Insper CENTRO DE EMPREENDEDORISMO E INOVAÇÃO

SPECTRA INVESTMENTS

AN ANALYSIS OF THE PRIVATE EQUITY AND VENTURE CAPITAL INVESTMENTS IN BRAZILIAN COMPANIES IN THE LAST 30 YEARS

Insper-Spectra Analysis - October 2014

This report presents an overview of Brazilian Private Equity and Venture Capital (PE and VC) investments in portfolio companies between 1982 and 2014. It was prepared by the Strategic Research Center of Insper Institute of Education and Research and Spectra Investments. It is based on the Spectra-Insper database, a comprehensive set of information about private equity organizations, funds, deals and people in Latin America.

This private dataset has been built through a partnership between Spectra Investments, a Brazilian investor in PE and VC funds and Insper Institute of Education and Research, a leading Brazilian Business and Economics School. In order to protect firms, funds and deals identities, Spectra Investments sanitizes the data before filling it in the database. Main source of information are Private Placement Memoranda in possession of Spectra, although some data were hand collected from CVM (Comissão de Valores Mobiliarios - Brazilian Security Exchange Commission) and other sources like Thomson TRAA.

Main highlights:

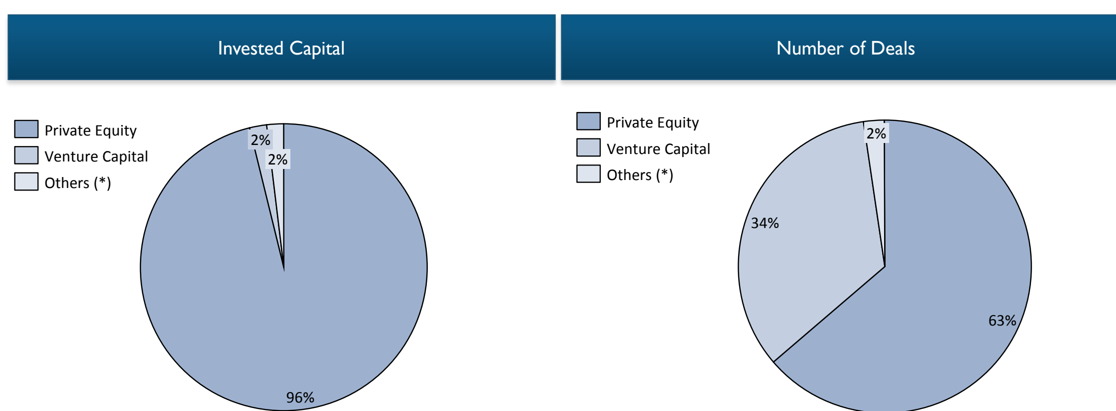
- The majority of capital has been invested in PE, and most of the deals were in late stage companies (PE type).
- Minority investment corresponds to the majority of VC deals. PE deals are more balanced between control and minority stakes.
- Deal size has a cyclical behavior for PE and VC, as it is documented in developed countries. The cycle reflects the dynamic of the economic environment and regulatory changes.
- Along the last 30 years, a diverse number of sectors were financed by PE and VC resources. In the long term, we do not identify concentration in any specific sector, reflecting the dynamism of the Brazilian industry.
- PE deals have a mean MoM of 3.4. Although 15% of the deals were total losses (or close to total losses), 18% of the deals had extraordinary performance (MoM greater than 5 times invested capital).
- VC deals have a mean MoM of 1.5, less than half of PE's MoM. Total losses correspond to 39% of the deals, what is usual in the international industry, but only 5% of the deals were high performers.
- We estimate that if an investor had bought shares of all PE and VC deals in this sample, he or she would have had an IRR between 19% (Value Weighted - VW) and 22% (equal weighted - EW). If he or she had bought shares only of PE deals, he or she would have had an IRR between 20% (VW) and 34% (EW). Whereas if had invested only on VC deals the IRR would have been between 11% (EW) and 12% (VW).

Our sample contains data of 556 deals in Brazilian companies, representing USD22.1 billion of investments.[1] When we analyze only fully liquidated deals, the sample is reduced to 244 observations: 127 PEs and 116 VCs[2], corresponding to USD 5.2 billion of investments that produced USD 11.7 billion of divestments[3].

PE x VC Investment Size

Although there were a significant number of VC transactions in our sample: 34% of total, they correspond only to a small fraction of the total resources: 2% of total (see Figure 1). This is explained by the difference in investment size per deal. The average size of PE investment per deal is USD60 million, almost 23 times the average size of VC investment per deal.

