Determinants and characteristics of Brazilian Private Equities return

Track: Financial Markets, Investment and Risk Management

Keywords: private equity, profitability, FIP.

Determinants and characteristics of Brazilian Private Equities return

Abstract

Private equity is an economy segment that grows vigorously and provides alternative sources of financing for companies, especially in emerging countries. This article addresses the determinants and characteristics of Brazilian private equity funds - FIPs (acronym in portuguese for Fund of Investment in Shares). We use 1,112 PE funds registered at the Brazilian Securities and Exchange Commission (CVM), analyzed by three main variables: time of establishment equity size and exclusivity as possible determinants of funds' performance. We also use GDP as a descriptive variable, which showed direct and positive high correlation with the sector performance, since it is closely linked to the country's economic system. The variable exclusivity does not influence the performance of the funds. The time of establishment variable presented negative statistical significance, which may be associated to the degradation of the Brazilian economy over the years. On the other hand, the fund size factor presented negative statistical significance. As lower as its profitability is, as high costs and high bureaucracy in bigger funds. The results are consistent with the researches conducted by Bessa and Funchal (2012), Romain and Van Pottelsberghe (2004), Jones (2007) and Grinblatt and Titman (1994).

1 Introduction

Private equity stands out in a significant way in Brazil as one of the main development tools of the capital market in emerging economies. An investment fund involves participation in companies with high potential growth and profitability, which can be done through acquisitions of shares, or securities with the aim of increasing capital in medium- and long-term (ABVCAP, 2012).

In the 1990s, after the spread of funds in emerging countries, the funds growth has slowed drastically down due to disappointing results. In many cases, those results did not come because of regulatory and legal issues, which do not provide adequate protection to the investor. With the global competition intensification, local policies, regulation and practices became increasingly important in attracting investors (Leeds and Sunderland, 2003).

In the Brazilian market, private equity funds are regulated and audited by the Securities and Exchange Commission (acronym in portuguese - CVM), as well as its managers / administrators. In 2003, the CVM created new rules on the establishment, administration and activities of the Private Equity Funds (FIP) – the so-called Normative Instruction CVM 391, the main vehicle to guide the activities of private equity funds.

Latin America has been the most attractive emerging market for investors since 2012. At the time, the Brazilian and Latin American markets held 46% of the expansion plans in emerging market investments, with 30% of respondents intending to expand their investments in Brazil (EMPEA, 2016).

However, due to severe macroeconomic pressure, including exchange rate volatility and falling commodity prices, the Latin-American market recorded a sharp fall, ranking fourth in attractiveness in 2016 (EMPEA, 2016). In the Brazilian case, due to factors such as political instability, reports of corruption and investigations in large companies, and low economic performance, brought down the country's attractiveness.

Despite the framework of political and economic deterioration in Brazil, there is a high expectation in the Brazilian market, as recession and political dispute bring valuations and multiple entries with attractive levels to investors (EMPEA Family Office, 2014). In addition, the favorable macroeconomic aspects, a market receptive to the IPO, the excellent record and the reduction of the basic interest rate make investments attractive in the long term, increasing the volume of resources available to the various sectors of the economy (ABVCAP, 2012).

The fund return distribution suggest that cash flow timing and illiquidity can be important. A typical private equity fund takes several years for capital to be invested and over ten years to be returned. The capital schedule depends on existing investment

opportunities and competition amongst private equity funds (Ljungqvist and Richardson, 2003). Those factors in emerging countries meet the capital return expectation on long term due to the high growth market expectation.

Taking into consideration Brazil's political and economic situation as of 2010, time of the greatest attractiveness to investment, this paper aims to analyze the determinants of the profitability of Brazilian private equity funds.

This article is structured in five sections, being: the first, an introduction to the theme, the objective and motivations; in section two, discussion of the concepts involving private equity investments as described by several authors which constitute the bibliographic basis of this work; section three discusses the methodology, the data needed for the analyses and the hypotheses of study; in section 4, we discuss the results found, as well as answers to the research hypotheses; section 5 presents the final conclusions in addition to future studies and challenges.

2 Literature Review

Private equity definition in its restricted sense is equity investments in companies not listed in the public securities market, regardless of the chosen corporate structure (Ramalho, Furtado and Lara, 2011). Because of their low liquidity nature, long-term returns and informational asymmetry, private equity deals have higher risks and returns than traditional ones, which put them into the alternative asset category.

