's team. As Appen gradually upgraded its management team, Anacacia Capital helped Appen put in place an investment plan for more senior management to buy-in which aligned the interests of the management team with the success of the business.

In 2011, Anacacia Capital sourced and led Appen's acquisition of Butler Hill, a US-based linguistic consulting practice with a virtual workforce that included many work from home staff. The Butler Hill acquisition gave Appen the ability to expand its business to also provide Content Relevance services. The acquisition of Butler Hill increased Appen's share of wallet and touchpoints with their key clients, as well as introduced repeat customers and added to the depth of Appen's management team. It also materially increased their US presence.

At the same time Anacacia Capital also provided Appen with the financial backing to help them pursue growth in their customer base, including expanding their business development team and increasing capabilities in social media to support Appen to continue to grow and negotiate effectively with large customers.

Approach to this study

This report draws on various sources of information, including a survey of PE investee portfolio companies, interviews with GPs about selected investments, and industry data from AVCAL and the Australian Bureau of Statistics (ABS).

To measure the economic contribution of PE, a survey was administered to collect data from GPs on the performance and activities of a representative sample of PE investee portfolio companies in their portfolio.

Through the survey (further details are in Appendix B), data was sought from PE investee portfolio companies on their:

- Historical performance, to understand investee portfolio company growth post-investment by PE fund managers.
- Development or introduction of new or significantly improved goods, services, processes or methods, as a proxy for determining how actively they innovated.
- Economic activity, to estimate the economic contribution of PE investee portfolio companies to output and employment in Australia.

In addition to the survey, five case studies of selected PE investee portfolio companies have been used to illustrate some of the qualitative impacts of PE investment. These case studies were based on interviews with, and contributions of, selected GPs.

Report structure

The report is structured as follows:

- Chapter 3 discusses the evidence of how PE adds value and examines some of the characteristics of PE investment in Australia.
- Chapter 4 examines the role that PE plays in supporting innovation in investee portfolio companies, and compares their level of innovation activity with that of the broader business community.
- Chapter 5 presents the estimates of the economic contribution of PE investee portfolio companies in FY2016.
- Chapter 6 summarises the expertise PE fund managers bring to investee companies through five case studies.



Private equity in Australia

How does private equity add value?

PE delivers material contributions to economic growth through a number of key channels including:

- Direct economic contribution, in value added and employment
- Indirect contributions, through innovation, improved productivity and increased competitiveness.

International evidence

Generally, relevant studies of PE-backed firms determine a positive contribution of PE with respect to company performance and economic growth:

- Bernstein et al. (2016) look at the impact of PE on industry performance and find that industries where PE funds invest grow more quickly in terms of total production and employment and appear less exposed to aggregate shocks.
- Bloom et al. (2015) find that PE owned firms have strong people management practices, but even stronger operations management practices, compared to other firms.
- Hotchkiss et al. (2014) examine the role that PE firms play in the resolution of financial distress of firms that borrow in the leveraged loan market and show that PE sponsors resolve distress in portfolio firms relatively efficiently.
- A study by Ernst & Young (2012) looking at 473 exited PE investments in Europe between 2005 and 2011, finds that PE participation leads to increases in the average per employee earnings before interest, taxes, depreciation and amortisation by 6.9%.

- Alperovych et al. (2013) study the impact of PE-backed leveraged buyouts on post-buyout efficiency during the first three years after the transaction. They observe increases in post-buyout efficiency over time, with the major improvements seeming to occur in the first two years after the transaction.

Australian evidence

Recently, Cumming et al. (2012) analysed a large sample of both private and publicly listed Australian firms available in public data records, including 613 PE-backed firms, and found that PE-backed firms generate higher levels of employment.

This conclusion counters perceptions and anecdotal claims that PE is associated with a contraction in employment in individual PE-backed companies.

As highlighted in the 2013 report by Deloitte Access Economics, surveys and case studies provide further means of exploring the impact of PE in Australia. These methodologies have been used in various past studies assessing the strengths of the PE-style business model (EY 2008), and the impact of PE on Australian business from the perspective of key executives (EIU 2008).

Much of the relevant local research was conducted around 2008, around the time when PE investment activity was notably high. Over time, the areas of investment by PE have changed; however, the research undertaken from time to time continues to suggest that PE investment has a positive impact on investee companies' performance over time.

Ernst & Young (2008) found that PE investee portfolio companies experienced stronger financial performance as a result of improved management and governance practices linked to PE investment. The study analysed 13 exits in the Australian market during 2007, and found that private equity increased EBITDA at 36% CAGR, which was nearly five times the CAGR for publicly listed companies. The EIU survey (2008) of nearly 300 Australian executives, regarding the impact of private equity on Australian business found, amongst other things, that 79% of respondents felt that private equity enabled companies were more focused on efficiency, while 68% felt it facilitated an expansion of strategic options.

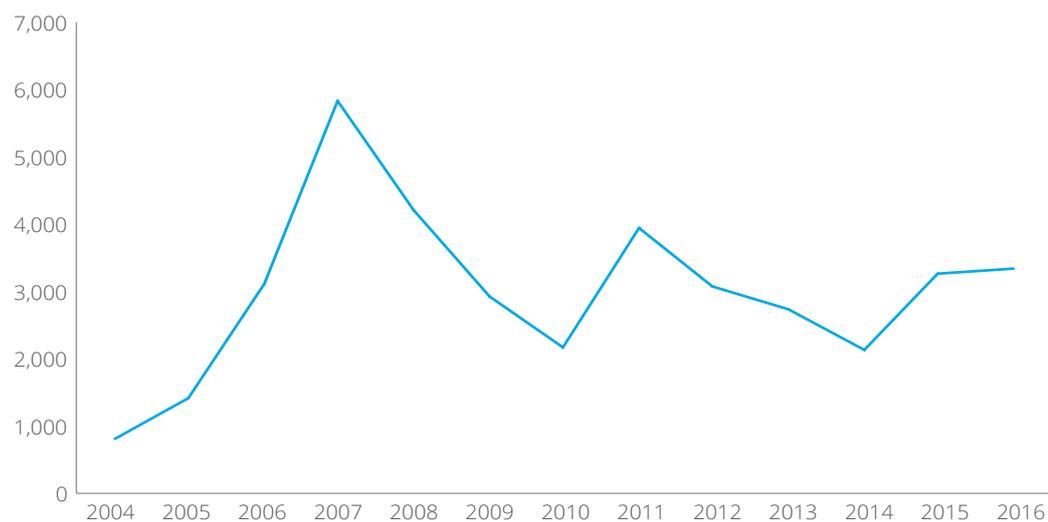
Trends in PE investment

The economic contribution of private equity reflects the investment activity of PE fund managers. PE investment activity has fluctuated significantly since the mid-2000s, given the cyclical nature of the sector – involving three distinct phases: fundraising, investment, and finally, divestment of interests in portfolio companies. Changes in the level of investment and the sectors of the economy that have attracted that investment provide context to the economic contribution analysis (Chapter 4).

The level of investment activity has moderated

Chart 3.1 below shows the annual value of new PE investments in investee portfolio companies since FY2004. The annual value of new PE investments declined from its recent peak of \$5.8 billion in FY2007 to \$2.2 billion in FY2010, and has fluctuated around an average level of \$2.9 billion in the period since.

Chart 3.1: Value of PE investments by fiscal year (\$m)

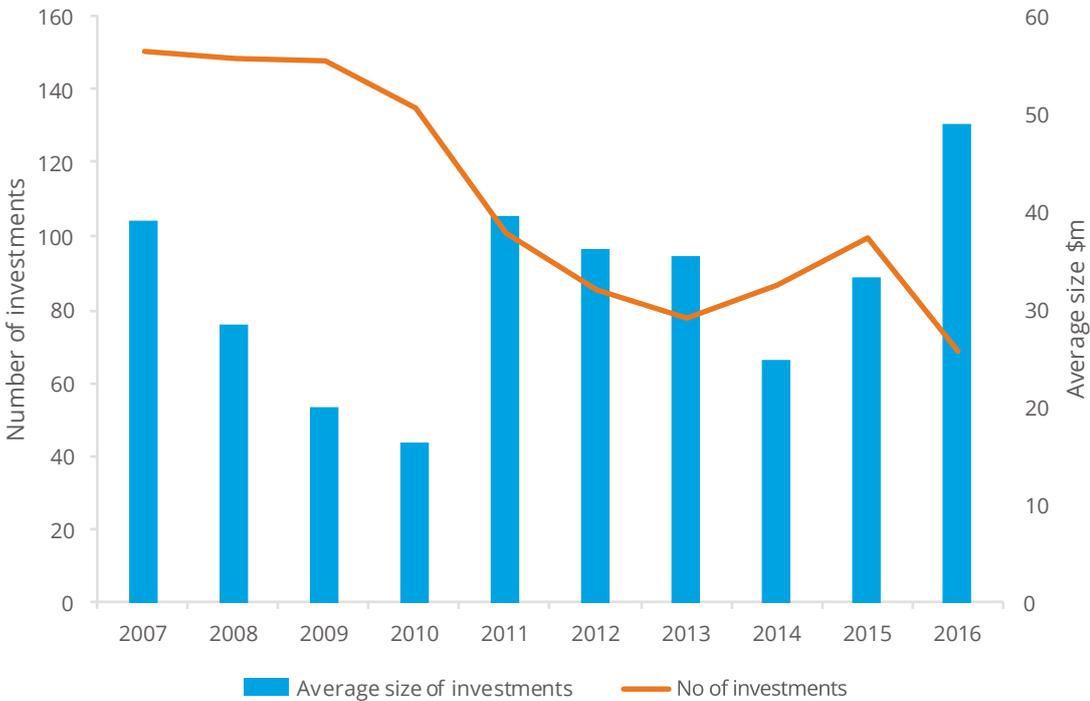


Source: AVCAL (2013, 2016a)

.Chart 3.2 below shows the annual number of PE investments between FY2007 and FY2016. The volume of investments has gradually declined from 150 in FY2007 to 77 in FY2013 and has fluctuated between 60 and 100 investments per year in the period since, with 66 PE deals completed in FY2016.