Figure 1. Proportion of VC and PE in invested capital and number of deals



(*) Others include mezzanine, infrastructure, agribusiness and distress deals

Control x Minority Investments

The proportion of PE deals with control is almost the same as deals with minority stake (see Figure 2 – left panel). This reflects the fact that both strategies make sense for the industry. Control allows more decision power and to run the company, while minority stake allows partnership with entrepreneurs of companies with high growth opportunities, who usually want to run the business themselves, with the help of the fund.

Almost all the VC deals correspond to funds buying a minority stake (see Figure 2 – right panel). The role of an entrepreneur is crucial for companies in earlier stages, and for keeping him motivated and aligned, is important that he has control.

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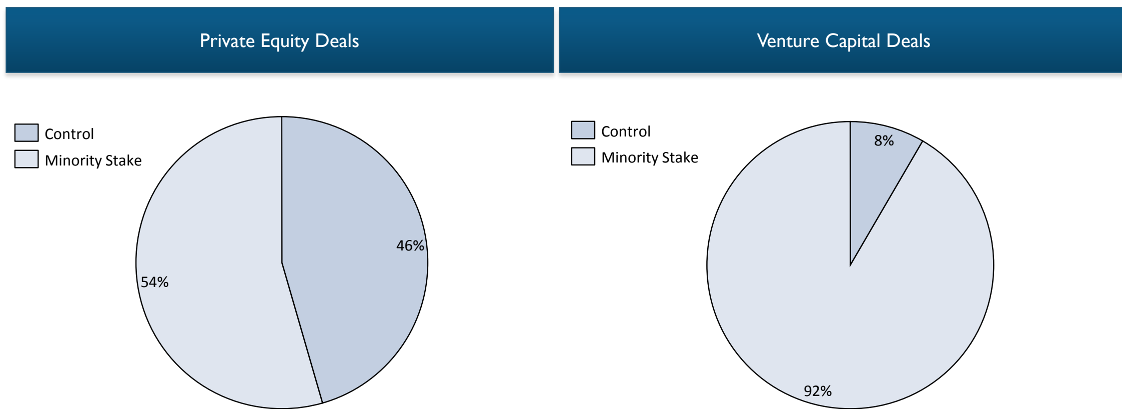
[1] Our sample does not include corporate VC and PE deals.

[2] We classify a deal as VC if it is in a company that has not reached breakeven yet.

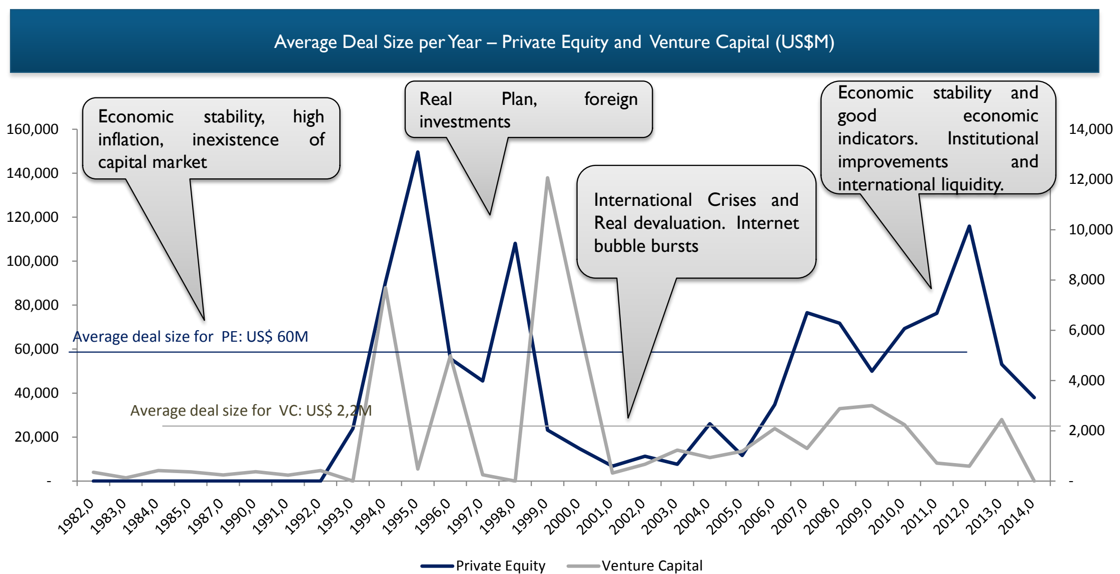
[3] Most of the data is in USD, however some cashflows were originally in BRL. We converted the BRL data to USD using the dollar PTAX in the entry day. We did the same procedure to convert cash inflows in BRL for USD, using the PTAX in the exit day. We segmented the sample in PE, VC and others. The last category groups mezzanine, infrastructure, agribusiness and distress deals

Figure 2. Proportion of deals with control and minority stake



Average size of deal is very cyclical (see Figure 3), as it is the case in developed countries. The cyclicality reflects the dynamic of the economic and institutional environment. There are some differences in the Brazilian dynamics for PE and VC.