However, there is an important relationship concerning the investor of private equity funds and the manager of such fund. Kaplan and Schoar (2005) highlights this relationship in their definition, which refers to private equity as being, carried out through a limited partnership structure, in which private equity managers operate with limited partners. The limited partners are institutional investors and wealthy individuals who provide the volume of capital. The limited partners undertake to provide a certain amount of capital to the fund. Then the limited partner has an agreed time to invest the capital provided - usually in 5 years. The partner also has an agreed time to deliver the return of capital to limited partners - usually 10 to 12 years. Each fund or limited partner is essentially a closed fund with finite life. When the partner uses a substantial quota of the capital committed to the fund, the fund goes in search of new investments for a subsequent fund.

Private equity investors usually emphasizes on adding value to their investment companies. That value comes from increasing revenue, improving incentives and governance, additional acquisition, replacing management and reducing cost. Once that cost reduction is the least important on investment phase. They also provide equity incentives to the management team wich can be important for future results (Gompers, Kaplan and Mukharlyamov, 2015)

Modern private equity became important for the financial market and for business development in the 1940s, both financially and strategically (Caselli, 2009). Different companies and financial markets have used this type of business for a long time; it is not possible to have one single universal definition and classification for private equity and venture capital. However, an institutional definition refers to the provision of capital and management expertise given to companies in order to create value and large capital gains after the deal. In addition, he corroborates the other authors in that the investments in private equity are of medium or long term. That happens because PE funds presents low liquidity, which can be an important reason why fund size erodes performance (Yan, 2008)

The real world does not apply the strict definition of private equity because the associations of market operators (CVM, in the Brazilian case) or central banks understand it according to the reality of each country. Although there are different definitions, private equity and venture capital create an important relationship between the investor and the entrepreneur. This is a unique feature not found in any other financial institution. Besides that, PE / VC can change in shareholding composition; bring knowledge, technical support and investment prospection. In addition, surveys indicate that PE / VC managers who spend more time on their investments perform services such as assisting in raising additional funds, strategy analysis, and administrative recruitment. In addition, firms receiving PE / VC funds attract qualified participants to IPOs. This fact somewhat increases heterogeneity in investor beliefs, resulting in high valuations (Caselli, 2009; Gorman and Sahlman, 1989; Chemmanur and Loutskina, 2009).

Given the idea that there is no strict definition, Brazil becomes another example of the different descriptions for private equity. The Securities and Exchange Commission (CVM) is the Brazilian entity that governs investment vehicles in the country. The CVM Normative Instructions 209 of 1994 and subsequently from CVM 391 regulates the traditional private equity investment funds (Dâmaso, 2017).

Private equity and venture capital organizations may also institute investment vehicles under CVM Instruction 409 of 2004. Among the various types of funds with a standardized designation are stock funds used as private equity and venture capital vehicles. These funds should hold 67% of their portfolio in securities traded on the stock exchange or organized over-the-counter market. Investment decisions follow the guidelines of a policy emanating from a general meeting of shareholders, and the manager is responsible for executing the securities business on behalf of the fund. Funds can be open or closed under regulation of CVM 409. In the latter, they can “qualified investors” with an additional requirement to have registered units in the CVM prior to distribution (Ramalho, Furtado and Lara, 2011).

The Normative Instruction CVM 391 refers to the organization, administration and operation of the Investment Funds. In its second article states that the purpose of a FIP is to obtain revenue on the valuation of the assets that make up its portfolio and

the receipt of dividends from its participation in invested companies, being an FIP constituted in the form of a closed condominium.

The PE / VC sector is a potential financing alternative for companies. It is remarkable that the great cycle of sector's development began after the monetary stabilization, impelling a peak in 2000, raised by the technology companies. The US financial crisis did not significantly affect the country's economy due to robust economic fundamentals. BNDES and FINEP initiatives play a fundamental role, since they use PE funds as mechanisms by which the government can finance the development of technological innovations without having to afford the resources invested into the companies (Meirelles, Pimenta Junior and Rebelatto 2008). Several factors influence the raising of funds in various manners. Among those studies, the most relevant would be the development of the capital market in terms of volume, liquidity and number of public offers. The negative impact of the banking system demonstrates the difficulty for managers to finance themselves in this way, probably because of the costs and requirements for this type of capital. The results discuss a growing reality both in Brazil and in the world, since the PE / VC market consolidates as an alternative of fundraising (Dias, 2014).