The average size of PE investments fluctuates from year to year, however, it has been higher since FY2011, which partly offsets the fall in the number of investments (Chart 3.2)

Chart 3.2: Number of PE investments and the average size of PE investment deals (\$m) by fiscal year



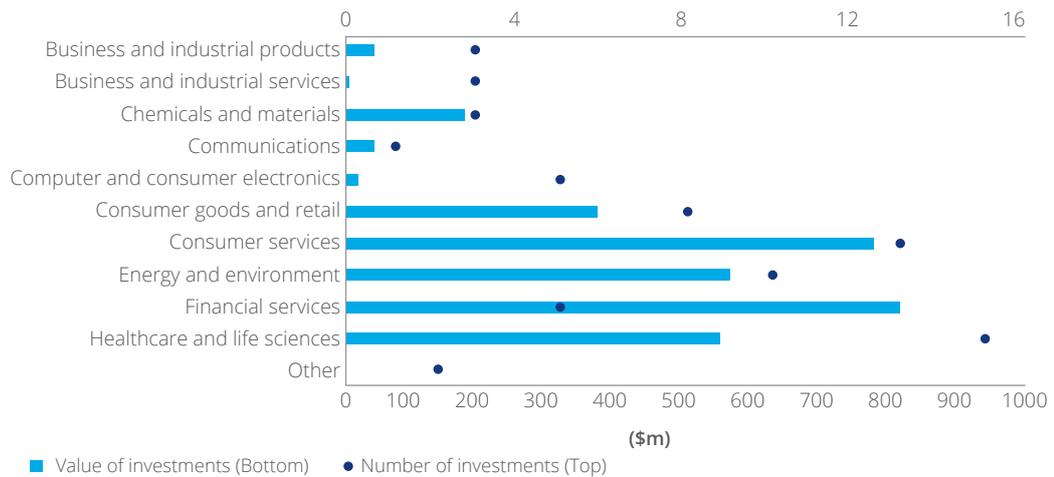
Source: AVCAL

The composition of investments has changed

Chart 3.3 shows the distribution of PE investments in FY2016 by the sector of the investee portfolio company. The top three industry sectors by value for PE investment were firms in the financial services, consumer services, and the energy and environment sectors. The greatest number of investments were made in the healthcare and life sciences, consumer services, and energy and environment sectors.

PE investee portfolio companies are more prevalent in some industries than others, partly reflecting restrictions on many funds that prevent them from investing in certain types of businesses or industry sectors, such as property development. There has been a marked change in the mix of investee portfolio companies over the past decade, and the sector focus of PE investment can differ significantly from year to year.

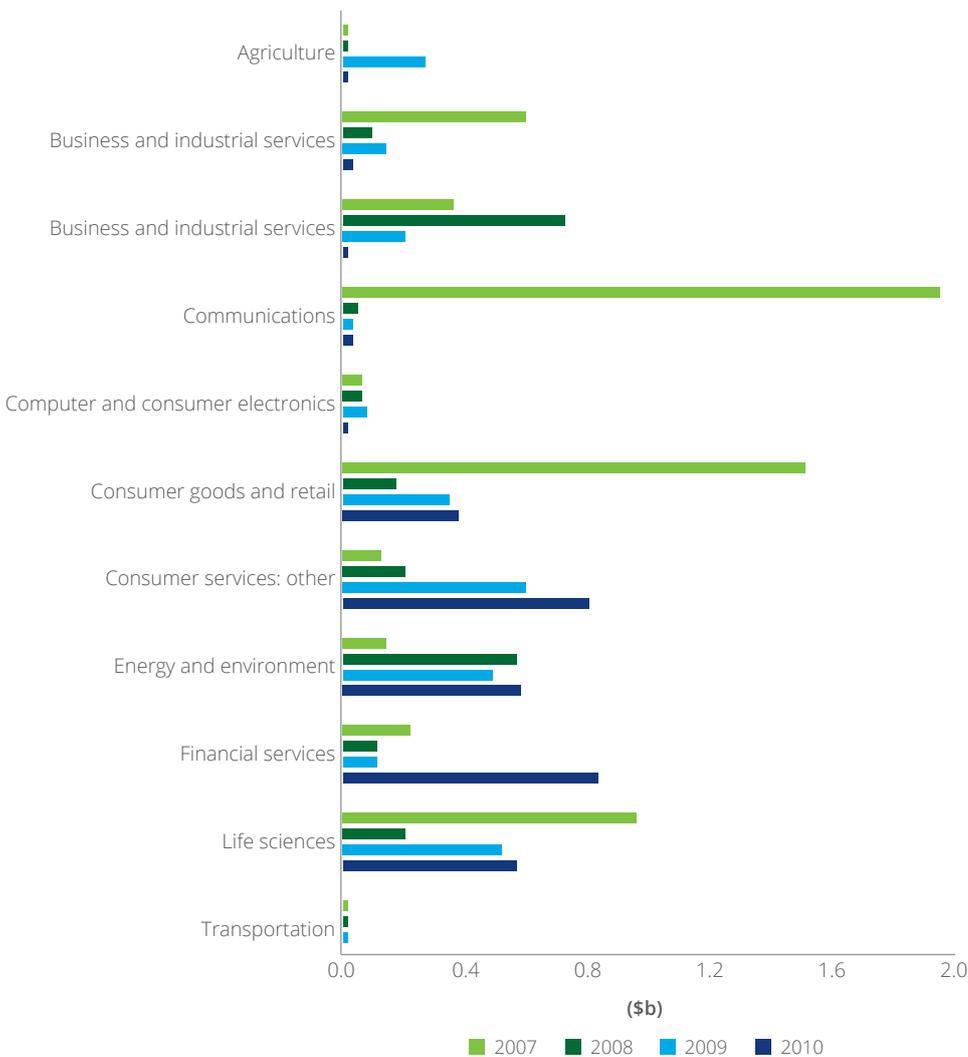
Chart 3.3: Sectoral distribution of PE investments, by value and volume of investments (FY2016)



Source: AVCAL (2016a)

Chart 3.4 illustrates the sectoral distribution of PE investment over time. Most recently, PE investment has been higher in financial services, consumer services, and the energy and environment sector. In general, PE focuses on those sectors where there is significant growth potential, for example through demographic trends, improvements in the efficiency of markets, or opportunities to export high quality goods and services.

Chart 3.4: Sectoral distribution of PE investments by value, selected fiscal years



Source: AVCAL



Case study: Healthe Care

General partner: Archer Capital

Founded in 2006, Healthe Care is now the third largest for-profit private hospital operator in Australia and one of the largest privately-owned healthcare businesses in Australia. The company provides a range of tertiary, mental health and specialty healthcare services. Healthe Care experienced a successful period of consolidation under its previous owner CHAMP Ventures. Although the company was poised for further growth, it faced capital constraints which prevented it from scaling further. In 2011, Archer Capital partnered with management to acquire 100% of the business.

During Archer Capital's ownership of Healthe Care, it worked with management to accelerate growth by significantly expanding and upgrading existing hospitals, building new hospitals and acquiring complementary hospitals. Multiple brownfield developments were completed at 13 hospitals and two new hospitals were developed, adding approximately 690 beds and 20 operating theatres/catheterisation labs. Overall the company grew from 12 to 17 hospitals over five years.

Archer Capital worked with the management to enhance the company's capabilities. The former CEO of Medibank Private Health Insurance was hired to lead health fund negotiations and the former COO of Bangkok Dusit Medical Services was recruited as COO to lead Healthe Care's hospitals in New South Wales.

In addition, the business strengthened its local hospital teams to enable stronger growth. At the same time, Archer Capital brought in an executive coach that worked with key senior leaders on professional development.

To align the interests of Healthe Care's management with business success and provide stronger rewards for achieving high performance, Archer Capital secured equity co-investments from senior executives and structured a shadow equity program for the broader management team.

Archer Capital also worked with Healthe Care's management to enhance its systems and processes to support the company's longer-term growth plans, including developing a robust framework for growth capital expenditure, creating a formal HR function and centralising part of its commercial functions to improve the quality of business planning.

The capital provided by Archer Capital and the company's lenders allowed for significant investment in improving healthcare equipment and introducing innovative new technologies. This included a Da Vinci surgical robot for minimally invasive surgery, a world first hybrid operating theatre, an Australian first orthopaedic surgery robot guidance system, and a 3D imaging system that limits X-ray absorption. Furthermore, investments were made in upgrading IT systems to better manage nurse rostering and patient administration.

These investments by Healthe Care improved patient care and doctor satisfaction, which led to increased demand for its hospitals and services. From 2011 to 2016, Healthe Care's annual patient days of care grew 85% and total credentialed doctors increased 136% from 1,400 to 3,300.

The increased demand delivered positive financial outcomes, which allowed Healthe Care to reinvest in the business. Under Archer Capital's ownership between FY2011 and FY2016, Healthe Care's revenue more than doubled and its earnings more than tripled. Over this period, the number of Healthe Care employees increased from approximately 3,100 to 4,500.

The successful execution of the growth plan by management and Archer Capital had a significant and positive impact on improving the quality and accessibility of healthcare in Australia. The impact was not limited to the capital cities – Healthe Care also operates hospitals outside of major metropolitan areas including in Gosford, Currumbin, Townsville, Maitland, Dubbo and North West Tasmania.

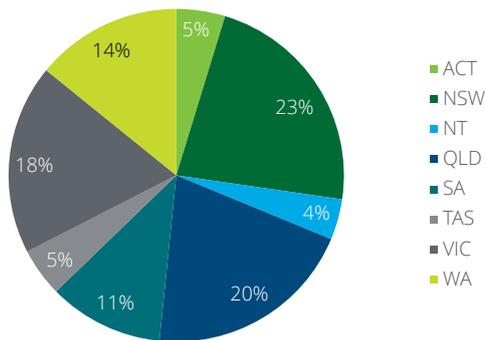
Geographical distribution of PE investment

More broadly, PE investment has had an impact across the breadth of Australia. Chart 3.5 below shows the geographical distribution of PE investee portfolio companies² and shows the highest proportion of investee portfolio companies

to be located in New South Wales (28%), Queensland (24%) and Victoria (20%). This distribution is broadly in line with each state's share of national final demand.³

A case study of Archer Capital's investment in Healthe Care on page 17 is an example of an investment which also has regional reach.

Chart 3.5: Regional distribution of investee portfolio companies (FY2016)



Source: AVCAL (2016a)

² The regional distribution of investee portfolio companies has been based on the locations of each firm's headquarters and other offices.

³ State final demand is a measure of the value of goods and services sold in a state to buyers wishing to consume them or hold them as capital (ABS).

Case study: Canberra Data Centres



General partner: Quadrant Private Equity

Canberra Data Centres (CDC) is the largest supplier of data centre co-location services to the Australian Federal Government. The company was founded in 2007 to meet the increasing demand from the Federal Government for outsourced data storage and services.

