Insper CENTRO DE FINANÇAS

SPECTRA INVESTMENTS

HOT MARKET IN BRAZIL AND THE EXIT RATE OF BRAZILIAN PRIVATE EQUITY DEALS

Insper-Spectra Analysis – September 2017

Private equity managers have a certain flexibility to postpone exit decisions when the market is cold, and to accelerate them when the market is hot. This market timing strategy increases the probability of PE managers obtaining higher valuations in their exits, thus improving overall performance. The exit decision is also dependent on the holding period of the fund's portfolio companies. If the period is too short, not allowing for full implementation of a value creation thesis, the PE manager will generally not benefit from hot market windows to exit. If the period is too long and the fund is near or passed the end of its term, the manager is likely to be forced by their limited partners to sell the company even if the market is cold.

In this paper, we estimate the behavior of Brazilian private equity funds' exit rates according to the holding period of the underlying portfolio companies, and compare the behavior of these rates in hot versus cold market cycles. We used the market Price-Earnings ratio to classify the market as cold or hot on a monthly basis.

By understanding better how market conditions influence exit rates, PE investors can have a better assessment of the cash distribution pattern of PE funds in Brazil. This is one of the inputs when planning how the limited partner is going to meet its committed contributions, the available capital to satisfy its liquidity needs, and the capital available for new investments in PE funds.

We also test the impact of other characteristics in the exit pattern, such as: control or minority stake and the deal's ticket size.

Main highlights:

- Private equity fund managers tend to time their exits according to market conditions: a hot market cycle increases the probability of exiting a deal in five times when compared to a cold market cycle.
- According to historic behavior of the Brazilian stock market, the chances of exiting a private equity investment in less than 5 years is 30%, before 10 years is 65% and before 13 years is 85%. Therefore, there is a 15% chance that a company will remain for more than 13 years in the fund portfolio.
- In hot market cycles, the chances of exiting an investment in less than 5 years increases to 67%, less than 10 years to 94.5%, and less than 13 years virtually 100%.
- In cold market cycles, the chances of exiting an investment in less than 5 years drop to 15%, less than 10 years to 38% and less than 13 years to 65%. Therefore, in cold markets the probability that a deal's holding period will be higher than 13 years is 35%.

- Larger deals (with a ticket size larger than $50 million) tend to have longer holding periods than smaller deals.
- Deals in which the PE fund holds control stake tend to have longer holding periods than deals in which the fund holds minority stake.

Sample information

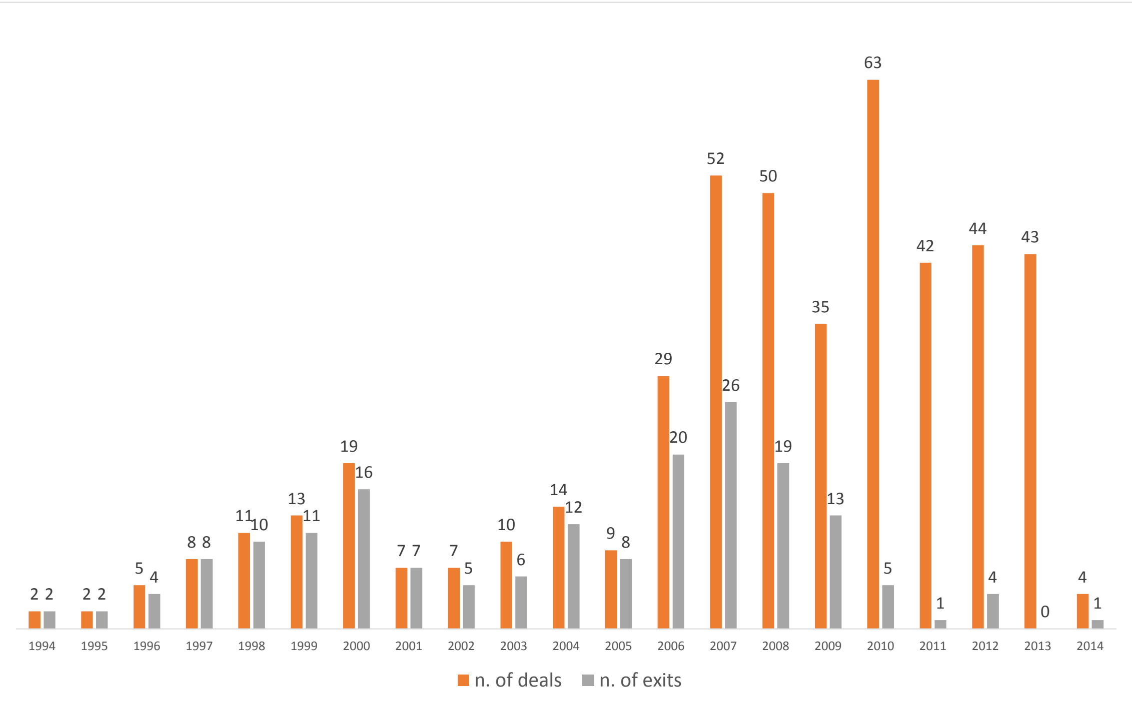
We use the Spectra Insper database to analyze the exit behavior of PE funds. We excluded write-offs from the sample, since we do not have information regarding the exact date when the funds recognize the loss.