Investors commonly measure a PE fund performance in order to analyze the persistence performance and make the fund allocation decision. Thus, we use different metrics such as internal rate of return – IRR; multiple invested capital – MOIC; and public market equivalent – PME (Harris, Jenkinson and Kaplan, 2014). However, private equity has the same pattern than other assets, in which the past performance shows a poor indicator of prediction (Braun, Jenckinson and Stoff, 2015). The persistence performance can be affected by competition between funds, the market maturity country's economy. In addition, the investor must understand if a direct investment is better than funds or than public market and address questions about the economics of PE investing and of financial intermediation (Fang, Ivashina and Lerner, 2015). That is why we must analyze several factors together before the decision taken.

Brazil went through the financial crisis of 2008 being one of the countries that recovered quickly. The economic stability of this period elevated the country to the state of great power of the future. Brazilian population size and the economic potential create the fundamentals that make Brazil such an attractive country. In addition to some of the most competitive industries in the world, the agricultural potential and the expectation of becoming a major food and oil producer. The favorable macroeconomic environment, both domestic and foreign, brought the turn of the millennium to the private equity market in Brazil, contributing to the country's peak investments in 2011 with an increase of $ 7.1 billion (Ramalho, Furtado and Lara, 2011; Carsalade and Rennó, 2014; Minardi, Kanitz and Bassani, 2013).

However, changes in internal and external aspects reversed the attractiveness for investors. The reactions of the Brazilian government to the low global growth after 2010 and the decrease in demand for commodities weakened the Brazilian trade

balance, causing instability to the currency. In this period, the country had a reduction in its risk rating, going to BBB by Standard & Poor's. Economic factors added to political instability culminated in investor disinterest, which led to an increase in fundraising of only 1 billion in 2013, compared to the 7.1 billion in 2011 (Carsalade and Rennó, 2014).

Gross domestic product (GDP) shows the changes in the private equity sector. It is noteworthy that during the period of strong development of the sector, the Brazilian GDP was also at high levels, which changed after 2013, period during which investments also fell. In other words, the GDP indicator shows a direct and positive correlation with the return of the private equity sector (Romain and Van Pottelsberghe, 2004; Jegadeesh, Kräussl and Pollet, 2009).

In addition to macroeconomic and political factors, internal and inherent factors of each fund may influence the overall performance of the sector. Those factors are (1) competition for business; (2) management experience; (3) size of funds; (4) its period of establishment and (5) exclusivity; adding even more complexity to the management of PE / VC funds (Minardi, Kanitz and Bassani, 2013; Bessa and Funchal, 2012; Jones 2007, Bardela 2009; Grinblatt and Titman, 1994).

The current literature allows further analysis of the FIP market in Brazil. As described by Dias (2014), the development of the capital market is one of the main factors for fundraising. With the Brazilian crisis this development stagnated, opening new discussions regarding the returns and risks involved in this sector during this time.

3 Methodology

The aim of this research is descriptive, because it describes the variations of performance of the FIP funds existing in Brazil during the time of the Brazilian crisis. Regarding the procedures, they can be considered as quantitative and documentary, since it collects secondary data from the database of the Brazilian Securities and Exchange Commission (CVM), Focus series (Bacen) and B3 S.A. - Brazil, Bolsa, Balcão.

In order to research the influence of the economic crisis on the results in equity funds, this study adopts as dependent variables the variation on the average return in each fund.

The sample is composed of all investment funds listed in the CVM, which are 1,112 FIPs. In order to have groups of interest for the analysis we split the data into groups. The factors for the split decision were the period of establishment of the fund, size and exclusivity.

The extremely positive outlook designed by the PE / VC industry in 2011 has not fully materialized. Fundraising fell sharply after 2011. Partially that is due to the change in perception about Brazil, and to the excess of capital raised in 2011, when the

vast majority of funds then present in Brazil have attracted resources (Carsalade and Rennó, 2014). For this reason, we split the fund groups based on the time of establishment into pre- and post-2012 funds.

The average size of private equity funds in Europe ranges from 100 million to 300 million euros (Caselli, 2009). In a survey with Brazilian PE/VC managers, we asked them about the average size of Brazilian funds. For research purposes it was accepted that funds with a net equity of less than R$ 300 million are small funds, funds between R$ 300 million and R$ 1 billion are medium sized and funds with more than R$ 1 billion are large ones.

Bardella (2009) studied the exclusivity of a fund based on multimarket funds. In the same way, the present study analyzes the influence of the exclusivity of funds in the private equity market.