By 2014 CDC was already a market leader in data services to the Federal Government – capturing over 90% of the Federal Government's outsourced data centre services market. At the time, CDC had two data centres based at their Hume precinct and was constructing a new facility based in Fyshwick. CDC was well positioned to capture the growing government demand for outsourced data centres. In addition, its customers were seeking enhanced disaster recovery capabilities which necessitated CDC building a second site.

However, building data centres is a capital intensive business and CDC faced funding constraints that limited its expansion.

In September 2014, Quadrant Private Equity acquired a 49.9% share in CDC. The arrangement was structured to allow the existing owners to retain control of the business, which was an important consideration for CDC's owners when deciding on the right PE partner for their business.

Quadrant Private Equity helped CDC increase its access to institutional funding, which in turn enabled CDC to accelerate its investment in new data centres – starting with the completion of the Fyshwick data centre facility.

Quadrant Private Equity also helped CDC secure land adjoining their Hume and Fyshwick precincts in anticipation of further build outs. At the time of Quadrant's exit, a third facility was under construction at the Hume precinct and another was in planning at the Fyshwick precinct.

Helping to strengthen CDC's management team Quadrant introduced a new CFO, a project management officer, new site managers and new business development managers. These new appointments brought greater management discipline. At the same time, Quadrant Private Equity introduced the use of better data for project monitoring and to inform management decisions. Over time, these improvements helped CDC ensure that its data centre construction projects were delivered on time and on budget.

Between FY2015 to FY2016, CDC's revenues increased by nearly 70% and its earnings grew by over 50%. Over the same period, it tripled the size of its workforce from 11 to 31 employees.

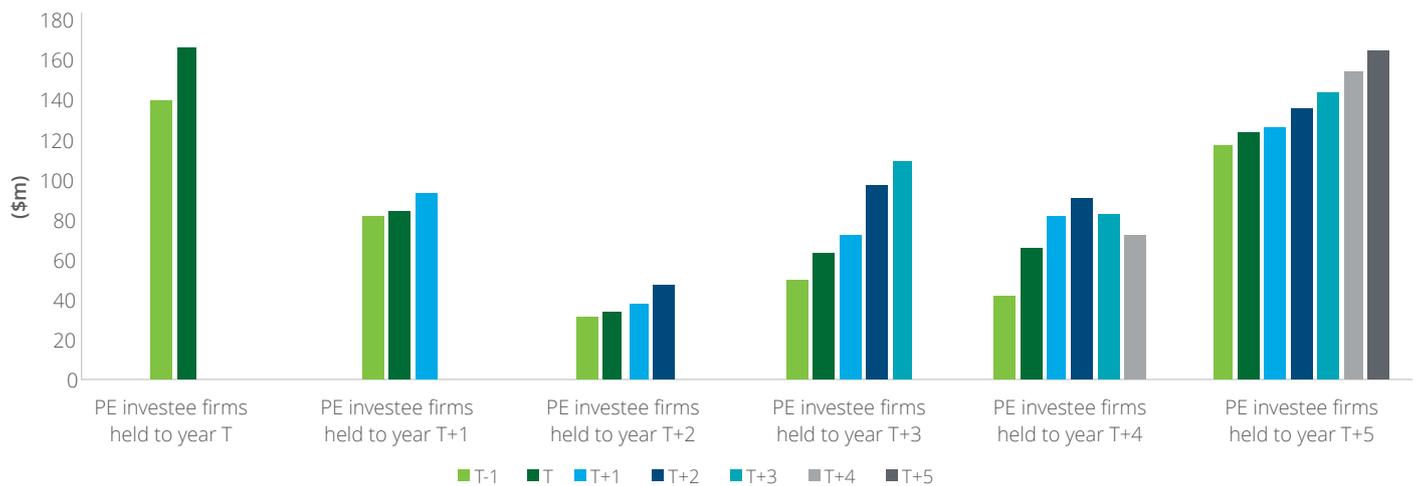
The performance of PE investee portfolio companies⁴

This section compares the performance of PE investee portfolio companies that were still under PE ownership in FY2016, immediately prior to PE investment and over the life of PE ownership.

The cluster of coloured bars in Chart 3.6, Chart 3.7 and Chart 3.8 represents an average company under PE ownership for a given period of time. For example, 'PE investee firms held to year T+1' represents an average company that has been under PE ownership for one year.

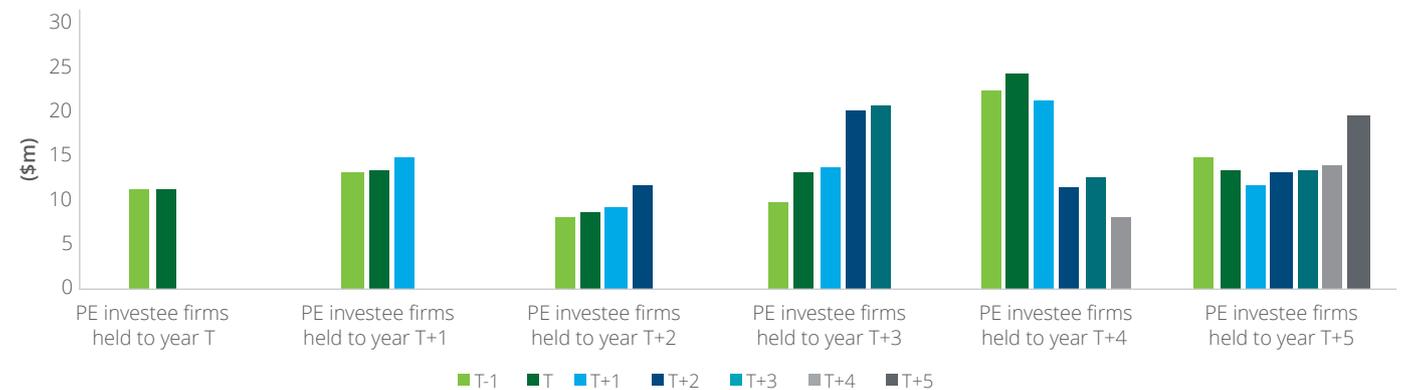
The individual bars within each cluster reflect the performance of that average company in a specific year. For example, the light blue 'T+1' bar reflects that average company's performance in the first year after PE investment.

Chart 3.6: Impact of private equity on revenue – average PE investee portfolio company



Note: The T+4 cohort only includes a sample of 3 investee portfolio companies, and may be subject to sampling bias
Source: Survey of AVCAL members

Chart 3.7: Impact of private equity on EBITDA – average PE investee portfolio company



Note: The T+4 cohort only includes a sample of 3 investee portfolio companies, and may be subject to sampling bias
Source: Survey of AVCAL members

⁴ The analysis in this section is based on data received for 45 PE investee portfolio companies.

The average number of employees in PE investee portfolio companies generally rises over the lifetime of PE ownership (Chart 3.9). Although based on a small sample set, the results are consistent with the 2013 Deloitte Access Economics study which identified similar findings.⁵

These results lend support to studies that cite PE investment as a catalyst for improved financial performance and employment within investee portfolio companies.

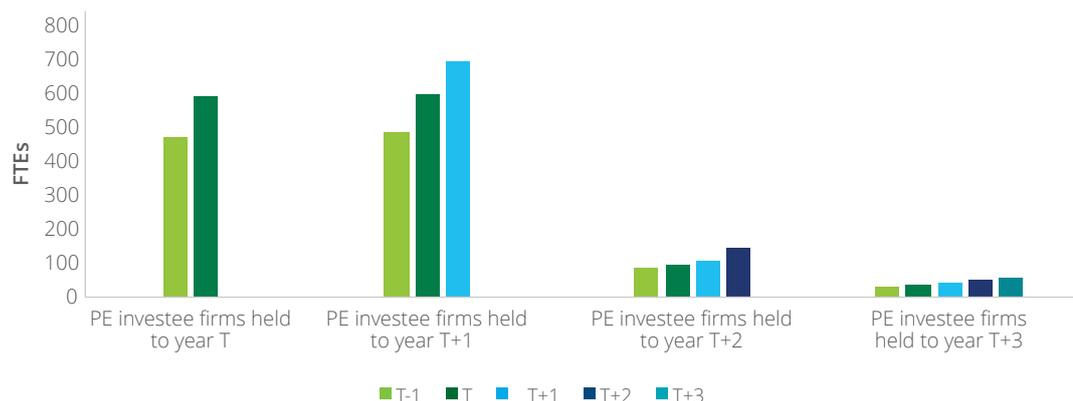
In general, PE fund managers implement a number of significant changes within investee portfolio companies during their tenure. Over 70% of PE investee portfolio companies introduced new organisational/managerial processes in FY2016 (see Section 4). In FY2016, PE investee portfolio companies achieved earnings and employment growth that outperformed the broader economy.

More broadly, companies that were still under PE ownership in FY2016 had generally experienced growth in revenues and earnings since the initial investment by PE fund managers. These findings suggest that PE investment influences firm performance.

Looking beyond the period of PE ownership, the Deloitte 2017 IPO report noted that private equity listings from the start of 2013 have delivered average gains of over 33%. This is consistent with figures from Rothschild and AVCAL (2017), which shows that in the period from 1 January 2013 to 31 December 2016, PE backed IPOs delivered an average return of 24%, compared to non-PE backed IPOs returning, on average, 17%.

PE brings with it changes in strategy and operational systems that can have positive impacts on the performance of investee portfolio companies.

Chart 3.8: Impact of private equity on employment – average PE investee portfolio company



Source: Survey of AVCAL members

⁵ The analysis on employment is based on data received for 20 PE investee portfolio companies

The profile of PE investee portfolio companies

Table 3.1 shows the key financial characteristics of the average PE investee portfolio company in FY2016.⁶

Table 3.1: Profile of the average PE investee portfolio company (FY2016)

Average revenue (\$m)	\$126
Average EBITDA (\$m)	\$19
Average employment (FTEs)	459

Source: Survey of AVCAL members

The average PE investee portfolio company had revenues of \$126 million, EBITDA of \$19 million, and employed 459 workers. However, the PE investee portfolio companies within the survey sample were significantly different in size. PE investee portfolio companies can be categorised into different sizes based on annual revenue.⁷ The smallest PE investee portfolio company in the survey sample had annual revenue of \$2.6 million and the largest PE investee portfolio company turned over \$800 million annually.

This report uses the business size definition based on size of revenue. A small business is defined here as one that has annual revenue below \$10 million, a medium-size business has revenues between \$10 million and \$200 million, and a large business has revenues over \$200 million.⁸ Table 3.2 below provides a breakdown of the average employment, revenue and EBITDA of the surveyed firms in FY2016, by business size.