The VC industry has had a major development since 2010, but most of our VC observations are from deals realized before 2010. There are few exits from the deals invested after 2010, and there is a high percentage of write-offs in our sample without holding period information. Therefore, we decided to exclude VC deals as well.

Our final sample contains 459 PE[1] deals invested between 1994 and 2014, of which 180 were fully liquidated.

Figure 1 contains the number of deals invested and divested by vintage year (year of investment). Most of the deals invested up to 2006 were exited, while most of the deals invested after 2006 have still not been fully exited. The average holding period for exited investments is 9 semesters.

Figure 1. Investment and Divestment by vintage year



[1] We classified a deal as PE if at the time of investment the company had already reached breakeven.

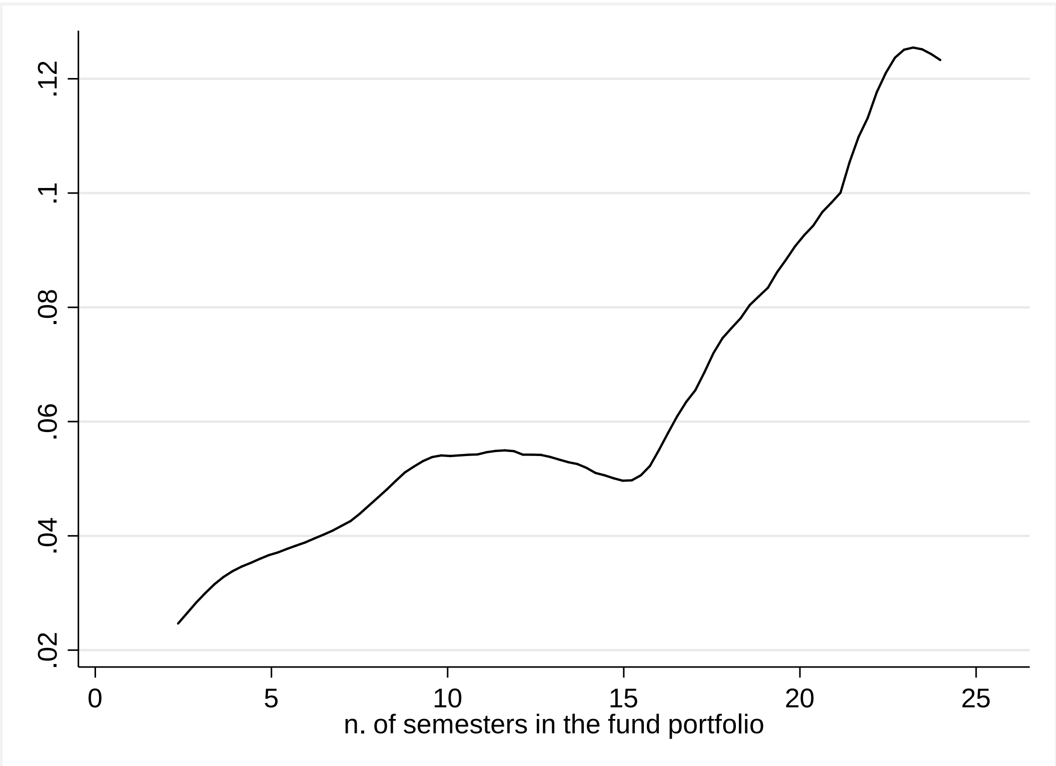
We classified every month from January 1994 to December 2014 as a hot or cold market cycle, by calculation the Price-Earnings ratio of the market in each month (average of the Price-Earnings ratio of the stocks traded in BOVESPA during that month). If the Price-Earnings ratio of the market for a certain month is higher than the average of the previous six months, we classify it as a hot market month, otherwise we classify it as cold.