Fig. 3 Evolution of Deal Size for PE and VC



Private Equity (see Figure 4 – left panel):

- 1982-1993: period characterized by three digit inflation, many Economic Plans and a very unstable environment for doing business. Foreign investors avoided Brazil, and it was very hard to raise PE funds focused in the country. This reflects in deals of small size. There is only one PE deal in our sample in this period.

- 1994-1998 is characterized by the adoption of the Real Plan, which brought economic stabilization to the country. The period is also characterized by the privatization of many public companies, which attracted the attention of international investors. Some foreign PE organizations opened Brazilian offices, as some local organizations raised their first Private Equity Funds. The average deal size in this period increased to USD87 million. But at that time there was a lack of fund managers with PE experience or specialized intermediaries. Entrepreneurs and family companies did not understand the active role of private equity fund either.
- 1999-2005: the lack of experience of the PE industry combined with a devaluation of the Brazilian currency were responsible for a bad performance of many funds raised in the previous period. Many international organizations closed their Brazilian offices. It was very difficult to raise funds focused in Brazil. This explains the drop in the average size per ticket to USD 16 million.
- 2006-2014: many important regulatory changes that started in the previous period improved the Brazilian institutional environment. In 2000, BOVESPA created the differentiated Stock Listing Segments according to Corporate Governance best practices; in 2003 CVM (The Brazilian Security Exchange Commission) launched the 391 instruction, creating FIP, a vehicle that allowed Brazilian public pension funds to invest in PE; in 2004, Brazil launched the New Bankruptcy Law and since 2005 the Supreme Court recognizes conflict resolutions through Arbitration Chambers. Brazil showed good economic indicators and that allowed the country to benefit from international liquidity. The stock market boomed, allowing many funds to have profitable exits. This attracted international attention to the Brazilian PE industry, and some PE organizations were able to raise funds over USD1 billion. The larger average deal size (USD70 million) reflects this movement, since these organizations moved to invest in larger companies.

Venture Capital (See Figure 4 – right panel)

1982-1993: Some pioneer VC organizations raised money mainly from Brazilian government for investing in small deals. As explained, the very unstable economic and institutional environment shied away international investors. Ticket size was less than USD0.5 million.

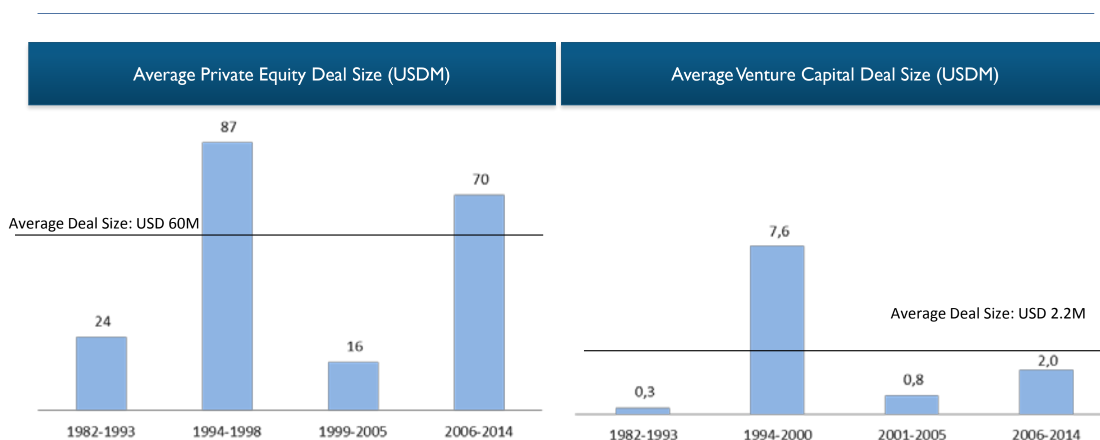
1994-2000: VC activity accelerated because of the internet bubble and Economic stability brought by the Real Plan. CVM (The Brazilian Security Exchange Commission) launched in 1994 the 209 instruction, creating FMIEE, a vehicle that allowed Brazilian public pension funds to invest in VC. Ticket size increased to USD 7.5 million.

2001-2005: VC activity was deeply hurt by the global internet bubble burst, and it was not different in Brazil. FINEP (that is associated to the Ministry of Technology) launched INOVAR program with the mission of developing the VC ecosystem. Many organizations (including PE organizations) raised funds with government players

(BNDES, FINEP, public pension funds) through INOVAR. VC deal size dropped to USD0.8 million.