Table 3.2: Profile of the average PE investee portfolio company by business size (FY2016)

	FTEs	Revenue (\$m)	EBITDA (\$m)	Share of PE investee portfolio companies surveyed
Small businesses	19.0	5.6	0.4	5%
Medium businesses	265.3	71.4	12.3	18%
Large businesses	1,415.6	394.5	52.9	77%

Source: Survey of AVCAL members

Revenue for PE investee portfolio companies also increased by 20% on average in FY2016. The average growth in earnings for PE investee portfolio companies was 8% in FY2016. By comparison, in the same period, economy wide company gross operating profits fell by 12% (ABS 2017). Employment within PE investee portfolio companies rose by an average of 24% in FY2016, while employment in the broader economy grew 0.3%.

⁶The analysis in this section is based on data received for 78 PE investee portfolio companies.

⁷There are a range of measures used by central agencies to categorise firms by size, of which revenue is one. The RBA presents an discussion on the topic at: [http://www.abs.gov.au/websitedbs/d3310114.nsf/4a256353001af3ed4b2562bb00121564/d291d673c4c5aab4ca257a330014dda2/\\$FILE/RBA%20Small%20Business%20An%20economic%20Overview%202012.pdf](http://www.abs.gov.au/websitedbs/d3310114.nsf/4a256353001af3ed4b2562bb00121564/d291d673c4c5aab4ca257a330014dda2/$FILE/RBA%20Small%20Business%20An%20economic%20Overview%202012.pdf)

⁸For consistency of comparison, this definition is the same as that used in the 2013 report by Deloitte Access Economics

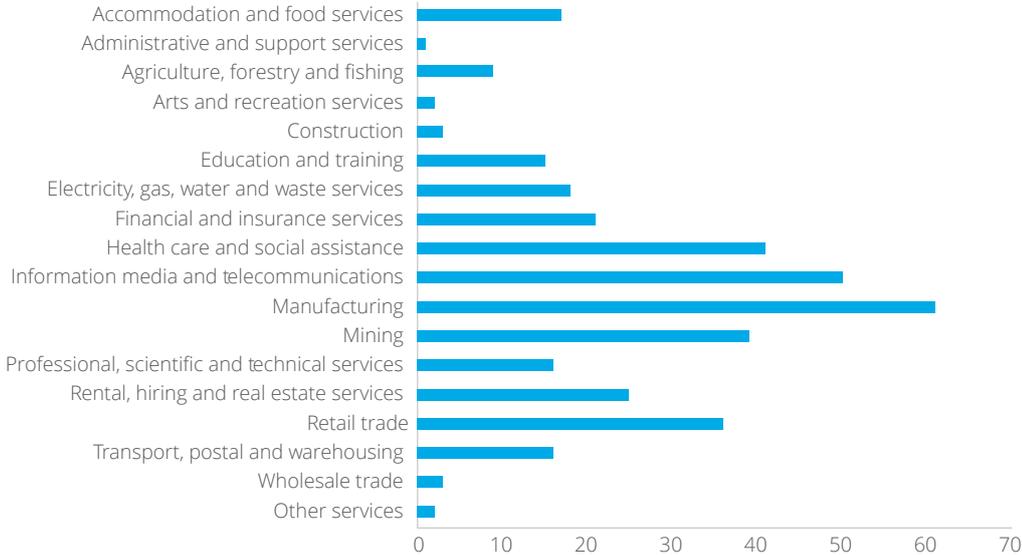
Figure 3.3: Annual growth of PE investee portfolio companies, FY2016



Source: Survey of AVCAL members

Chart 3.9 provides the sectoral distribution of PE investee portfolio companies as of 30 June 2016. The largest number of investee portfolio companies are in the manufacturing, information media and telecommunications, and healthcare and social assistance sectors.

Chart 3.9: Number of investee portfolio companies in PE fund portfolios as of 30 June 2016



Source: AVCAL (2016a)



Innovation in investee portfolio companies

The contribution of PE to innovation in investee portfolio companies is reflected in:

1. More than 85% of PE investee portfolio companies having introduced at least one form of innovation in FY2016
2. PE investee portfolio companies being significantly more likely to introduce innovations across all categories compared to businesses in general
3. More than half of all PE investee portfolio companies having collaborated with others to deliver innovation, compared to 15% of businesses in general.

Data on innovation activity

The analysis in this section is based on survey data received for 74 PE investee portfolio companies (further detail is in Appendix C.2).

Findings from the 2014-15 release of the ABS Business Characteristics Survey (BCS) are used as a proxy for businesses in general for the purposes of comparison. The BCS had a sample size of approximately 6,870 businesses.

The ABS notes that the “development or introduction of new or significantly improved goods, services, processes or methods is generally considered to be innovation.” (ABS 2016). This definition was used as the basis for the BCS and replicated in our survey of AVCAL members. Therefore, the questions are aligned between these two surveys.

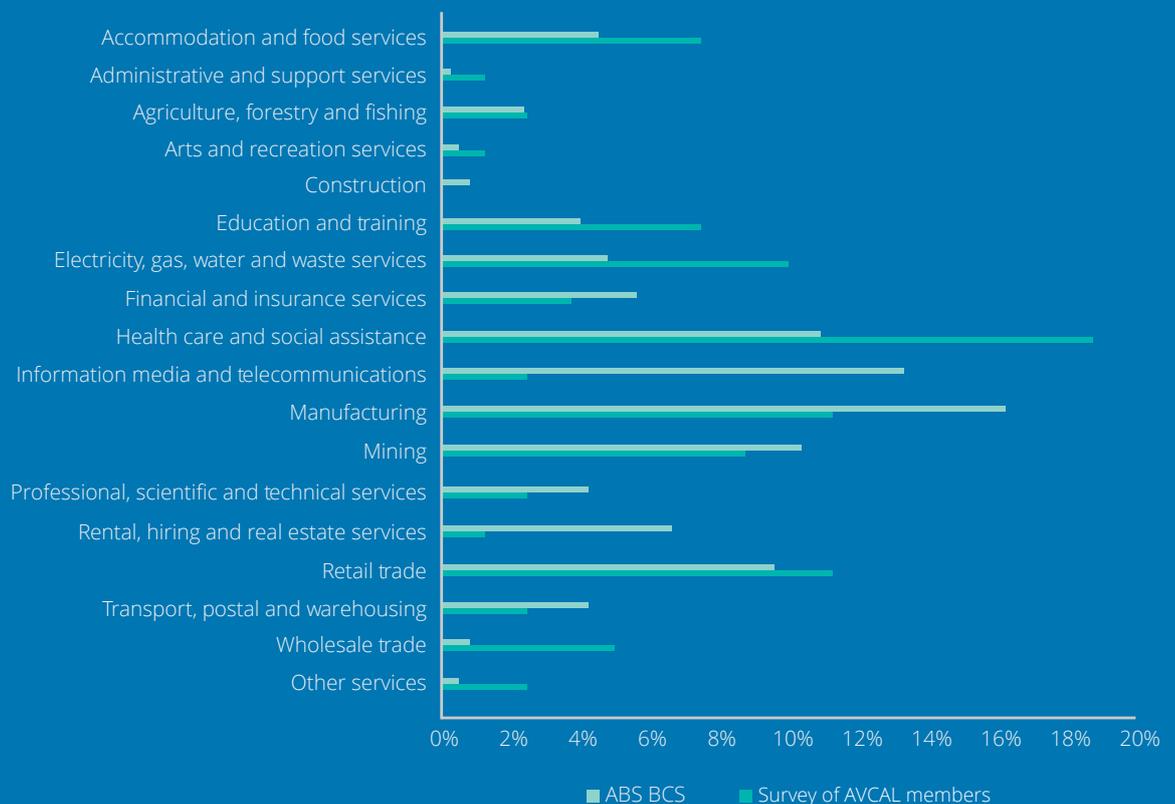
The BCS groups businesses into two categories: innovating businesses and innovation-active businesses. ‘Innovating businesses’ are businesses that are introducing at least one type of innovation during the 2014-15 period.

‘Innovation-active businesses’ undertook innovation activity during the period but did not introduce new innovations. The former definition aligns with that of our survey.

Chart 4.1 below compares the sample population by industry between the BCS and the survey of AVCAL members. The industries represented in samples are different. Some of the differences in the aggregate level of innovation activity undertaken by PE investee portfolio companies and the broader business community may be driven by the different industry composition. For example, the survey of AVCAL members has a larger share of businesses in the health care sector, while the BCS has a larger share of businesses in the ICT sector. Nonetheless, the significantly higher level of innovation activity of PE investee portfolio companies compared to businesses in general suggest that the findings are still relevant.

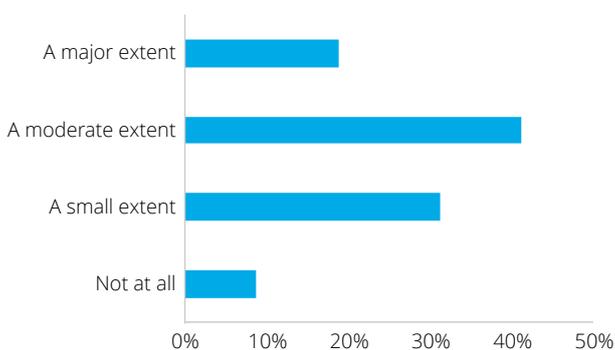
We note that data from the BCS is from FY2015, while the data from PE investee portfolio companies relates to their activity in FY2016, however this is unlikely to have a significant impact on the results.

Chart 4.1: Comparison of businesses by industry – Survey and ABS BCS



Source: ABS BCS, Survey of AVCAL members

Chart 4.2: Extent to which PE investee portfolio companies' focused on innovation when assessing their business performance



Source: Survey of AVCAL members

PE investee portfolio companies introduced multiple innovations

Lerner et al. (2010) and Amess et al. (2015) found that PE investee portfolio companies tended to focus more on innovative activities. Over 90% of the surveyed PE investee portfolio companies focused on innovation in the context of assessing their business performance (Chart 4.2).

Most PE firms (41%) indicated that they had a moderate focus on innovation in the context of assessing their business performance, and nearly one-fifth (19%) of firms indicated that they focused on it to 'a major extent'. Just under one-third of firms indicated they focused on innovation to 'a small extent'.

These results suggest that innovation is a significant consideration for these businesses. This focus is reflected in more than 85% of the PE investee portfolio companies having introduced at least one form of innovation in FY2016, being:

1. New goods or services
2. New operational processes
3. New organisational/managerial processes
4. New marketing methods.

Over three-quarters of PE investee portfolio companies introduced innovations across more than one category of innovation, and around one-third introduced innovations in all four categories.