Of the 180 deals in our sample that had been fully exited, 79 were exited in hot markets and 101 in cold markets. The average holding period of deals exited in hot market is 8.8 semesters, slightly lower than the average holding period of deals exited in cold market (9.3 semesters).

The impact of market condition on the exit rate

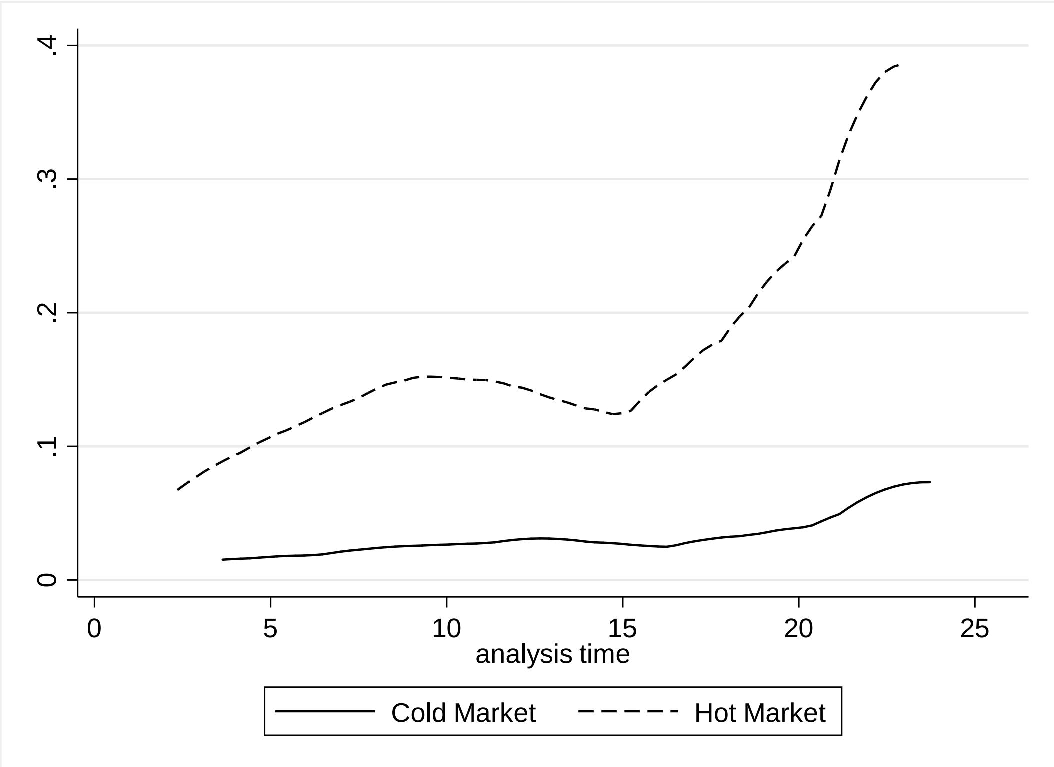
We used the hazard model to estimate the exit rates in accordance to market conditions and holding periods. Figure 2 plots the estimated exit rate according to the number of semesters the deal is in the fund's portfolio. Observe that the chances of selling a deal in the 5th semester after the investment date is less than 4%. This chance increases to more than 5% if the deal is in the portfolio after 15 semesters, and increases to 12% if the deal is in the portfolio after 24 semesters.

