"Characteristics of private equity return: evidence from Brazil"

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CHARACTERISTICS OF PRIVATE EQUITY RETURN: EVIDENCE FROM BRAZIL

Abstract

Private equity (PE) stands out significantly in the world as one of the main development tools of the capital market in emerging economies and alternative sources of finance for companies. Particularly, the increase in fund value and continuous returns are objects of intense study in Brazil. The paper aims to find determinants to Brazilian private equity returns, regarding three relevant variables funds characteristics and GDP to a macroeconomic view. A sample of 1,112 PE funds registered at the Brazilian Securities and Exchange Commission (CVM) was used and analyzed by three main variables: period of establishment, equity size, and exclusivity as possible determinants of funds' performance using multiple regression model and fourth variable GDP is applied as a descriptive variable. The results indicate that older funds had a return premium of 1.5% monthly over young funds, smaller funds had a return premium of 1.4% over larger funds, and exclusivity does not influence the funds' performance. Thus, the paper provides a basis for the relevant factors that an investor should verify in Brazil's private equity fund before allocating the resources.

Keywords: private equity, investment fund, performance, capital allocation, Brazilian securities, multiple regression

JEL Classification: G24, G32, G34

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INTRODUCTION

Latin America has been the most attractive emerging market for private equity investors since 2012. Simultaneously, 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 political instability, reports of corruption and investigations in large companies and low economic performance brought down the country's attractiveness.

Private equity stands out significantly 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 to increase capital in the 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 global competition intensification, local policies, regulations, and practices became increasingly important in attracting investors (Leeds & Sunderland, 2003).

In the Brazilian market, private equity funds are regulated and audited by the local Securities and Exchange Commission named CVM (Comissão de Valores Mobiliários) and its managers/administrators. In 2003, the CVM created new rules on the establishment, administration, and activities of the Private Equity Funds (FIP – acronym for Fund in Investment in Shares or Brazilian Participation Funds) – the so-called Normative Instruction CVM 391, the main vehicle to guide the activities of private equity funds.

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 to investors' attractive levels (EMPEA, 2016). Besides, 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 suggests 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 & Richardson, 2003). Those factors in emerging countries meet the capital return expectation in the long term due to the high growth market expectation.

The study addresses the answers to private equity returns, which could influence institutional investors decisions. Age, size, number of shareholders, and GDP are relevant variables studied in the literature applied to the case of an emerging market and could explain funds returns.

1. LITERATURE REVIEW

In its restricted sense, private equity definition is equity investments in companies not listed in the public securities market, regardless of the chosen corporate structure (Ramalho, Furtado, & 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, putting them into the alternative asset category.

However, there is an important relationship between the investor of private equity funds and the manager of such funds. Kaplan and Schoar (2005) highlight 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 re-

turn of capital to limited partners – usually 10 to 12 years. Each fund or limited partner is essentially a closed fund with a 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 emphasize 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 in the investment phase, the study also provides equity incentives to the management team, which can be important for future results (Gompers et al., 2015)

Modern private equity became important for the financial market and 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 impossible to have one universal definition and classification for private equity and venture capital. However, an institutional definition refers to the provision of capital and management exper-

tise given to companies to create value and large capital gains after the deal. Besides, the study corroborates other findings that show that investments in private equity are medium- or long-term. That happens because PE funds present 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 each country's reality. Although there are different definitions, private equity and venture capital create an important relationship between investors and entrepreneurs. This is a unique feature not found in any other financial institution. Besides, PE/VC can change shareholding composition; bring knowledge, technical support, and investment prospection. Besides, the 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. Besides, 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 & Sahlman, 1989; Chemmanur & Loutskina, 2009).

Given the idea that there is no strict definition, Brazil becomes another example of private equity's different descriptions. 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 secu-

rities business on behalf of the fund. Funds can be open or closed under the regulation of CVM 409. In the latter, these investors are "qualified investors" with an additional requirement to have registered units in the CVM before distribution (Ramalho, Furtado, & Lara, 2011).

The Normative Instruction CVM 391 refers to the organization, administration, and operation of the Investment Funds. 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 investee companies, being a FIP constituted in the form of a closed condominium.

The PE/VC sector is a potential financing alternative for companies. Remarkably, 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 Bank and FINEP Agency initiatives play a fundamental role since PE funds are used as mechanisms by which the government can finance the development of technological innovations without having to afford the resources invested into the companies (Meirelles et al., 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 the 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 globally since the PE/VC market consolidates as an alternative to fundraising (Dias, 2014).