PE investee portfolio companies were more likely to innovate

Studies have found that PE ownership and innovation are positively related in Australia (DAE 2013).

A PwC (2006) report found that companies launched more new products in the year after they received PE funding (75%) compared to the year prior (27%). In Australia, PE investee portfolio companies produce greater quality and quantity of innovations (Humphery-Jenner et al. 2013).

This is partly due to PE investment helping to support commercialisation rather than simply focusing on research and invention – see Gourmet Garden case study on page 27.

However, it is not just the production of new goods and services that comprises innovative activity. PE investment also provides access to funds for investment in new technologies or processes (Humphery-Jenner et al. 2013). Furthermore, PE fund managers often introduce organisational and managerial changes to PE investee portfolio companies.

Of the four categories of innovation, PE investee portfolio companies were most likely to have introduced new operational processes. Nearly three-quarters of all PE investee portfolio companies introduced new operational processes in FY2016 (Chart 4.3).



Case study: Gourmet Garden

General partner: Advent Partners

Gourmet Garden is an Australian business founded in 1999 that processes, packages and markets fresh herbs, spices and seasonings. Its manufacturing facility is located in Queensland. Their core product line consists of herb and spice pastes in convenient squeeze tubes which saw a steadily increasing penetration of North American sales through 20,000 retail outlets. Gourmet Garden distributes its products in Australia, the US and Europe.

Prior to investment by Advent Partners, Gourmet Garden had recently completed development of its 'Lightly Dried' product range, which was the result of a world first technology application. 'Lightly Dried' herbs maintain colour, texture, aroma and taste similar to fresh herbs but are lightly dried to remove their moisture and significantly extend their shelf life. Gourmet Garden were looking to commercialise this innovation.

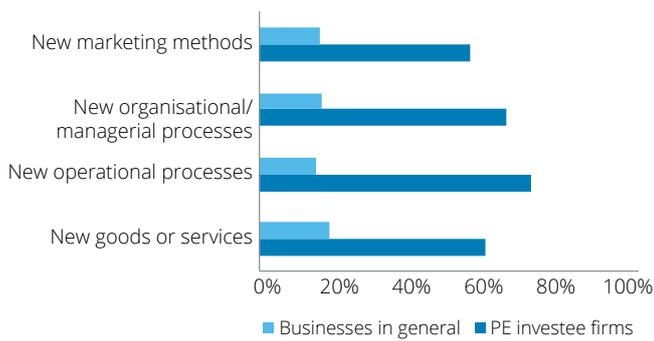
Advent Partners acquired a shareholding in Gourmet Garden in 2013 and also provided growth funding which was invested to establish a state of the art production plant and the world's first patented technology for the production of the 'Lightly Dried' range. At this time, Advent Partners also worked with the Gourmet Garden management team to finesse their new product with its customers. Gourmet Garden launched the 'Lightly Dried' product range in Australia before rolling out across the North America and the UK.

In addition, Advent Partners helped strengthen the management team by driving the recruitment of a high calibre CFO, enhancing executive and board reporting, implementing an executive incentive program to align the interests of management with the company, and empowering the CEO to focus on growth. These changes sought to shift the mindset of the management team from one that was cost-focused to one that had a longer-term focus on driving shareholder value.

At the same time Advent Partners brought on board 'top-tier' domestic and US marketing agencies to drive the launch of the new 'Lightly Dried' product. More broadly, Advent Partners helped to bring a disciplined approach to overseas expansion. The share of Gourmet Garden's overseas revenue increased from 50% to 70% in the period of Advent Partner's ownership.

In 2016, Advent sold the firm to the multinational herb and spice retailer, McCormick & Company. From FY2013 to FY2016, Gourmet Garden grew its annual sales from around \$50 million to around \$90 million (run rate), and its employees increased from 160 to 200. Over the same period, its annual earnings increased by 50%.

Charts 4.3: Types of innovation introduced by businesses

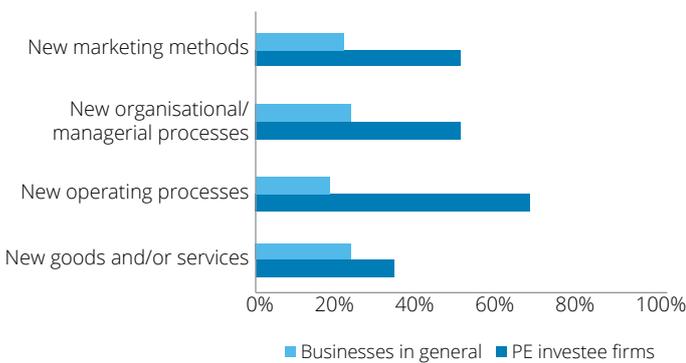


Source: ABS BCS, Survey of AVCAL members

Across businesses of all sizes, PE investee portfolio companies were more likely to introduce innovations across every category (Chart 4.4, Chart 4.5, and Chart 4.6).⁹ Small and medium-sized PE investee portfolio companies (below 200 employees) most commonly introduced new operating processes.

While large PE investee portfolio companies (200 or more employees) most commonly introduced new organisational/managerial processes. This may partly reflect that strong organisational and strategic decision-making processes are more important for larger businesses.

Charts 4.4: Innovations introduced by businesses with '5-19 employees'

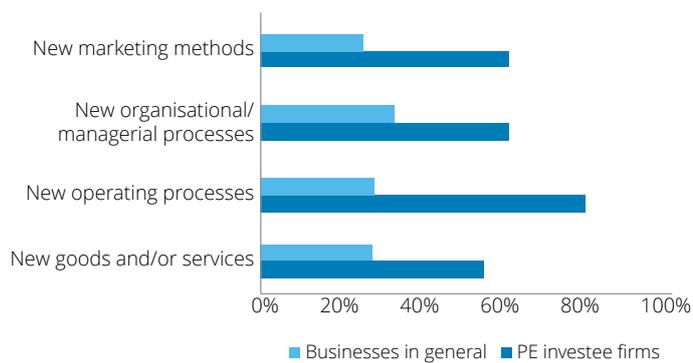


Note: Data was only available for six PE investee portfolio companies

Source: ABS BCS, Survey of AVCAL members

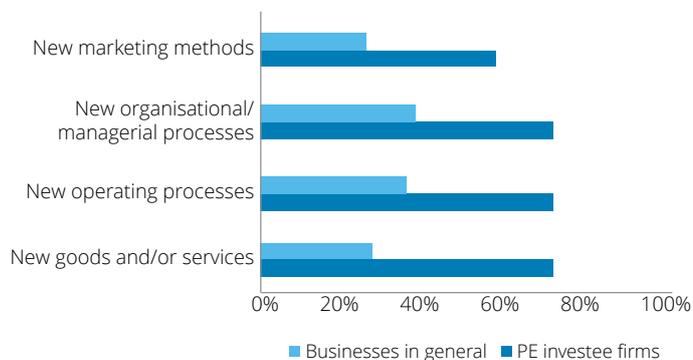
⁹The comparison of innovations introduced by businesses of different sizes uses the ABS definition of business size based on number of employees.

Chart 4.5: Innovations introduced by businesses with '20-199 employees'



Source: ABS BCS, Survey of AVCAL members

Chart 4.6: Innovations introduced by businesses with '200 or more employees'



Source: ABS BCS, Survey of AVCAL members

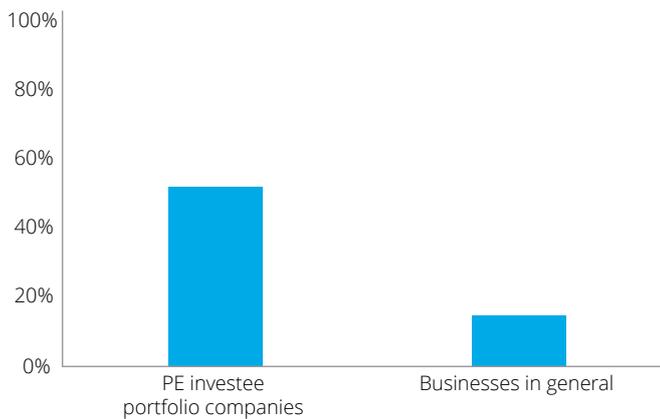
PE investee portfolio companies collaborated more

Collaboration for the purposes of innovation includes arrangements to undertake joint research and development, marketing and distribution activities, and to integrate supply chains. Collaboration can bring together businesses to share expertise, research and technologies, as well as share risks which may otherwise be a barrier to innovating.

PE investee portfolio companies were more likely to collaborate with 'others'.¹⁰ Collaboration partners include related businesses, suppliers, competitors, consultants, universities, and other research institutions. Around half of all PE investee portfolio companies collaborated with others when innovating compared to less than one-fifth of businesses in general (Chart 4.7).

¹⁰ Link, A. et al., (2012), "Private Equity and the Innovation Strategies of Entrepreneurial Firms: Empirical Evidence from the Small Business Innovation Research Program".

Chart 4.7: Share of businesses that collaborated to innovate

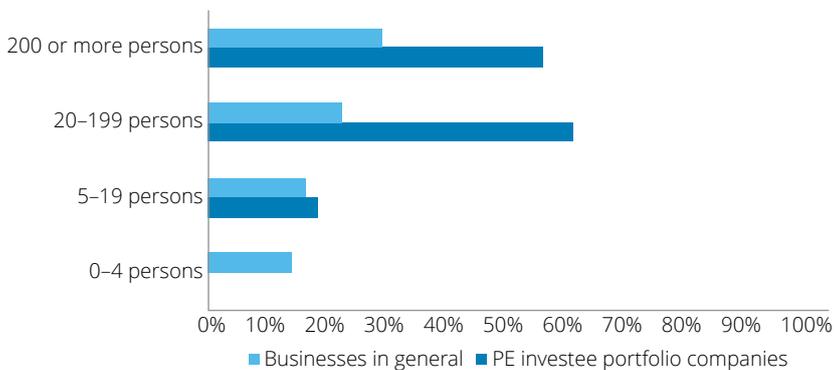


Source: ABS BCS, Survey of AVCAL members

Across businesses of all sizes, PE investee portfolio companies were more likely to collaborate with others compared to businesses in general (Chart 4.8). Collaboration was most prominent among medium-sized PE investee portfolio companies, and more prominent among large-sized PE investee portfolio companies than smaller PE investee portfolio companies.

In part this could reflect that greater collaboration opportunities are available to larger firms. At the same time, the largest PE investee portfolio companies may have processes to define and capture a collaboration strategy.