Thus, the table 1 shows the sample groups for the return and average risk analysis in each interest group.

Table 1 – Groups for analysis

Groups	Description	Number of funds	Percentage of total
Group 1	Funds established before 2012	285	25,6%
Group 2	Funds established after 2012	904	81,3%
Group 3	Small Funds (<R$300mi)	845	76,0%
Group 4	Medium Funds (R$300mi<x<R$1bi)	201	18,1%
Group 5	Large Funds (>R$1bi)	74	6,6%
Group 6	Performance of exclusive Funds	675	60,7%
Group 7	Performance of funds with several share holders	678	61,0%

Note: This table displays the total sample of funds separated by study interest groups.

Source: prepared by the authors

The calculation of the average return became the most used indicator for performance analysis of an investment, usually defined by the final value over the initial value of the quota:

$$R_{medium} = ln\left(\frac{Q_{final}}{Q_{Initial}}\right)$$

Of which,

Q_{final}: Price of final share

$Q_{initial}$: Price of initial share

For the analysis of influential factors, we used multiple regression. According to Hoffmann (2016), "we assume that the value of the dependent variable is a linear function of two or more explanatory variables." The statistical model of a multiple linear regression with k explanatory variables is:

$$Y_j = \alpha + \beta_1 X_{1j} + \beta_2 X_{2j} + \cdots + \beta_k X_{kj} + u_j, \quad j = 1, \dots, n$$

From the model described by Hoffmann (2016) this study adopts the following formulation for influence analysis:

$$Return = \alpha + \beta_1 Time + \beta_2 LN + \beta_3 Unit + u$$

Where:

$Return$: Average profitability of the sample in the period

$\beta_1 Time$: Age of FIPs

$\beta_2 LN$: Size of FIPs based in their liquid net worth

$\beta_3 Unit$: Amount of shareholder in each FIP

Table 2 shows the chosen hypotheses in order to evaluate the factors influencing the performance of the FIPs and, comparatively, analyze them in a recessive environment such as the Brazilian one:

Table 2 – Hypotheses chart

Research Hypotheses	Description	Reference Author
Hypothesis H_1	There were negative returns during Brazil's recessive period. The validation of this hypothesis means that FIP funds, as well as other	Romain e Van Pottelsberghe (2004) Jegadeesh, Kräussl e Pollet (2009)

Research Hypotheses	Description	Reference Author
	sectors of the Brazilian economy, have suffered losses during the recession period.	
Hypothesis H_2	Larger funds showed higher profitability The validation of this hypothesis means that the size of funds, in equity, is related to positive return, corroborating international studies that show there are savings in fees and costs. If the hypothesis is negative, it shows that larger funds have greater difficulty with high costs and fees. Noting that the study was carried out based on equity funds.	Bessa e Funchal (2012) Jones (2007) Yan (2008) Grinblatt e Titman (1994)
Hypothesis H_3	Funds established before 2012 showed higher profitability. The validation of this hypothesis means that it follows that the experience of funds of previous establishment has a relevant factor. It is remarkable that the market boom in Brazil occurred until the end of 2011, after which time the country entered a serious recession.	Jones (2007)
Hypothesis H_4	Number of shareholder does not influence the performance of the FIP. The validation of this hypothesis means that it follows that there is no influence of the number of shareholder on its average return.	Bardella (2009) Iquiapaza, Vidal Barbosa e Bressan (2008).

Note: The selected hypotheses meet to papers published by several authors, strengthening the historical and scientific basis of this research.

4 Analysis of Results

This section presents the results obtained based on each pre-formulated hypothesis.

4.1 Analysis of Hypothesis H_1

Romain and Van Pottelsberghe (2004) established a study with 16 countries members of the Organization for Economic Co-operation and Development, OECD. The authors proposed a theoretical and statistical model that explains the supply and demand for private equity investments. One of the results of this study raised the discussion that there is a directly proportional relationship between a country's gross domestic product (GDP), and the volume of private equity investment.

The estimated risk and return study carried out by Jegadeesh, Kräussl and Pollet (2009) is in line with the Romain & Van Pottelsberghe (2004) model. The authors found a positive correlation between GDP and the estimated return on a private equity fund, by studying the price to market of fund transactions and funds that invest in unlisted private equity funds.