Figure 2. Exit rate conditioned to the time the deal is in the fund portfolio



In Figure 3, we segregate the analysis by exits in hot and in cold market, and it is possible to observe the magnitude of the PE funds' market timing activity when exiting investments. There is a 10% probability that the fund will exit a deal in the 5th semester if the market is hot, and only 2% if the market is cold. The probability of exiting a deal if the market is hot increases to almost 40% if the deal is still in the portfolio after 24 semesters, and to only 8% if the market is cold. Therefore, we can conclude that a hot market condition increases the exit rate around 5 times in comparison to a cold market condition. This is a strong evidence that PE fund managers tend to time their exits according to market conditions.

Figure 3. Exit rate conditioned to the time the deal is in the fund portfolio and according to market condition



The impact of market condition on the holding period

Another way of analyzing market timing strategies is by calculating the probability that PE fund manager will hold a company in its portfolio as time goes by, depending on market conditions.

Figure 4 analyses the historical holding periods for PE deals according to the market conditions at the time. There is a 70% probability that a fund will hold an investment for at least ten semesters (5 years), a probability of 35% that the fund will hold the deal for at least 20 semesters (10 years), and a probability of 15% that the fund will hold the deal for 26 or more semesters (13 years). That means that there is an 85% chance that the deal's holding period will be shorter than 13 years.

Figure 4. Chances that a deal will stay in the fund portfolio according to the number of semesters after the investment day – through the cycle analysis