Investors commonly measure a PE fund performance to analyze persistence performance and make the fund allocation decision. Thus, different metrics such as internal rate of return – IRR; multiple invested capital – MOIC; and public market equivalent – PME (Harris et al., 2014) could be applied. However, private equity has the same pattern as other assets, in which the past performance shows a poor indicator of prediction (Braun et al., 2017). The persistence performance can be affect-

ed by competition between funds, the market maturity country's economy. Besides, the investor must understand if a direct investment is better than funds or than the public market and address questions about the economics of PE investing and of financial intermediation (Fang et al., 2015). The decision-making process must include several factors listed above. Appelbaum and Batt (2016) point out that recent research has found little or no persistence in fund managers' performance. Harris et al. (2014) compared public and private datasets and found some similarities regarding performance issues.

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 the 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 R\$ 7.1 billion (Ramalho, Furtado, & Lara, 2011; Carsalade & Rennó, 2014; Minardi et al., 2013).

However, changes in internal and external aspects reversed the attractiveness for investors. The Brazilian government's reactions 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 reduced 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 7.1 billion in 2011 (Carsalade & Rennó, 2014).

Gross domestic product (GDP) shows the changes in the private equity sector. It is noteworthy that during the period of the strong development of the sector, the Brazilian GDP was also at high levels, which changed after 2013, a 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 & Van Pottelsberghe, 2004; Jegadeesh et al., 2009).

In addition to macroeconomic and political factors, each fund's internal and inherent factors may influence the overall performance of the sector. Those factors are (1) competition for business, (2) management experience, (3) size of funds, (4) period of establishment, and (5) exclusivity, adding even more complexity to the management of PE/

Table 1. Hypotheses chart and references

Research question	Research hypotheses	Description	Authors
Is there any relationship between GDP and FIPs return?	Hypothesis H_1	There were negative returns during Brazil's recessive period. The validation of this hypothesis means that FIP funds and other sectors of the Brazilian economy, have suffered losses during the recession period.	Romain and Van Pottelsberghe (2004), Jegadeesh, Kräussl, and Pollet (2009)
Is there any relationship between fund size and FIPs return?	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 showing 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 and Funchal (2012), Jones (2007), Yan (2008), Grinblatt and Titman (1994)
Is there any relationship between fund age and FIPs return?	Hypothesis H_3	Funds established before 2012 showed higher profitability. The validation of this hypothesis means that the experience of funds of the previous establishment has a relevant factor. Remarkably, the market boom in Brazil occurred until the end of 2011, after which the country entered a serious recession.	Jones (2007)
Is there any relationship between the number of shareholders and FIPs return?	Hypothesis H_4	Number of shareholders does not influence the performance of the FIP. The validation of this hypothesis means that the number of shareholders does not influence its average return.	Bardella (2009), Iquiapaza, Vidal Barbosa, and Bressan (2008)

VC funds (Minardi et al., 2013; Bessa & Funchal, 2012; Jones, 2007; Bardela, 2009; Grinblatt & Titman, 1994).

The current literature allows for 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.

The paper aims to analyze the determinants of the profitability of Brazilian private equity funds. The following research question is formulated: what variables explain the return on FIPs? To achieve this research aim, four research questions took the account and hypotheses to them. Table 1 shows the hypotheses to evaluate the factors influencing the performance of the FIPs and, comparatively, analyze them in a recessive environment such as the Brazilian one.

2. METHODS AND DATA

The analysis examines determinants to Brazilian private equity returns, regarding three relevant variables funds characteristics and a macroeconomic variable GDP. Regarding the procedures, the paper presents quantitative research, and it is classified as descriptive type, given it collects secondary data from public databases of the Brazilian Securities and Exchange Commission (CVM), Focus series (Bacen), and B3 S.A. – Brazil, Bolsa, Balcão. Wright, Pruthi, Amess, and Alperovych (2019) point out that different studies in the PE market use proprietary private data, making it difficult to verify the findings.

To study the influence of the economic crisis on the results in equity funds, the 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. To have groups of interest for the analysis, the data were divided into groups. The split decision factors 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 it is due to the change in perception about Brazil and the excess of capital raised in 2011, when the vast majority of funds present in Brazil have attracted resources (Carsalade & Rennó, 2014). For this reason, a split group option was performed based on the period 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, it was accepted that funds with 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 hedge funds. Similarly, the present study analyzes the influence of the exclusivity of funds in the private equity market. Thus, Table 2 shows the sample groups for the return and average risk analysis in each interest group.