2006-2014: Learning experience was acquired from VC funds raised in the previous period. Some funds managers with track record emerged, as well as entrepreneurs. Some international VC organizations also spotted Brazil and opened Brazilian offices or co-invested with local funds. Angel activity was more active, as well as the emergence of accelerators. Some local organizations were able to raise money with foreign investors and family offices, increasing the private resources' share in the industry. This reflects an increase in deal size to USD2 million.

Figure 4. Average deal size by different sub periods



Sector Concentration

In the long term, we do not identify concentration in any specific sector[4]. Figure 5 illustrates the sectors that received higher number of deals and Figure 6 the sectors that received higher volume of investment and their representativeness in Brazilian GDP in 2013 (according to IBGE).

Industry diversification reflects the dynamism of the Brazilian industry. Sectors that received 49% of PE and VC investments: retail, manufacturing, electric power and water, telecommunication and real estate, represent 32% of Brazilian GDP in 2013, according to IBGE.

[4] In this study we group the deals in sectors according to the IBGE classification.

Figure 5. Share of deals by industrial sectors

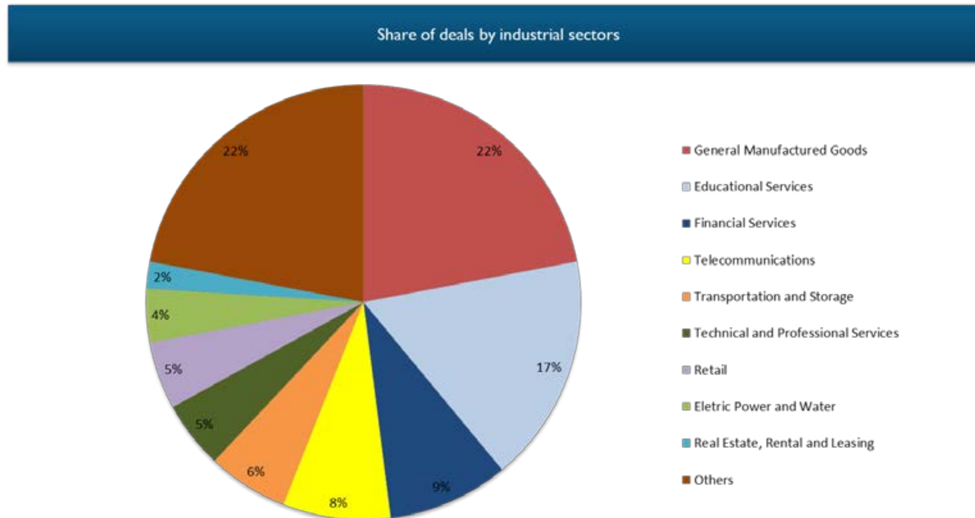
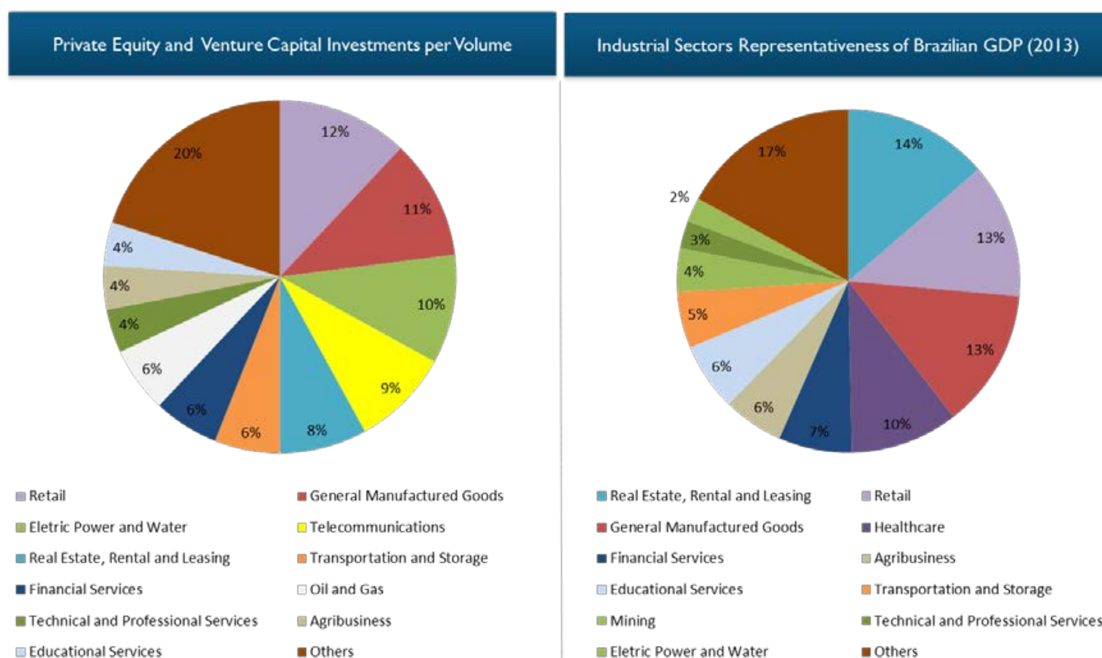