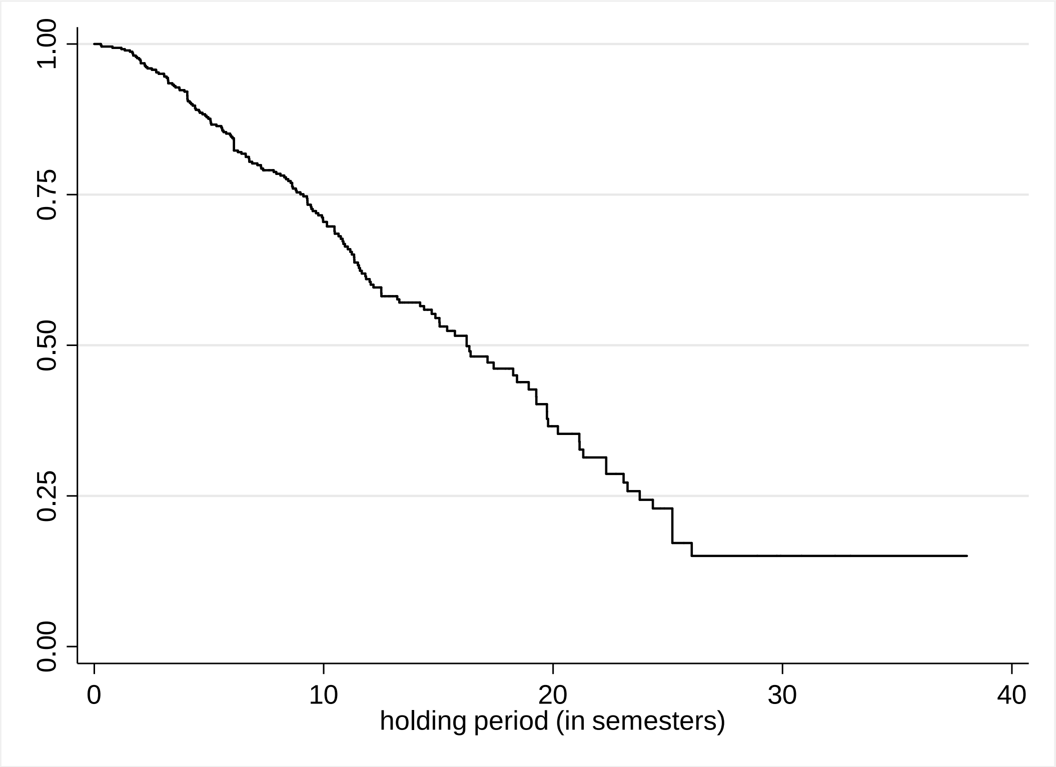
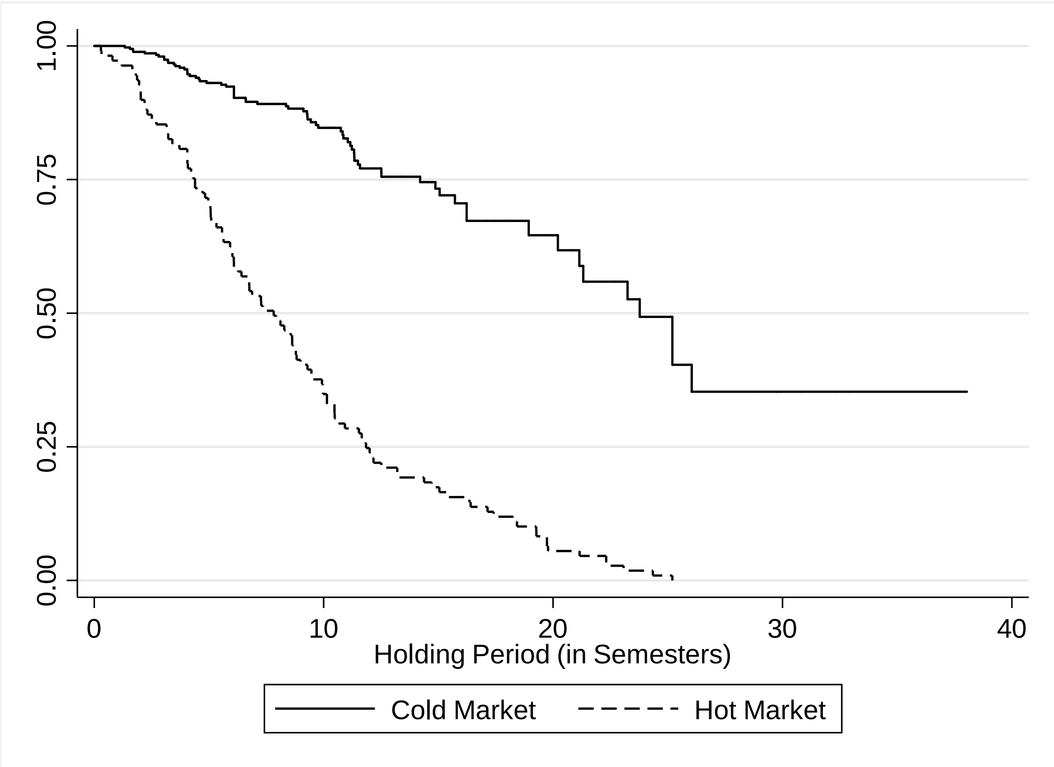


Figure 5 segregates the analysis into exits in hot and cold markets. Assuming a hot market cycle during the next years, the probability that the holding period of a new deal is greater than 10 semesters is only 35%; this decreases to less than 6% for a holding period over 20 semesters and virtually 0% for over 26 semesters, meaning that all investments would be exited in less than 13 years.

On the other hand, assuming a cold market cycle during the next years, the probability that the holding period of a new deal is greater than 10 semesters reaches 85%; this decreases to 62% for a holding period over 20 semesters and 35% for over 26 semesters, clearly evidencing that the average holding period is much longer for investments made in cold market cycles.