Chart 4.8: Collaboration to innovate by business size

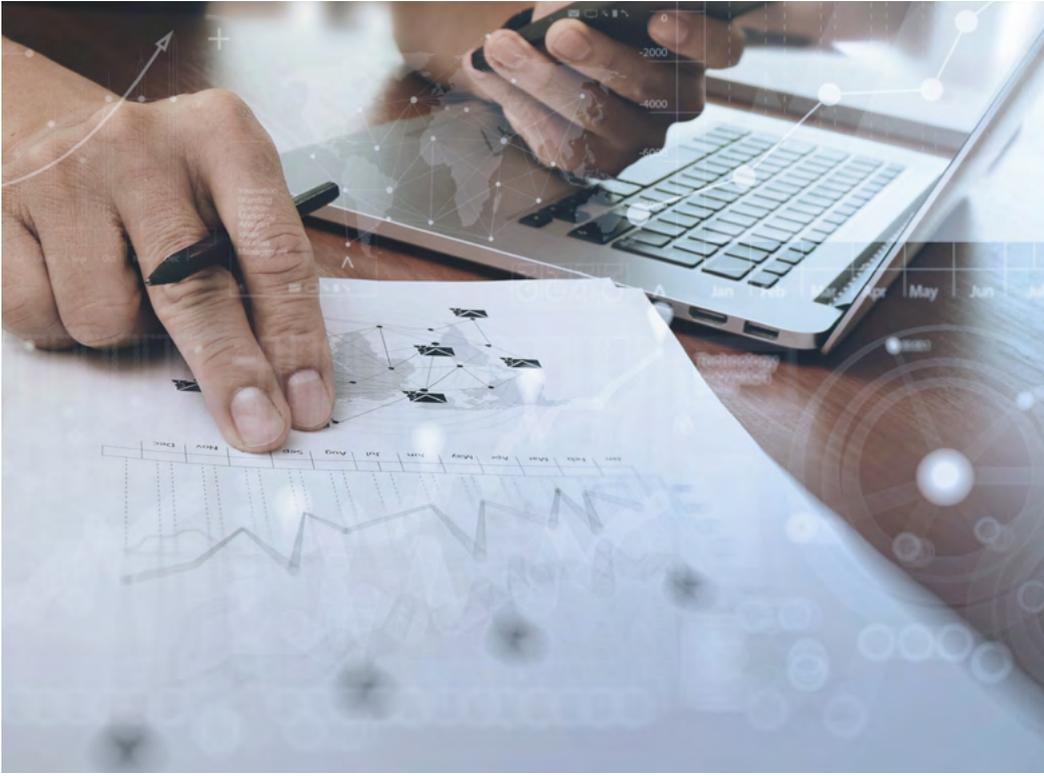


Note: The survey sample of PE investee portfolio companies did not include firms with less than 5 employees.

Source: ABS BCS, Survey of AVCAL members



-15%



The economic contribution of private equity

PE contributes to the Australian economy through the activity of investee portfolio companies spread across a diverse range of industries. This chapter estimates this contribution based on the value added and employment data obtained from a survey of PE investee portfolio companies.¹¹

Based on survey responses, in FY2016 the average PE investee portfolio company had (Table 3.1):

- An operating revenue of \$126 million
- Labour costs of \$39 million, paid to 459 FTE employees

- An EBITDA of \$19 million
- Contributed \$58 million in direct value added and \$56 million in indirect value added to the Australian economy

Based on these characteristics of the average PE investee portfolio company and the number of PE investee portfolio companies in the population, the contribution of PE to the Australian economy can be estimated for FY2016.

¹¹This analysis assumes that PE fund managers take a controlling interest in PE investee portfolio companies. Survey responses included information on the PE share of ownership in investee portfolio companies by the fund manager. The initial private equity stake ranged from 20% to 100%, with an average of 68% and a median of 70%. Private equity interests held a stake of 50% or greater in over 74% of investee firms.

Estimating the economic contribution

The economic contribution of PE investee portfolio companies is measured by value added and employment.

Value added is the difference between a firm or industry's revenue and its expenditure on inputs required to generate that revenue. The value added of every firm in Australia (plus taxes on products) is equal to Australia's GDP. Value added measures the income generated by an industry's use of inputs. This income is split into return to labour (wages) or return to capital (gross operating surplus, or GOS).

Employment is measured using Australian-based full-time equivalent (FTE) jobs. PE investee portfolio companies' make both a direct and indirect contribution. The direct contribution measures the value added and employment produced by the firm itself. However, through expenditure on inputs, firms support economic activity in upstream companies. The indirect contribution measures the value added and employment embedded in the supply chain.

Methodology and sample representativeness

Economic contribution measures an industry or firm's contribution to GDP and employment in a given year. A more detailed explanation of the methodology for calculating economic contribution is provided in Appendix A. To measure the economic contribution of PE investee portfolio companies, a survey of PE investee portfolio companies was administered by AVCAL.

Data from 78 respondents was used to undertake this analysis. In FY2016 there were 375 PE investee portfolio companies in Australia, meaning the sample covered just over 21% of the PE investee portfolio company population (see 'Margin of error' below). A description of the survey is provided in Appendix B.

The key assumption of this analysis is that the sample of firms in this survey is representative of the broader PE investee portfolio company population. The chart below provides a breakdown of PE investee portfolio companies in the survey sample and compares this to that of the wider population of PE investee portfolio companies in FY2016.

The survey sample has not been stratified by industry. However, the PE investee portfolio companies captured in the survey sample have an industry distribution that generally covers the distribution of firms in the total PE investee portfolio company population as measured by AVCAL – on this basis, it is considered a representative sample.

Margin of error

The margin of error for any survey based on a random sample depends on the size of the sample. Further, as the sample size approaches the population size, the margin of error approach is zero. In this survey, the ratio of the sample size to population size is 21%. The margin of error for a sample size of 78 for a population of 375, at a confidence level of 95%, is $\pm 10\%$.

Chart 5.1: Industry distribution of survey sample vs population



Source: Deloitte Access Economics, Survey of AVCAL members, AVCAL Yearbook (2016)

The economic contribution results

Direct value added and employment

Based on the number of investee portfolio companies in Australia (375), and the average characteristics of investee portfolio companies from the survey, PE investee portfolio companies made a direct contribution of \$21.6 billion to the economy in FY2016 (Table 5.1). Of this, \$14.5 billion accrued to workers as wages and \$7.1 billion accrued to owners of capital as profits.

PE investee portfolio companies also directly supported an estimated 170,000 FTE jobs across the economy.

These companies added approximately 19,800 FTE jobs from the previous year. This represents 11% of national employment growth in 2015-16.

The direct value added of \$21.6 billion is significant. If PE investee portfolio companies were considered an industry in its own right, its economic contribution in FY2016 exceeded that of the:



\$17 Billion

Insurance and superannuation sector



\$18 Billion

Coal mining industry



\$19 Billion

The telecommunications network operation sector

Source: ABS Input Output tables

Table 5.1: Direct contribution of PE investee portfolio companies (FY2016)

Wages (\$m)	\$14,476
Gross Operating Surplus (\$m)	\$7,120
Direct value added (\$m)	\$21,596
Direct employment (number of FTEs)	172,174

Source: Deloitte Access Economics, Survey of AVCAL members

Indirect value added and employment

The direct economic contribution does not fully capture the economic contribution of PE investee portfolio companies. As part of their day-to-day business, these companies purchase goods and services from other businesses. This in turn generates demand from these other businesses for goods and services further up the supply chain. In this way, the economic activity of PE investee portfolio companies makes an indirect contribution to economic activity for other businesses.

The indirect contribution measures the contribution to output and employment generated by upstream supply firms as a result of the economic activity of PE investee portfolio companies.

In 2015-16, PE investee portfolio companies had an indirect contribution of around \$21.2 billion (Table 5.2). This activity also supported an estimated 155,000 FTE jobs in the economy.

Table 5.3 shows the top eight industries in the supply chain of PE investee portfolio companies by value added. There are a broad range of industries in the supply chain, which reflects the wide range of industries into which PE fund managers invest.

Table 5.2: Indirect contribution of PE investee portfolio companies (FY2016)

Wages (\$m)	\$11,300
Gross Operating Surplus (\$m)	\$9,858
Indirect value added (\$m)	\$21,158
Indirect employment (number of FTEs)	155,144

Source: Deloitte Access Economics, Survey of AVCAL members

Table 5.3: Top beneficiary industries of the indirect contribution (FY2016)

Industry	Value added (\$m)
1. Manufactured Products	2,586
2. Non-Residential Property Operators and Real Estate Services	2,313
3. Professional, Scientific and Technical Services	2,248
4. Finance	1,344
5. Employment, Travel Agency and Other Administrative Services	1,083
6. Electricity Transmission, Distribution, On Selling and Electricity Market Operation	831
7. Wholesale Trade	759
8. Auxiliary Finance and Insurance Services	704

Source: Deloitte Access Economics, Survey of AVCAL members

Table 5.4: Total contribution of PE investee portfolio companies (FY2016)

Wages (\$m)	\$25,776
Gross Operating Surplus (\$m)	\$16,978
Total value added (\$m)	\$42,755
Total employment (number of FTEs)	327,319

Source: Deloitte Access Economics, Survey of AVCAL members

Total economic contribution

The combination of the activity and employment generated directly by the investee firms and the flow-on effects to other businesses in the economy is summarised in Table 5.4.

In FY2016, PE investee portfolio companies contributed nearly \$43 billion in total value added, and supported around 327,000 FTE jobs in the Australian economy.

PE investee portfolio companies' total economic contribution made up around 2.6% of Australian GDP in FY2016.

From year to year, changes in the portfolio of companies under the ownership of PE fund managers will be reflected in the economic contribution of PE in a given year. The overall economic contribution of PE will be affected by changes in the total level of PE investment activity (see Chart 3.1) and changes in the destination of that investment, such as companies in different industries and companies of different sizes. See Appendix C for a comparison of the economic contribution of PE over time.

Expertise brought by PE fund managers

The economic contribution in Section 6.1 is an estimate of the size of the footprint of PE in Australia. However, PE fund managers provide expertise to firms, and thus the economy, that may be difficult to capture in financial measures.

Interviews were conducted with five GPs from within AVCAL's membership base:

- Anacacia Capital
- Quadrant Private Equity
- Advent Partners
- Archer Capital
- Pacific Equity Partners.

These interviews formed the basis for five case studies on selected PE investments.¹² These case studies provide examples of PE fund managers helping to transform the following five investee portfolio companies:

- Appen
- Canberra Data Centres
- Gourmet Garden
- Healthe Care
- The Link Group.