Figure 6. Share of investments by industrial sectors and GDP representativeness



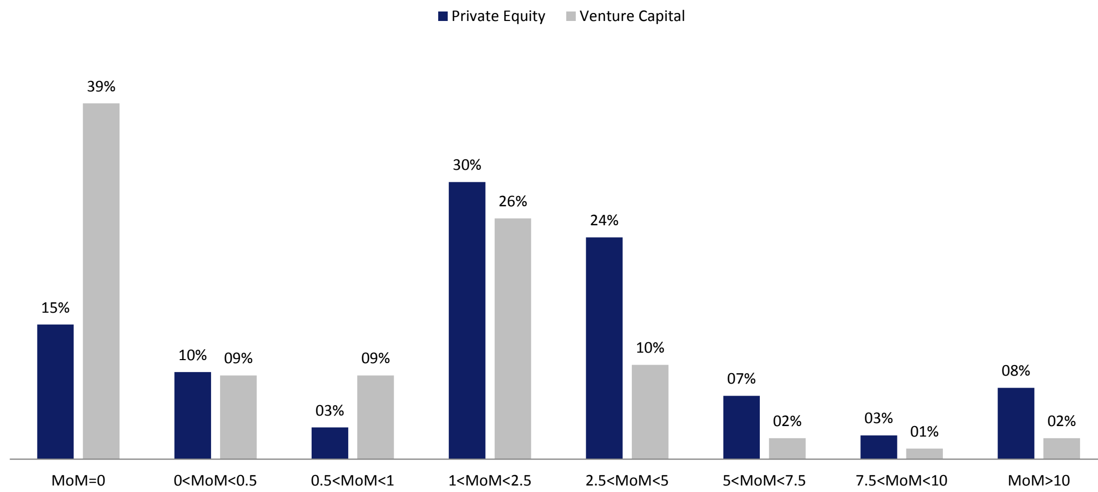
Investment Returns – Multiple of Invested Capital

PE deals have returned a mean MoM of 3.4x, more than the double of VC mean MoM of 1.5x.

In Private Equity and in Venture Capital a significant share of the deals incurred in losses or returned only the invested capital without profit (see Figure 7). The majority of deals for both industries have MoM concentrated between 1 and 2.5 times the

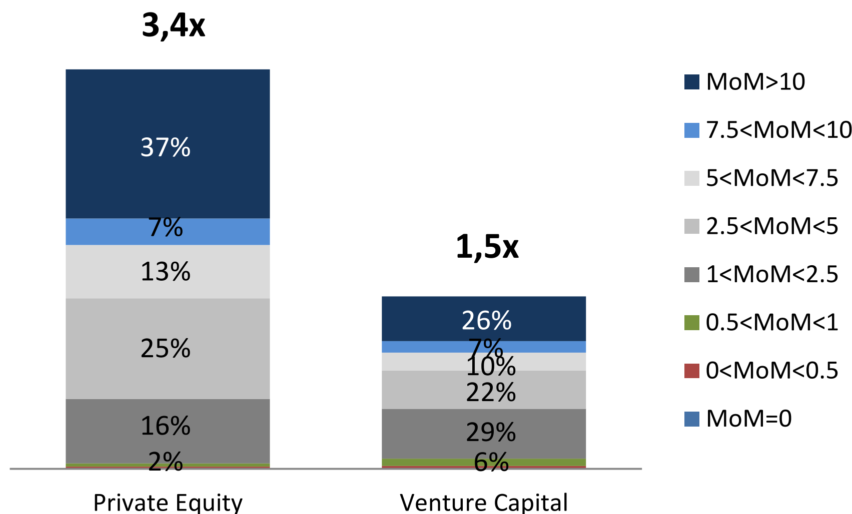
invested capital. But deals with outstanding performance (MoM higher than 5) corresponds to 18% of total PE deals, while they represent only to 5% of the VC deals[5].