Figure 5. Chances that a deal will stay in the fund portfolio according to the number of semesters after the investment day, and market condition (hot and cold)

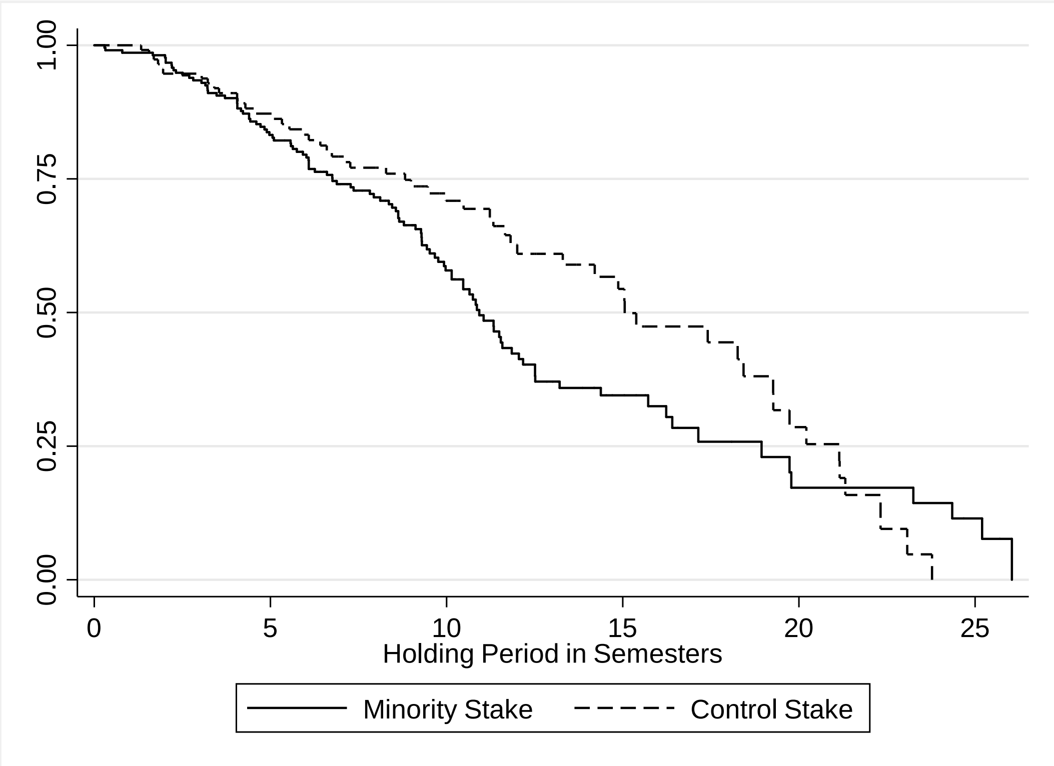


The impact of the fund thesis: control or minority stake in the holding period

Figure 6 compares the probability of exiting an investment as time goes by according to the type of equity stake: control or minority. This is a historic analysis, since we do not take into consideration the market condition at exit time. As we have missing information about the status of some deals (control or minority), the number of observations used in this analysis drops to 328.

PE funds with minority stakes tend to exit earlier than funds with control stakes. The chances that a fund with a minority stake will hold a deal for 5 years is 56%, and for 10 years is 17%. The chances that a fund with a control stake will hold a deal for 5 years is 70% and for 10 years 25%. The chances of both models holding a deal for more than 13 years is practically zero.