Given that GDP is one of the main indicators listed by the OECD for analysis of a country's economic growth, it is appropriate to confront the annual Brazilian GDP with the average returns of the FIPs. This measure provides an analytical basis for the response of the H_1 hypothesis, as shown in Figure 1.

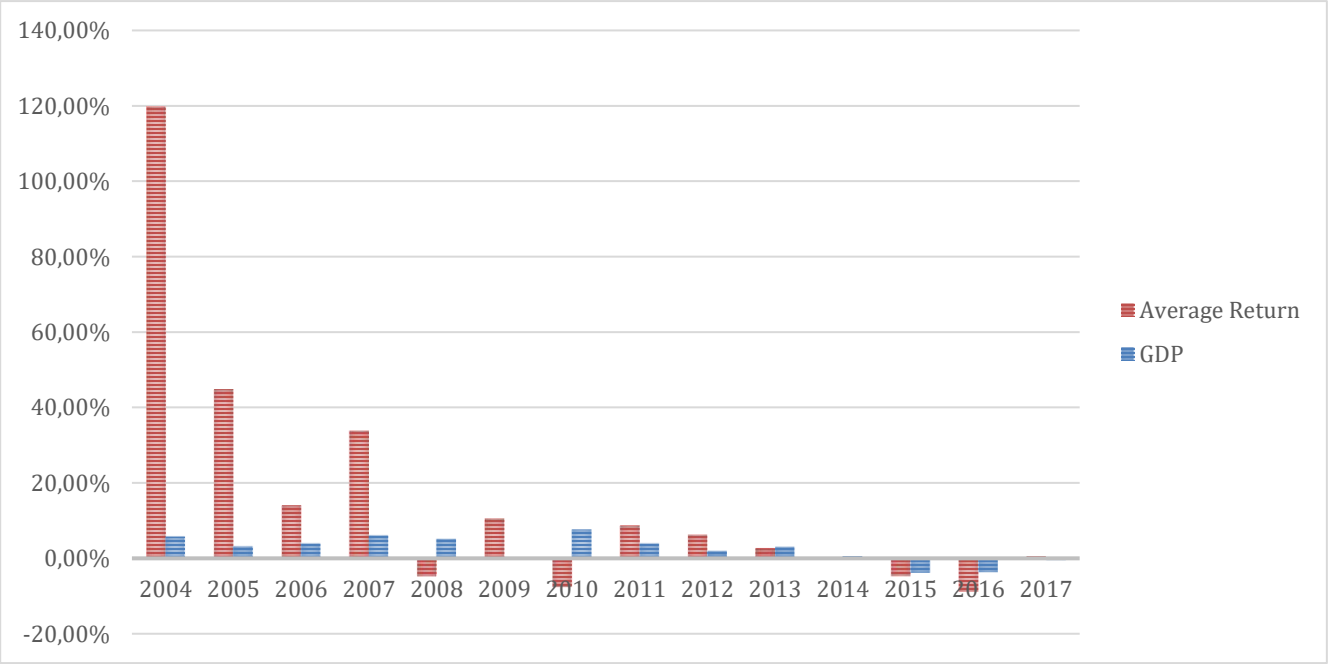

Figure 1 - Comparison of the average return of FIPs and Brazilian GDP between 2004 and 2016

Source: Prepared by the authors.

Figure 1 corroborates the study presented by Romain & Van Polltelsberghe (2004), since we can see the increase in the average return of FIPs in periods of economic growth. Conversely, there was negative growth in the negative growth period of the country, in agreement with the hypothesis H_1. This period begins in 2014 with almost no growth.

4.2 Analysis of Hypothesis H_2

The analysis of the hypothesis H_2 begins with the study of the elements of influence in the average return from a multiple linear regression. The table 3 shows the results.

Table 3 – Results of multiple linear regressions.

	Coefficients	***Standard error***	***P-value***
Intersection	77,370	19,962	0,003
Time	-0,038	0,010	0,003
LN	-0,686	0,107	0,000
Share	0,000	0,002	0,909

Note: the regression $Return = \alpha + \beta_1 Time + \beta_2 LN + \beta_3 Unit + u$ checks the relationship between the fund's time of establishment, its equity, number of shareholders and its share price. The number of observations was of 15,305 to 1,112 FIPS, the F value of significance was null and R2 was 89.8%.

From Table 2 it is possible to note that the relationship between the fund size and the performance of the FIP is negative. This result resembles the ones found by Bessa and Funchal (2012) in the investigation of determinants of performance of stock investment funds in Brazil. The authors reveal that this fact can occur due to the “inherent costs of funds with higher net equity and the longer time needed for decision making are greater than the obtained gains in scale”.