The calculation of the average return became the most used indicator for performance analysis of

Table 2. 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$ 300 million)	845	76.0%
Group 4	Medium funds (R$ 300 million < x < R$ 1 billion)	201	18.1%
Group 5	Large funds (> R$ 1 billion)	74	6.6%
Group 6	Performance of exclusive funds	675	60.7%
Group 7	Performance of funds with several shareholders	678	61.0%

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

an investment, usually defined by the final value over the initial value of the quota, as follows:

$$R_j = \log\left(\frac{Q_{end}}{Q_{begin}}\right),\qquad(1)$$

where R_j is the average return of a given j fund, log is the natural log of price quotas division, given Q_{end} is the price of share in the end of period and Q_{begin} is the price of share in the beginning.

The paper explores multiple regression for the analysis of influential factors. 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 as follows:

$$Y_j = \alpha + \beta_1 X_{1j} + \beta_2 X_{2j} + \ldots$$
$$+\beta_k X_{kj} + u_j,\ j = 1,\ldots,n,\qquad(2)$$

where Y_j is the independent variable for each j fund, α as the intersection, β_k is the coefficient for each X_{kj} variable.

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

$$Return = \alpha + \beta_1 Time + \beta_2 LN + \beta_3 Unit + u,\quad(3)$$

where $Return$ is the average profitability of the sample in the period, $\beta_1 Time$ is the age of FIPs,

$\beta_2 LN$: size of FIPs based in their liquid net worth and $\beta_3 Unit$: amount of shareholder in each FIP.

3. RESULTS

This section discusses the results obtained based on each pre-formulated hypothesis. Hypothesis H_1 addresses the positive relationship between GDP and FIPs return.

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

Romain and Van Pottelsberghe (2004) established a study with 16 countries members of the Organization for Economic Co-operation and Development (OECD). The study explores a theoretical and statistical model that explains the supply and demand for private equity investments. One of the study results 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 and Van Pottelsberghe (2004) model. The paper reports a positive correlation between
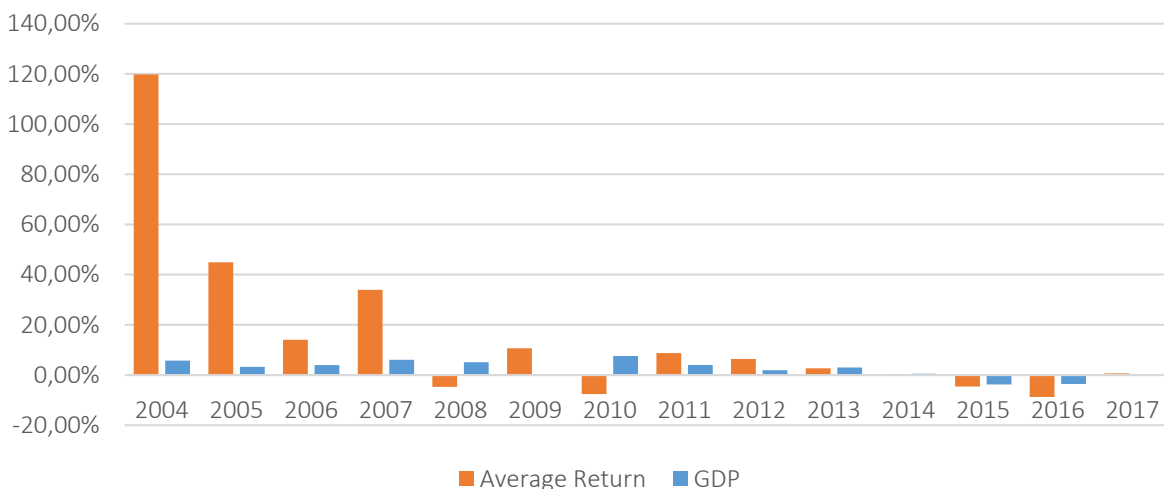

Figure 1. Comparison of the average return of FIPs and Brazilian GDP between 2004 and 2016

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.

There is a positive relationship between fund size and FIPs return, according to hypothesis H_2. The analysis of hypothesis H_2 begins with studying the elements of influence in the average return from multiple linear regression. Table 3 shows the results.