Figure 7. Frequency Distribution of PE and VC MoM



Outperformers are crucial to generate high performance for both, PE and VC industry. Figure 8 illustrates this fact. Note that the 18% of the PE outperformers explain 57% of mean MoM. As the share of outperformers is significant, the average performance of the PE industry is high: 3.4 times invested capital. Meanwhile there were very few outperformers in VC, only 5%. These few outliers explain 43% of the mean MoM, resulting in a mediocre performance for VC: 1.5 times invested capital.

Figure 8. Decomposition of the mean MoM according to performance range



We analyzed the average IRR an investor would have had if he or she invested in PE and VC throughout the period.

[5] We considered outperformers deals with MoM equal or higher than 5. The mean Mom of outperformers for PE is 11, and the maximum is 34. VC had fewer outperformers, also with mean MoM of 11, and a maximum of 19.

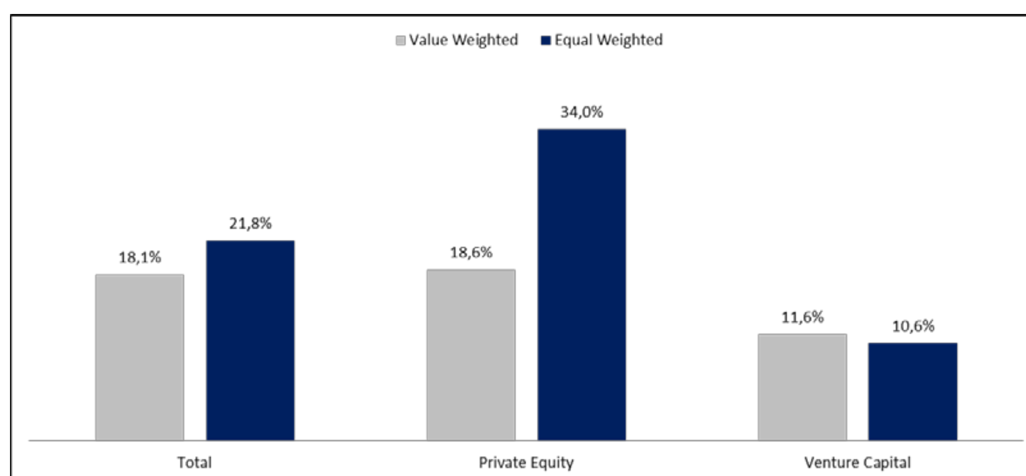
For doing so we used two different methods to estimate IRR: Value Weighted (VW IRR)[6] and Equal Weighted (EW IRR)[7].

- Value Weighted IRR corresponds to the return an investor would have had if he invested in all deals equivalent amounts of funds contributions: larger deals have higher weights, while smaller deals have lower weights. It represents the average return an investor would have if he replicated funds' portfolios.

- Equal Weighted corresponds to the return an investor would have had if he invested in all deals an equal amount of money, independently of the deal size. It represents the average of the individual deals' returns.

Figure 9 contains the results of our analysis. PE investments have a gross IRR in USD between 19% and 34%, while VC investments have a lower return 12% to 11%.

Figure 9: Average Performance of PE and VC industry



Even in the presence of significant losses, the PE and VC funds produced positive returns.

PE deals had on average a very high gross return: 34%. This was much higher than the average yearly return in USD of IBOVESPA and of CDI (Certificate of Interbank Deposit): 14.8% and 16%, compensating investors for the risk of the asset class.

[6] Value Weighted IRR (VW IRR): the performance an investor would have if he or she invested an amount proportional to the funds' investments in all deals in date 0. He or she exits each deal after the holding period, in date 0+t, receiving the proportion of the cash inflow the fund receives for selling the deal. Write-offs do have cash outflow at date 0, but no cash inflow. The VW simplifies the problem, considering that all cash outflows happen at date zero, and all cash inflows are received in date 0+t. Cash inflows are estimated as invested cash flows multiplied by MoM. Although the methodology weights deals according to value invested by the fund, it underestimates IRR, because it does not consider the appropriate time intermediate cash inflows are received.

[7] Equal Weighted IRR (EW IRR): the performance an investor would have if he or she invests an amount of USD1,00 in all of the deals in date 0. He or she exits each deal after the holding period in date 0+t, receiving the MoM. All cash outflows are disbursed at date 0, and all cash inflows are received at date 0+t. MoM value includes value of intermediate cash flows, reducing the underestimation of IRR, although it does not appropriate the flows in the correct time. This measure attributes the same weight for all the deals, and does not consider the size effect,

VC deals however had a more modest gross return of 11%, lower than IBOVESPA and CDI.