Other authors such as Bardella (2009), Jones (2007), Grinblatt and Titman (1994), confirm Bessa and Funchal in that there is an influence of the size of funds in their profitability.

For the validation of the fact, we analyzed the performance of the previously selected FIP in samples by size, relative to their equity.

Table 4 - Performance of FIPs selected by their size in equity

		Average Return	Average Size
Performance of small funds (<300mi)	Group 3	-0,61%	R$ 93.297.065,90
Performance of medium funds (300mi<x<1bi)	Group 4	-0,88%	R$ 535.272.346,69
Performance of large funds (>1bi)	Group 5	-1,98%	R$ 2.118.092.456,44

Note: We calculated the average return based on the methodology shown before. An arithmetic mean stablishes the average size.

Table 3 confirms the previously found results, as well as the study by Bessa and Funchal (2012). Loss in performance is noticeable with increasing fund size. Initially one can conclude that the inherent costs and bureaucracy in a large fund are responsible for the loss of performance when compared to smaller funds.

4.3 Analysis of Hypothesis H_3

Hypothesis H_3 is complementary to the H_1 hypothesis, as it distinguishes between the periods of private equity market prosperity in Brazil, identified by surveys as being until 2012, and the period of recession the country has suffered.

Jones (2007) demonstrates in his study on the size and age of investment funds that younger funds are more profitable than older funds. This study is divergent, since the results found in Brazilian FIPs were divergent from the Jones study due to the macroeconomic indicators in decline from 2012.

Table 5 - Performance of FIP according to their time of establishment

		Average Return
Funds' performance before 2012	Group 1	0,68%
Funds' performance after 2012	Group 2	-0,87%

Note: We calculated the average return based on the methodology shown before.

Table 5 shows the performance of the funds according to their time of establishment. Group 1, funds constituted until the end of 2011, presented an average return 228% above the average return presented by group 2 funds.

Table 2 also shows a negative coefficient for the time factor, demonstrating that FIP funds in Brazil have lost profitability over the years.

Ramalho, Furtado and Lara report that the performance of group 1 is due to country's growth: "while the G7 countries rehearse the third step of a slow recovery from the 2008 crisis, Brazil grows more than 5% per year. It has become a showcase of business opportunities, a paradigm of macroeconomic management, institutional development and democratic consolidation."

The EMPEA survey (2011) presents Brazil as the most attractive country for investments in 2011; however, more recent researches, such as EMPEA (2016), show that Brazil fell in the attractiveness ranking from 2012, which corroborates the fall in the profitability of the funds, linked with the fall in Brazilian GDP, that is, the economic recession in the country began.

Concerning hypothesis H_3, is remarkable that it is true, considering that, Brazil was regarded as the most attractive country for investments up to 2011, with a growth history of 5% per year, factors that contribute to the development of the country's various productive sectors, including the private equity.

4.4 Analysis of Hypothesis H_4

Hypothesis H_4 discusses the influence of the number of shareholders on the return of the fund. Table 2 shows that the number of shareholders has no relation to the profitability of the fund, a fact that corroborates a study conducted by Bardella (2009), in which the author also did not find any influence of the quantity of shareholders in the return of the multimarket funds.

However, the performance comparison of exclusive and non-exclusive FIP funds shows that there is a significant disparity, as shown in table 5.

Table 4– Performance of exclusive and non-exclusive FIP funds

		Average Return	Average Nr. of Shareholders	Average Ticket
Performance of exclusive funds	Group 5	-0,14%	1	R$ 222.652.413,80
Performance of funds with multiple shareholders	Group 6	-0,75%	38	R$ 6.968.278,48

Note: We calculated the average return based on the methodology shown before. An arithmetic mean stablishes the number of average shareholders of each observation. The average ticket is the division of funds average size by the average number of shareholders.

It is remarkable that the exclusive FIPs funds outperform non-exclusive funds.

From the analysis of groups 1 and 2, it is possible to verify that about 97% of the FIPs funds established before 2012 are exclusive funds. However, exclusive funds compose about 25% of FIPS funds set up after 2012 as shown in figure 2. That means a growth of more than 8000% of non-exclusive FIP funds.

Figure 2 - Exclusive funds distribution by interest period.