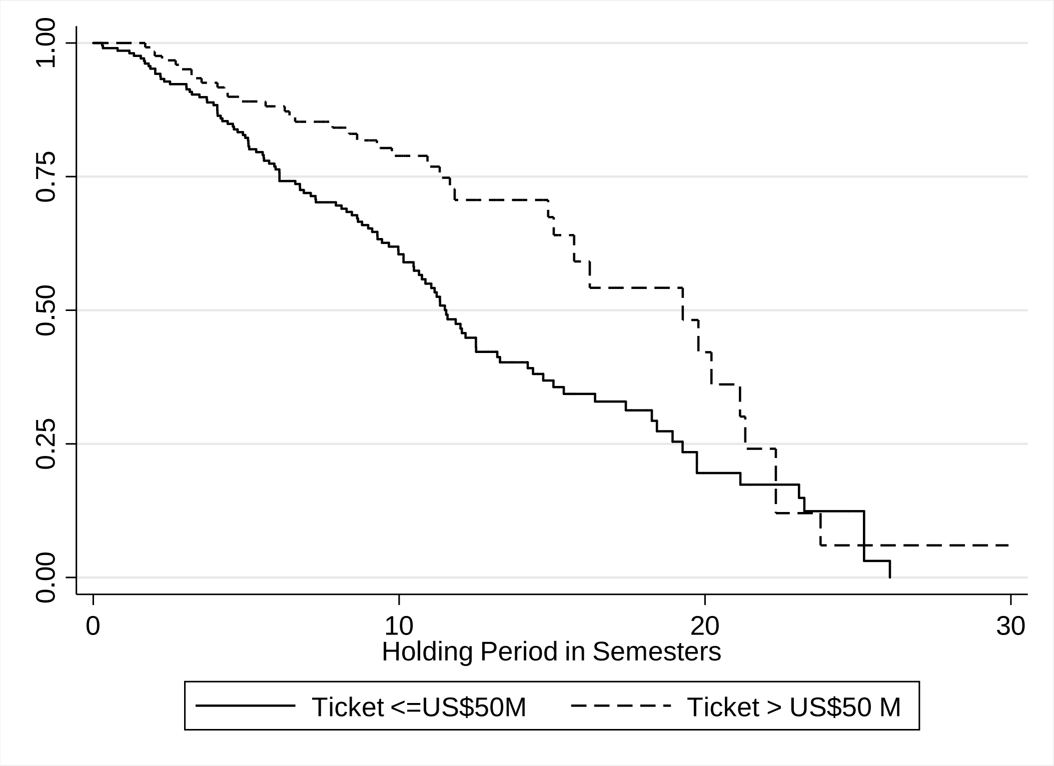
Figure 6. Chances that a deal will stay in the fund portfolio according to the number of semesters after the investment date, and the equity holding period according to the PE fund model (control or minority)



The impact of size in the deal's holding period

Deals of smaller size tend to stay less time in the fund's portfolio than larger deals. We classify a deal as large if the investment ticket is higher than US$50 million, and small otherwise. According to Figure 7, the chances of holding a small deal for a period longer than 10 semesters (5 years) is 59%, for more than 10 years is 17%, and for more than 13 years is practically zero. The chances of holding a large deal for 5 years is 79%, for 10 years is 36% and for 13 years is 6%.

Figure 7. Chances that a deal will stay in the fund portfolio according to the number of semesters after the investment day, and deal's size (big or small)



Concluding remarks

According to our analysis, PE fund managers in Brazil time their exits according to market conditions. A hot market condition increases the probability of exiting a deal by 5 times when compared to cold market condition.

Furthermore, past behavior of overall market conditions pointed to a probability of 15% that a PE investment's holding period will be higher than 13 years. If this investment were to be made in a purely hot market cycle, decreases to virtually zero, while a purely cold market cycle would increase this probability to 35%. Therefore, PE investors should consider market condition in estimating the distribution pattern.

Other variables that also explain the exit pattern are size and nature of the deal: control or minority. Minority deals tend to be liquidated earlier than control deals, as well as small deals as compared to big deals.

Our analysis is an important tool for investors estimate the liquidity risk of their private equity investments conditioned by stock market conditions and the nature of the deal: size and control stake.

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 collected by Spectra Investments in PPMs and interviews with PE firms. They are updated up to December 2014. Confidential information from Spectra is sanitized before being uploaded into the database.

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