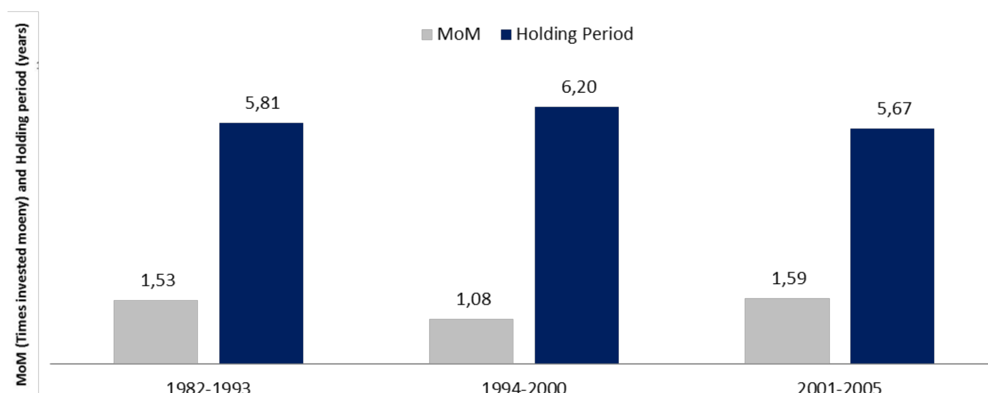
VC ecosystem was not mature enough to allow for multiple rounds of financing, forcing the funds to sell their stakes earlier. Therefore, the VC exits in our sample reflect that in most cases VC could not benefit of the early stage growth opportunity, generating a small number of outperformers. Before 2010, VC industry has been very dependent to government funds.

We expect that with the increase in the number of VC funds active in Brazil, the proportion of VC outperformers will increase, improving the profitability of the industry in future studies.

We estimate VC average MoM in three sub periods according to the year the fund invests in the deal: 1982-1993, 1994-2000 and 2001-2005 (see Figure 10). We observe that the maximum average MoM in all three subperiods is 1.6, confirming the previous analysis that VC performed poorly so far. We also observe that the average holding period is around 6 years in all of the subperiods.

We do not report average MoM and holding period in 2006-2013, because most VC deals are still in the portfolio. VC funds have recognized only the write offs. This is an indication that some deals in fund's portfolios had follow on rounds. We expect that the average VC holding period will increase, as well as the average VC MoM, since funds will be able to benefit from the growth in companies' value.

Figure 10. Evolution of VC average MoM and average holding period



We analyze PE average MoM in 1982-1993, 1994-1999, 2000-2005, 2006-2013. Figure 11 shows the evolution of MoM and holding period.

The absence of an active capital market from 1982 until 2003 reflects in longer holding periods (10 and 8.2 years) for deals originated between 1982-1993 and 1994-1999. These deals also have low average MoM, and the causes are: lack of experience of many fund managers at that time, Brazilian real currency devaluation and also liquidity pressure, that forces some funds to accept lower prices at strategic or secondary sales.

The heat in the IPO market that started in 2004, created good exit opportunities and also increased competition in M&A market. This reflects in the 5 average year holding period for deals originated in 1999-2005, and a higher MoM of 3.4. The 3.4 average MoM persists in deals originated in 2006-2013, but the average holding period

decreases to 2.8 years, indicating that funds took advantage of the IPO window to sell winners.

Figure 12 compares the evolution of average IRR with the return in dollars of IBOVESPA and CDI (Brazilian interbank rate) in the same sub periods. Higher IRR is a product of higher MoM and shorter holding period. We can observe that PE deals originated in 1982-1993 and 1994-1999 performed poorly, and worse than IBOVESPA and CDI. Deals originated in 1999-2005 have on average a very good IRR (33%), higher than IBOVESPA and CDI in the same period. Deals originated in 2006-2013 had exceptionally high IRR (51% to 63%) because of the shorter holding period. But as many of the deals originated between 2006-2013 are still in funds portfolio and the IPO market is not as warm as it was before, we expect a decrease in the IRR and a longer holding period, but still converging to a high level.