Generally, the PE fund managers helped investee portfolio companies transform key aspects of the business, typically involving: (i) strengthening governance; (ii) developing the business; and (iii) developing staff. These measures have helped portfolio companies achieve strong growth over the investment period.

1. Appen (Page 9) is an example of Anacacia Capital helping to **identify synergies** and bringing together related businesses to expand the scope of goods and services able to be offered by the business.
2. Canberra Data Centres (Page 19) is an example of Quadrant Private Equity working with the existing business owners to **introduce managerial changes and new operating processes to deliver business improvements**.
3. Gourmet Garden (Page 27) is an example of Advent Partners helping the business **commercialise an innovative concept**, by providing capital as well as introducing operational changes to improve the approach to taking a product to market.
4. Healthe Care (Page 17) is an example of Archer Capital creating the conditions, including strengthening the management, HR and commercial teams, and **providing access to capital**, to allow the business to introduce new technologies.
5. The Link Group (Page 5) is an example of Pacific Equity Partners working with management to identify opportunities to transform its business through investment in new IT systems, **streamlined operational processes**, and changing management culture.

¹² Deloitte Access Economics did not audit the information provided by GPs. The case studies reflect interviews with GPs and information provided by GPs.

Conclusion

PE investee portfolio companies make a significant contribution to the Australian economy, in terms of both output and employment. They operate across various industries in each State and Territory, and have a presence in both metropolitan and regional areas.

In FY2016, earnings and employment growth in PE investee portfolio companies outperformed that of the broader business community. PE investee portfolio companies are also more innovative – having introduced two to three times more innovations than businesses in general.

While the strong financial performance of PE investee portfolio companies is a reflection of the value-added that this industry brings to the business, the key challenge

for showing the extent of private equity's impact on productivity lies in making comparisons with the alternative; i.e. what would have happened if the private equity owners had not altered the company's trajectory.

The survey found that over 70% of PE investee portfolio companies introduced new organisational/managerial processes in the year. Furthermore, a number of case studies suggest that PE fund managers typically assist companies with strengthening their governance, developing their business strategy and developing their staff. The impact of PE is not just felt through the financial outcomes it achieves, but also through the way in which it achieves them.

Appendix A: Economic contribution methodology

Economic contribution studies are intended to quantify measures such as value added, exports, imports and employment associated with a given industry or firm, in a historical reference year. The economic contribution is a measure of the value of production by a firm or industry.

Value added

Value added is the most appropriate measure of an industry's/company's economic contribution to gross domestic product (GDP) at the national level, or gross state product (GSP) at the state level.

The value added of each industry in the value chain can be added without the risk of double counting across industries caused by including the value added by other industries earlier in the production chain.

Other measures, such as total revenue or total exports, may be easier to estimate than value added but they 'double count'. That is, they overstate the contribution of a company to economic activity because they include, for example, the value added by external firms supplying inputs or the value added by other industries.

Measuring the economic contribution

There are several commonly used measures of economic activity, each of which describes a different aspect of an industry's economic contribution:

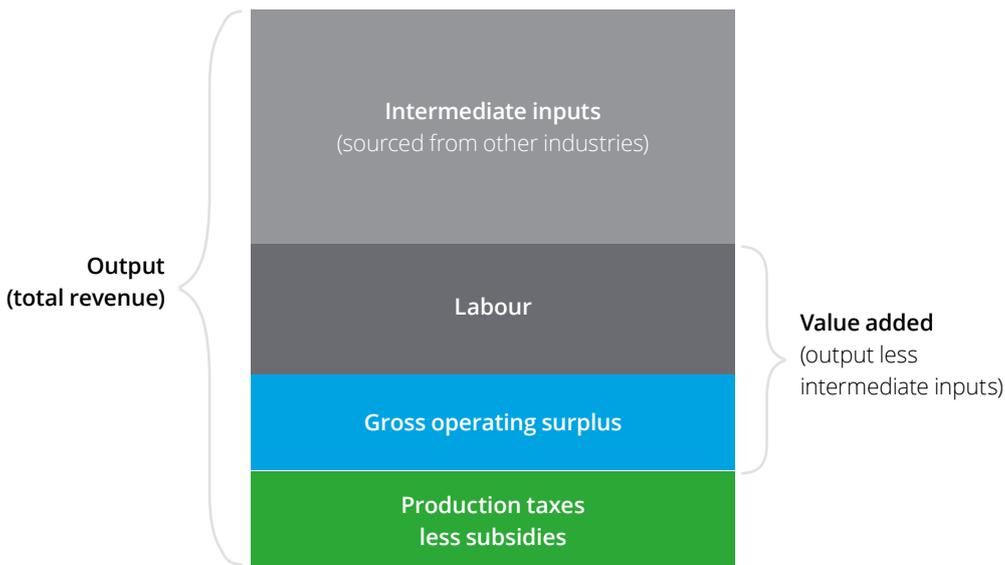
- Value added measures the value of output (i.e. goods and services) generated by the entity's factors of production (i.e. labour and capital) as measured in the income to those factors of production. The sum of value added across all entities in the economy equals gross domestic product. Given the relationship to GDP, the value added measure can be thought of as the increased contribution to welfare.
- Value added is the sum of:
 - Gross operating surplus (GOS). GOS represents the value of income generated by the entity's direct capital inputs, generally measured as the earnings before interest, tax, depreciation and amortisation (EBITDA).
 - Labour income is a subcomponent of value added. It represents the value of output generated by the entity's direct labour inputs, as measured by the income to labour.
 - Tax on production less subsidy provided for production. This generally includes company taxes and taxes on employment. Note: given the returns to capital before tax (EBITDA) are calculated, company tax is not included or this would double count that tax.
- Gross output measures the total value of the goods and services supplied by the entity. This is a broader measure than value added because it is an addition to the value added generated by the entity. It also includes the value of intermediate inputs used by the entity that flow from value added generated by other entities.
- Employment is a fundamentally different measure of activity to those above. It measures the number of workers that are employed by the entity, rather than the value of the workers' output.

Figure A.1 shows the accounting framework used to evaluate economic activity, along with the components that make up gross output. Gross output is the sum of value added and the value of intermediate inputs.

Value added can be calculated directly by summing the payments to the primary

factors of production, labour (i.e. salaries) and capital (i.e. gross operating surplus, 'GOS', or profit), as well as production taxes less subsidies. The value of intermediate inputs can also be calculated directly by summing up expenses related to non-primary factor inputs.

Figure A.1: Economic activity accounting framework



Source: Deloitte Access Economics

Direct and indirect contributions

The **direct economic contribution** is a representation of the flow from labour and capital within the sector of the economy in question.

The **indirect contribution** is a measure of the demand for goods and services produced in other sectors as a result of demand generated by the sector in question. Estimation of the indirect economic contribution is undertaken in an input-output (IO) framework using Australian Bureau of Statistics input-output tables which report the inputs and outputs of specific sectors of the economy (ABS 2010).

The total economic contribution to the economy is the sum of the direct and indirect economic contributions.

Limitations of economic contribution studies

While describing the geographic origin of production inputs may be a guide to a firm's linkages with the local economy, it should be recognised that these are the type of normal industry linkages that characterise all economic activities.

Unless there is significant unused capacity in the economy (such as unemployed labour) there is only a weak relationship between a firm's economic contribution as measured by value added (or other static aggregates) and the welfare or living standard of the community.

Indeed, the use of labour and capital by demand created from the industry comes at an opportunity cost as it may reduce the amount of resources available to spend on other economic activities.

This is not to say that the economic contribution, including employment, is not important. As stated by the Productivity Commission in the context of Australia's gambling industries:

In a fundamental sense, economic contribution studies are simply historical accounting exercises. No 'what-if', or counterfactual inferences – such as 'what would happen to living standards if the firm disappeared?' – should be drawn from them.

The analysis – as discussed in the report – relies on a national input-output table modelling framework and there are some limitations to this modelling framework. The analysis assumes that goods and services provided to the sector are produced by factors of production that are located completely within the state or region defined and that income flows do not leak to other states.

“Value added, trade and job creation arguments need to be considered in the context of the economy as a whole... income from trade uses real resources, which could have been employed to generate benefits elsewhere. These arguments do not mean that jobs, trade and activity are unimportant in an economy. To the contrary they are critical to people's well-being. However, any particular industry's contribution to these benefits is much smaller than might at first be thought, because substitute industries could produce similar, though not equal gains.”

The IO framework and the derivation of the multipliers also assume that the relevant economic activity takes place within an unconstrained environment. That is, an increase in economic activity in one area of the economy does not increase prices and subsequently crowd out economic activity in another area of the economy.

As a result, the modelled total and indirect contribution can be regarded as an upper-bound estimate of the contribution made by the supply of intermediate inputs.

Similarly the IO framework does not account for further flow-on benefits as captured in a more dynamic modelling environment like a Computable General Equilibrium model.

Input-output analysis

IO tables are required to account for the intermediate flows between sectors. These tables measure the direct economic activity of every sector in the economy at the national level. Importantly, these tables allow intermediate inputs to be further broken down by source. These detailed intermediate flows can be used to derive the total change in economic activity for a given sector.

A widely used measure of the spill-over of activity from one sector to another is captured by the ratio of the total to direct change in economic activity. The resulting estimate is typically referred to as 'the multiplier'. A multiplier greater than one implies some indirect activity, with higher multipliers indicating relatively larger indirect and total activity flowing from a given level of direct activity.

The IO matrix used for Australia is derived from the ABS IO tables. The industry classification used for input-output tables is based on ANZSIC, with 111 sectors in the modelling framework.

Using the survey

The survey asked firms for an outline of the investee portfolio company's financial data, including: employment, operating revenue, operating costs, EBITDA, Australian-based wages and Australian-based input expenditure (see Appendix B). Firms were asked to provide a more detailed breakdown of expenditure on inputs to inform the indirect contribution analysis. This provided the necessary data to estimate the firms' economic contribution

In some cases, the expenditure data provided by the surveyed firm did not provide a sufficiently detailed breakdown. In this case it was assumed that the expenditure profile of the investee portfolio companies proportionally matched the profile of its industry according to the latest IO tables.

From the survey, the average investee portfolio company's wages and GOS (measured using EBITDA) was calculated. This average was multiplied by the total population of PE investee portfolio companies to estimate the economy-wide direct contribution of PE.