This analysis is important because most of the exclusive funds were created during the boom period of the private equity market, in which the sector showed high returns, which raises the average return value of the total period (2004 to 2016). On the other hand, most non-exclusive funds were set up after the sector boom, naturally showing lower average returns. Therefore, there are factors of greater relevance to the performance of the FIP fund than the number of shareholders.

4.5 Synthesis of Results

Table 5 – Summary of results chart

Research Hypothesis	Results
Hypothesis H_1	This hypothesis is true, since there was a negative growth in the negative growth period of the country. This period begins in 2014 with low growth rate.
Hypothesis H_2	This hypothesis is not true; the results show no statistical relevance and contradict the results of the study carried out by Bessa and Funchal (2012). Loss of performance is noticeable with increasing fund size. At first, one can conclude that the inherent costs and bureaucracy in a large fund are responsible for the loss of performance when compared to smaller funds.

Research Hypothesis	Results
Hypothesis H_3	This hypothesis is true, showing negative statistical relevance, that is, the older the fund, the less profitable it is. Loss of performance is noticeable with larger fund size. At first, one can conclude that the inherent costs and bureaucracy in a large fund are responsible for the loss of performance when compared to smaller funds.
Hypothesis H_4	This hypothesis is true, because it is possible to notice that the number of shareholders has zero relation with the profitability of the fund.

Note: the results presented here bring a direct correlation with works developed by other authors, collaborating for the its scientific development.

5 Conclusions

The present work sought to determine the influence factors in the average return of private equity funds in Brazil - the FIPs - based on internal variables, which are size in equity, time of establishment and exclusivity. We also used the Brazilian GDP for a correlation of the external environment in the performance of the FIPs.

We opened the discussion regarding the GDP because several authors demonstrate its direct correlation with the profitability of private equity funds in a global scope. Thus, we found same correlation to Brazilian reality. It was possible to notice the growth of the private equity sector until the year 2013. When the country was in full growth, presenting positive GDPs and great attractiveness to investors, except for the period of the crisis of 2008, in which there was an imbalance between the two variables.

When the size of the funds comes into question it is remarkable the convergence presented by the Brazilian sector in comparison to the European and American markets. Convergence also demonstrated by Bessa and Funchal (2012) when analyzing equity investment funds. The relation between FIP funds average returns and their sizes is directly, expressed by an inverse proportionality, in other words, the larger funds present lower returns when compared with funds with lower equity. This may be associated to the fact that the bureaucracy and the high transactional rates inherent to large funds undermine their overall performance.

When discussing the FIPs average return in relation to their time of establishment, there is a relation of statistical significance. However, unlike authors such as Jones (2007) and Bessa and Funchal (2012), the relationship for FIPs was negative, in the other words, the younger the fund, the lower the profitability. This is due to the Brazilian economy deterioration after 2012,

as well as to the growth of the sector. Likewise, it presented an increase in number of FIPs at an approximate rate of 25% per year from 2011. Period in which there was a boom of growth in the sector due to great attractiveness to investment, but which did not materialize in the course of the following years. This scenario presents great challenges to managers.

The hypothesis 4 shows that there is no statistical significance between the number of shareholders and the return of the FIP. However, we must study this question separately, because the comparison of performance of exclusive funds and performance of non-exclusive funds shows that there is a significant difference in performance, in which the exclusive funds are superior to others. Probably because of the fact that FIP funds were mostly exclusive, during the sector's boom time. Unlike the shared funds that started to develop themselves after 2012, when a recessive period started in the country. Therefore, further study of this fact would bring a better understanding.

Thus, this work has provided a basis of the relevant factors that an investor should verify in a private equity fund in Brazil before allocate resources. In addition, the results showed the macroeconomic scenario has a great influence on the fund performance. Future studies can demonstrate the macroeconomic relationships of the performance of the private equity industry, risk analysis and performance analysis as linked to fund management.

References

ABVCAP – Associação Brasileira de Private Equity & Venture Capital (2012). *Sobre o setor*: capital empreendedor. Available in: < http://www.abvcap.com.br/Download/IndustriaPEVCSobreSetor/21.pdf>.

Bardella, R. P. (2009). *Relação entre desempenho e captação de fundos multimercado no Brasil* (Doctoral dissertation).

Bessa, L. M., & Funchal, B. (2012). Determinantes da Performance dos Fundos de Investimento em Ações no Brasil.

Braun, R., Jenkinson, T., & Stoff, I. (2017). How persistent is private equity performance? Evidence from deal-level data. *Journal of Financial Economics*, *123*(2), 273-291.