Table 3. Results of multiple linear regressions

Variables	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 period of establishment, its equity, number of shareholders, and its share price. The number of observations was 15,305 to 1,112 FIPs, the F-value of significance was null, and R^2 was 89.8%.

Regarding size variable, Bardella (2009), Jones (2007), Grinblatt and Titman (1994) findings confirm Bessa and Funchal (2012) give evidence of an influence of the size of funds on their profitability. The previously selected FIP performance was analyzed to validate the hypothesis in samples by the size of their equity (Table 4).

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

Fund size	Group number	Average return	Average size
Small funds (< 300 million)	Group 3	−0,61%	R$ 93.297.065,90
Medium funds (300 million < x < 1 billion)	Group 4	−0,88%	R$ 535.272.346,69
Large funds (> 1 billion)	Group 5	−1,98%	R$ 2.118.092.456,44

Note: Average return defined by the final value over the initial value of the quota: $R_j = \log\left(Q_{end}/Q_{begin}\right)$, where R_j is the average return of a given j fund, log is the natural log of price quotas division, given Q_{end} is the price of share in the end of period and Q_{begin} is the price of share in the beginning. An arithmetic mean establishes the average size.

Table 4 confirms the previously found results and 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 compared to smaller funds.

There is a positive relationship between fund age and FIPs return according to hypothesis H_3. Hypothesis H_3 is complementary to hypothesis H_1, 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 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' (2007) study due to the macroeconomic indicators declining from 2012.

Table 5. Performance of FIP according to their period of establishment

Fund establishment date	Group number	Average return
Before 2012	Group 1	0.68%
After 2012	Group 2	−0.87%

Note: Average return defined by the final value over the initial value of the quota: $R_j = \log\left(Q_{end}/Q_{begin}\right)$, where R_j is the average return of a given j fund, log is the natural log of price quotas division, given Q_{end} is the price of share in the end of period and Q_{begin} is the price of share in the beginning. An arithmetic mean establishes the average size. An arithmetic mean establishes the average.

Table 5 shows the performance of the funds according to their period of establishment. Funds from group 1, constituted until the end of 2011, presented an average return of 228% above the average return presented by funds from group 2. Table 5 also shows a negative coefficient for the time factor, demonstrating that Brazil's FIP funds have lost profitability over the years.

Ramalho, Furtado, and Lara (2011) report that the performance of group 1 is due to the 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."

EMPEA (2011) survey 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

Table 6. Performance of exclusive and non-exclusive FIP funds

Fund characteristics	Group number	Average return	Average No. of shareholders	Average ticket
Exclusive funds	Group 6	−0.14%	1	R$ 222.652.413,80
Funds with multiple shareholders	Group 7	−0.75%	38	R$ 6.968.278,48

Note: Average return defined by the final value over the initial value of the quota: $R_j = \log\left(Q_{end}/Q_{begin}\right)$, where R_j is the average return of a given j fund, log is the natural log of price quotas division, given Q_{end} is the price of share in the end of period and Q_{begin} is the price of share in the beginning. An arithmetic mean establishes the average size. An arithmetic mean establishes the number of average shareholders of each observation. The average ticket is the division of funds' average size by the average number of shareholders.

profitability of the funds, linked with the fall in Brazilian GDP, that is, the economic recession in the country began.

There is a relationship between the number of shareholders and FIPs return according to hypothesis H_4. Hypothesis H_4 discusses the influence of the number of shareholders on the return of the fund. Table 6 shows that the number of shareholders has no relationship to the fund's profitability, which corroborates a study conducted by Bardella (2009), where there was no influence of the number of shareholders on the return of hedge funds.

However, the performance comparison of exclusive and non-exclusive FIP funds shows a significant disparity, as shown in Table 6.