Appendix B: Survey of AVCAL members

The nature of the survey

AVCAL asked private equity managers to complete an excel-based survey requesting information for each investee portfolio company in their portfolios.¹³

The information requested about the investee portfolio companies fell into six categories:

1. Investee portfolio company Profile
 - Acquisition date
 - The ownership share acquired
 - The industry in which the investee portfolio company primarily operates
2. Employment
 - Total FTE employment, noting any employment outside of Australia
3. Revenue and costs;
 - Key operational data which includes revenue, wages and other costs and EBITDA
4. Breakdown of 'Other operating expenses: Expenditure within Australia'
 - Provides a more detailed breakdown of the investee portfolio company's expenditure to inform the economic contribution analysis
5. Innovation
 - Asks a series of questions from the Business Longitudinal Survey concerning innovation practices to compare investee portfolio company's innovation to the general business environment
6. Historical Performance
 - Tracks the change in employment, operating revenue and EBITDA since acquisition.

Innovation questions

The survey asked three questions on PE investee portfolio companies' innovation activities in FY2016:

- To what extent did this business focus on the innovation measures when assessing overall business performance?
- Did the business introduce (Yes/No):
 - New goods or services
 - New operational processes
 - New organisational/managerial processes
 - New marketing methods
 - Other activities (write answer in box)
- Did you collaborate with others to develop or introduce new goods, services, processes or methods?

Survey responses

PE fund managers provided data for 91 PE investee portfolio companies, which represents around 24% of the portfolio population. There was also significant variation in the coverage of individual responses across financial years and metrics.

¹³ The investee portfolio companies were de-identified in the returns provided to Deloitte Access Economics to ensure confidentiality.

Appendix C: Economic contribution over time

Comparing results from FY2016 and DAE (2013)

From year to year, changes in the portfolio of companies under the ownership of PE fund managers will be reflected in the economic contribution of PE in a given year.

The economic contribution results for FY2016 (Section 5) are compared with the relevant results from DAE (2013) in Table C.1. As presented in the table, the economic contribution results from DAE (2013) are higher. However one must be cautious when comparing the results given the results may be skewed depending on what point in the overall PE life-cycle the survey is being conducted (i.e. fundraising, investment, divestment).

The economic contribution estimates in DAE (2013) were calculated from a sample of 49 PE investee portfolio companies that provided data between FY2007 to FY2011. The economic contribution estimates in this report are based on a larger sample of 78 PE investee portfolio companies and used data from one financial year (FY2016).

The differences between the results are likely to be due to a combination of the following factors:

1. Changes in the total value of PE investment over time
2. Changes in the types of companies that PE fund managers are investing in
3. Differences in the survey methodology and sample size.

Table C.1 Comparison of economic contribution results

	FY2016	DAE (2013)
PE investee portfolio company profile		
Average revenue (\$m)	126	195
Average value added (\$m)	58	77
Average employment (number of FTEs)	459	827
Economic contribution		
Direct value added (\$m)	\$21,596	25,015
Direct employment (number of FTEs)	172,174	261,817
Indirect value added (\$m)	\$21,158	\$33,767
Indirect employment (number of FTEs)	155,144	250,900

Source: 2017 survey responses, DAE (2013)

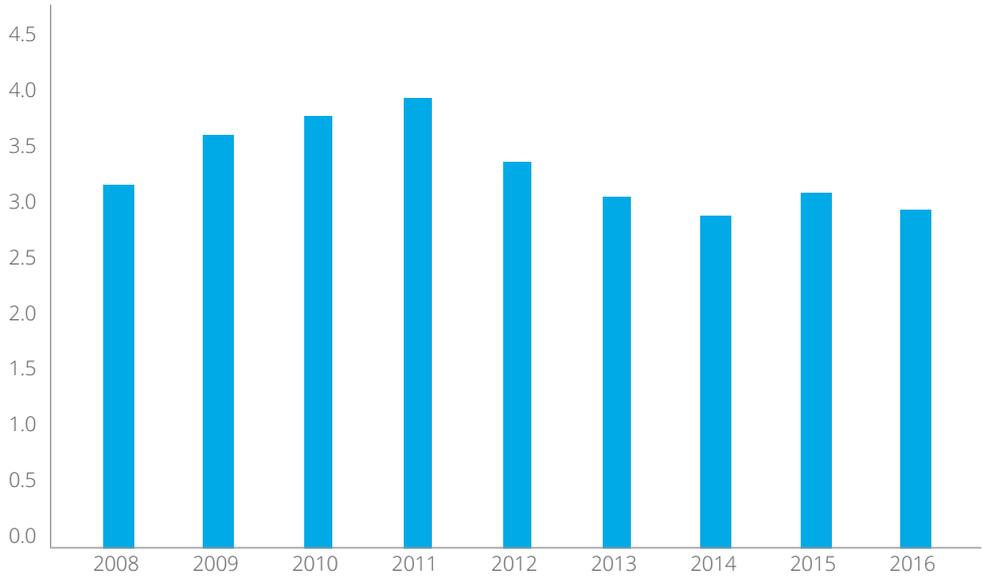
Changes in the total value of PE investment

The economic contribution of PE will reflect the overall size of the PE investment portfolio. Chart 3.1 shows total private equity investment in each fiscal year. The total value of new investment has moderated over time.

While data on the overall size of the PE investment portfolio is not readily available, generally PE fund managers hold investments for between five and seven years (AVCAL 2015).

Chart C.1 shows a five year moving average of the new PE investments. This shows that the level of PE investment has fallen from its levels between FY2008 and FY2011 (covering the period which is reflected in DAE (2013)). The level of investment was 24% lower in FY2016 compared to its peak in FY2011. All else equal, a lower level of investment will result in a smaller economic contribution.

Chart C.1: 5-year moving average of new PE investments, by financial year (\$b)



Source: AVCAL Yearbooks (2016a)

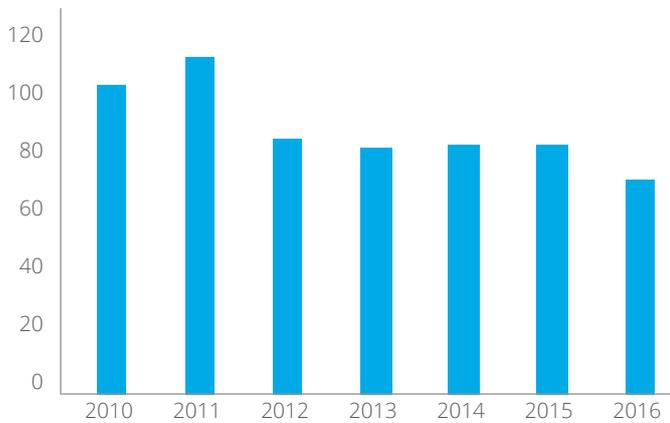
Changes in the types of companies being invested in

At the same time, changes in the composition of the PE investment portfolio specifically, the type of PE investee portfolio companies that are held by PE fund managers—will have implications for the economic contribution of PE.

The type of companies receiving PE investment now are different in both size and the industry in which they operate.

Chart C.2 shows the 5-year moving average of the average enterprise value of new PE transactions. This shows that the enterprise value of the average investee firm in the PE investment portfolio has become smaller over time – signalling that the PE investee portfolio companies may be smaller companies on average.

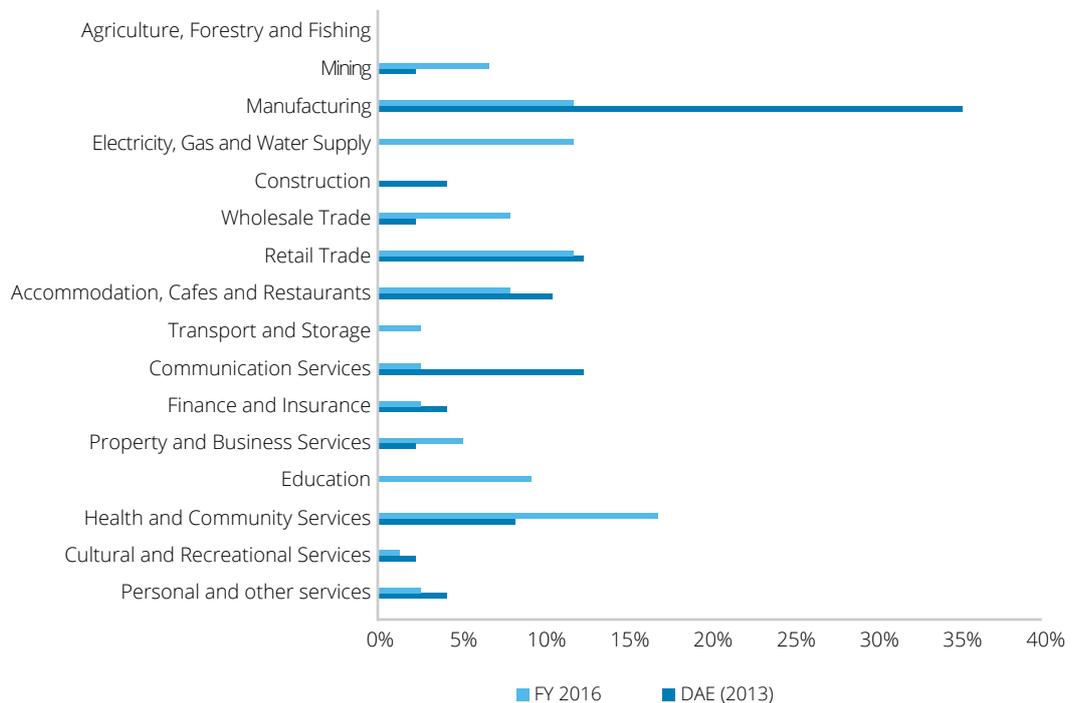
Chart C.2: 5-year moving average of the enterprise value of new PE transactions, by financial years (\$m)



Note: In FY2016, a single out-sized transaction has been removed from the data to focus on the general trend.

Source: AVCAL Yearbooks (2016b)

Chart C.3: PE investee portfolio companies by industry, share of sample



Source: ABS BCS, Survey of AVCAL members

Chart C.3 shows the composition of PE investee portfolio companies by industry in the survey sample in FY2016 and DAE (2013).

The PE investee portfolio companies operate in very different industries. Over time, it appears that the destination for PE investment has changed, which will lead to different results.

Change in survey methodology and sample size

The survey data used to calculate the economic contribution in DAE (2013) reflected an average over the period of FY2007 to FY2011.

The survey data used to calculate the economic contribution in this report reflects the financial performance of PE investee portfolio companies over a single financial year: FY2016. This difference makes direct comparisons of the results difficult to interpret.

Both reports rely on data collected through sampling to estimate the total economic contribution of the wider population of PE investee portfolio companies. Any sampling based approach will be subject to sampling error. That is, there is a possibility that the average PE investee portfolio companies surveyed in each sample are not representative of the actual average firm in the PE investment portfolio.

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