Figure 11. Evolution of PE average MoM and average holding period

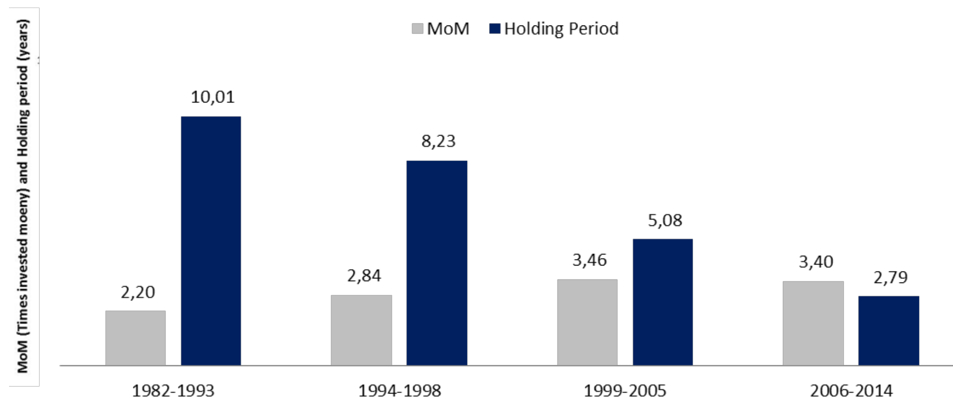
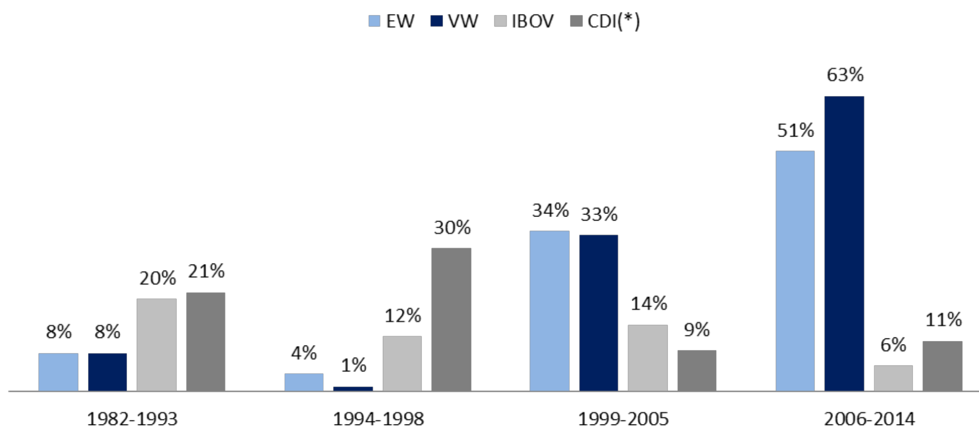


Figure 12. Comparison of PE IRR with IBOVESPA and CDI (dollar return) in different sub periods



Concluding remarks

- PE and VC returns are driven by few deals with exceptional performance. These few deals compensate losses. Although the VC total loss rate is higher (39%), PE total loss rate is not insignificant (15%).
- PE deals had a high average return in USD (34%) and a MoM of 3.4 times money invested. This was higher than the yearly return of IBOVESPA and of CDI in USD, compensating the investors for the risk.
- Although the high performance of PE deals are partially explained by the IPO window and good economic environment of Brazil between 2004 and 2012, it is also explained by the development of the industry: the appearance of fund managers with good track records and experience, the development of specialized intermediaries.
- PE IRR was especially high for deals originated in the last 8 years: 51% to 63%. However, this is due to the fact that funds had the benefit of a strong IPO window and kept the deals for a short period of time in the portfolio. As 82% of the deals originated in this period are still in fund's portfolios, and the IPO market is bearish, we expect that IRR will drop, but still to a very good level.
- VC deals had a poor average return of 11% in USD and a MoM of 1.5 times money invested. It was below the IBOVESPA and CDI yearly return in USD in the period, and did not compensate investors for the risk.
- VC industry was not as mature as PE industry was, and the deals in our sample are from funds mainly sponsored by the government. Because the ecosystem had few funds, they were not able to raise more resources for follow-on rounds, and were forced to sell earlier their portfolio companies. On average they did not lose money, but they did not compensate for the risk.
- Government sponsorship and the pioneer funds that suffered from a very incomplete ecosystem were very important though to promote a learning curve in the industry. This led to more experienced managers and entrepreneurs and to attract international interest for Brazil.
- As the share of private funding increased recently and more VC funds (local and international) appear, we expect that some deals that are still on funds' portfolios will have more rounds and better performance.
- Although we are aware that there are still gaps in the VC ecosystem, the number of players has increased since 2010, and we expect that future researches capture higher performance in the industry. Our analysis does not capture the effect on performance of more follow on rounds and longer holding periods. The vast majority of VC deals originated after 2010 are still in fund's portfolios.

Spectra-Insper Database

Spectra-Insper database contains information about PE and VC organization, funds, deals and people. The information used in this report is based mainly on data from Spectra Investments. This data is collected through PPMs and in interviews with organizations and is updated up to November 2013. Confidential information from Spectra is sanitized before being uploaded into the database.

The partnership between the Strategy Center of Insper and Spectra Investments, has the objective of continually maintaining and upgrading this database.

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