Remarkably, the exclusive FIPs funds outperform non-exclusive funds. From the analysis of groups 1 and 2, about 97% of the FIPs funds established before 2012 are exclusive funds. However, exclusive funds compose about 25% of FIPs funds after 2012, a significant change from the first period, as shown in Figure 2.
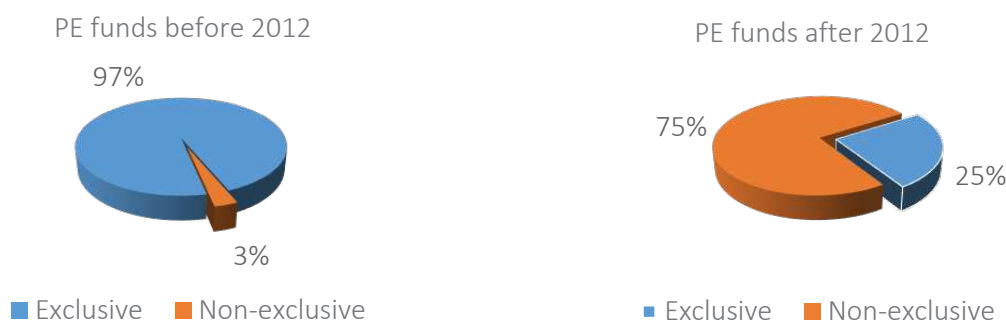
4. DISCUSSION

Regarding the first hypothesis, given that GDP is one of the OECD's main indicators 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.

The second hypothesis is about size and performance. From Table 3, 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 investigating the determinants of performance of stock investment funds in Brazil. The paper discussion reveals 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".

Concerning hypothesis H_3, which related fund age and return, it is remarkable that Brazil was the most attractive country for investments up to 2011,

Figure 2. Exclusive funds distribution by interest period

Table 7. Summary of the 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 a low growth rate.
Hypothesis H_2	This hypothesis is not true; the results show no statistical relevance and contradict the results 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 compared to smaller funds.
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 a 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 compared to smaller funds.
Hypothesis H_4	This hypothesis is true because it is possible to notice that the number of shareholders has zero relationships with fund profitability.

Note: The results presented here directly correlate with other studies, collaborating for its scientific development.

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.

Hypothesis H_4 includes the study of the relationship between the number of shareholders and return. 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 (2004–2016).

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 FIP fund's performance than the number of shareholders.

The four variables (size, age, number of shareholders, and GDP) have had some degree of influence on the return of FIPs in Brazil over the past few years. The results pointed out in the study reveal similarity with other studies and that there is almost no overlap of one variable over another.

CONCLUSION

Private equity investors usually emphasize adding value to their investment companies. Given the continuous return and value creation comes from different variables and management, the paper aims to bring four variables into account, which may expose fund returns. The study determines these influence factors in the average return of private equity funds in Brazil – the FIPs – based on internal variables: size in equity, period of establishment, and exclusivity. The Brazilian GDP was used for an external environment correlation to the performance of the FIPs. The paper shows the same correlation between GDP and profitability to the Brazilian reality. It was possible to notice a private equity sector growth until 2013. This scenario presents great challenges for managers.

When the funds' size comes into question, the convergence presented by the Brazilian sector is remarkable compared to the European and American markets. In other words, larger funds present lower returns when compared with funds with less equity value. Age and return are correlated: the younger the fund, the lower the profitability. This is due to the Brazilian economy deterioration after 2012 and the growth of the sector. The fourth variable, number of shareholders, presented no statistical significance on FIP return. However, this question should be verified apart because the comparison of the performance of exclusive funds and non-exclusive funds shows that there is a significant difference in performance. The exclusive funds are superior to others probably because 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, the paper has provided a basis for the relevant factors that an investor should verify in Brazil's private equity fund before allocating the resources. Besides, the results showed the macroeconomic scenario has a great influence on the funds' performance. Future studies can demonstrate the macroeconomic relationships of the private equity industry's performance, risk analysis, and performance analysis as linked to funds' management.

AUTHOR CONTRIBUTIONS

Conceptualization: Carlos Coelho, Eduardo Contani, Federico Madkur.
Data curation: Carlos Coelho, Eduardo Contani.
Formal analysis: Carlos Coelho, Federico Madkur.
Investigation: Carlos Coelho, Eduardo Contani, Federico Madkur.
Methodology: Carlos Coelho, Eduardo Contani, Federico Madkur.
Project administration: Carlos Coelho.
Resources: Carlos Coelho, Eduardo Contani, Federico Madkur.
Software: Carlos Coelho, Federico Madkur.
Supervision: Eduardo Contani, Federico Madkur.
Validation: Carlos Coelho, Eduardo Contani, Federico Madkur.
Visualization: Carlos Coelho, Eduardo Contani, Federico Madkur.
Writing – original draft: Carlos Coelho, Eduardo Contani, Federico Madkur.
Writing – review & editing: Carlos Coelho, Eduardo Contani, Federico Madkur.

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