Carsalade, F., Rennó, R. (2014). Brazilian Private Equity: A new direction. *INSEAD Global Private Equity (GPEI)*

Carvalho, A. G. D., Ribeiro, L. D. L., & Furtado, C. V. (2006). A indústria de private equity e venture capital: 1° censo brasileiro.

Caselli, S. (2009). Private equity and venture capital in Europe: markets, techniques, and deals. *Academic Press*.

Chemmanur, T. J., & Loutskina, E. (2009). How do corporate venture capitalists create value for entrepreneurial firms?

Dâmaso, L. C. D. S. (2017). Private equity: impacto no retorno das ações de empresas do setor elétrico no Brasil (Master's thesis).

de Carvalho, M. R. A. (2005). Avaliação de desempenho de fundos multimercado: resultados passados podem ser utilizados para definir uma estratégia de investimento? *Revista de Economia e Administração*, *4*(3).

Dias, R. D. S. (2014). Estudo sobre a captação dos fundos de Private Equity e Venture Capital (Master's thesis).

EMPEA – Emerging Markets Private Equity Association (2011). *Global Limited Partners Survey: Investors' Views of Private Equity in Emerging Markets*.

EMPEA – Emerging Markets Private Equity Association (2016). *Global Limited Partners Survey: Investors' Views of Private Equity in Emerging Markets.*

Fang, L., Ivashina, V., & Lerner, J. (2015). The disintermediation of financial markets: Direct investing in private equity. *Journal of Financial Economics*, *116*(1), 160-178.

Gompers, P., Kaplan, S. N., & Mukharlyamov, V. (2016). What do private equity firms say they do?. *Journal of Financial Economics*, 121(3), 449-476.

Gorman, M., & Sahlman, W. A. (1989). What do venture capitalists do?. *Journal of business venturing*, *4*(4), 231-248.

Grinblatt, M., & Titman, S. (1994). A study of monthly mutual fund returns and performance evaluation techniques. *Journal of financial and quantitative analysis*, *29*(3), 419-444.

Harris, R. S., Jenkinson, T., & Kaplan, S. N. (2014). Private equity performance: What do we know?. *The Journal of Finance*, *69*(5), 1851-1882.

Hoffmann, R. (2016). *Análise de regressão: uma introdução à econometria*.

Iquiapaza, R. A., Vidal Barbosa, F., Fernandes Amaral, H., & Bressan, A. A. (2008). Condicionantes do crescimento dos fundos mútuos de renda fixa no Brasil. *Revista de Administração-RAUSP*, *43*(3).

Jegadeesh, N., Kräussl, R., & Pollet, J. (2009). *Risk and expected returns of private equity investments: evidence based on market prices* (No. w15335). *National Bureau of Economic Research*.

Jones, M. (2007). Examination of fund age and size and its impact on hedge fund performance. *Derivatives Use, Trading & Regulation*, *12*(4), 342-350.

Kaplan, S. N., & Schoar, A. (2005). Private equity performance: Returns, persistence, and capital flows. *The Journal of Finance*, *60*(4), 1791-1823.

Leeds, R., & Sunderland, J. (2003). Private equity investing in emerging markets. *Journal of applied corporate finance*, *15*(4), 111-119.

Ljungqvist, A., & Richardson, M. (2003). *The cash flow, return and risk characteristics of private equity* (No. w9454). *National Bureau of Economic Research*.

Meirelles, J. L. F., Pimenta Júnior, T., & Rebelatto, D. A. D. N. (2008). Venture capital e private equity no Brasil: alternativa de financiamento para empresas de base tecnológica. *Gestão e Produção*, *15*(1), 11-21.

Minardi, A. M. A. F., Kanitz, R. V., & Bassani, R. H. (2014). Brazilian Private Equity and Venture Capital Funds Performance from 1990 until 2013.Ramalho, C., Furtado, C. V., & Lara, R. (2011). A indústria de private equity e venture capital: 2º censo brasileiro.

van Pottelsberghe de la Potterie, B., & Romain, A. (2004). The Determinants of Venture Capital: Additional Evidence (No. 2004, 19). *Discussion paper Series 1/Volkswirtschaftliches Forschungszentrum der Deutschen Bundesbank*.

Yan, X. S. (2008). Liquidity, investment style, and the relation between fund size and fund performance. *Journal of Financial and Quantitative Analysis*, 43(3), 741-767.