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Brazilian Monetary Policy's Influence on Investment Funds' Allocation in Corporate Bonds

A Influência da Política Monetária Brasileira na Alocação dos Fundos de Investimento em Debêntures

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Abstract
The aim of this paper is to understand how monetary policy influence investment funds' allocation in corporate bonds. This assumption is in line with the perspective that several factors influence funds' allocation process, especially changes in a country's economic scenario. The sample of this study is comprised of 352 equity funds and 1,085 multimarket funds, during the period from December 2009 to July 2020. I used multivariate regression with panel data for hypotheses testing. I noted a small percentage of funds' investment in corporate bonds, in other words, only about 1.3% of total net of asset. In addition, multimarket funds used to invest more in debentures than equity funds. Concerning the regression model, the interest rate (Selic) had a positive association with funds' amount allocated in corporate bonds. It is a result of Brazilian context, whose corporate bonds are indexed according to DI rate. As expected, I observed a positive relationship between inflation rate and funds' investment in debentures, which reveals that the fear of deflation causes investors to increase the percentages invested in corporate debt securities. As respects funds' features, time and minimum balance, do not guarantee more investment in corporate bonds. Thus, this paper contributes to the literature for bringing monetary policy closer to capital market and discussing an emerging country's funds industry. In this way, it is relevant because it involves an important source of credit for companies, based on data from institutional investors.
Keywords: Corporate Bonds. Brazilian Monetary Policy. Latin America. Bond Market. Investments.

Resumo
O objetivo deste artigo é entender como a política monetária influencia na alocação dos fundos de investimento em títulos corporativos. Este pressuposto está alinhado com a perspectiva de que diversos fatores influenciam o processo de alocação dos fundos, sobretudo as mudanças no cenário econômico de um país. A amostra deste estudo é composta por 352 fundos de ações e 1.085 fundos multimercado, no período de dezembro de 2009 a julho de 2020. Para testar as hipóteses do estudo, utilizei regressão multivariada com dados em painel. Os resultados revelaram um pequeno percentual de investimento dos fundos em títulos corporativos, isto é, apenas cerca de 1,3% do total do patrimônio líquido. Além disso, os fundos multimercado investiram mais em debêntures do que em fundos de ações. No que se refere ao modelo de regressão, a taxa de juros (Selic) teve associação positiva com o valor alocado em debêntures, o que é um resultado do contexto brasileiro, cujos títulos privados são indexados pela taxa DI. Como esperado, observei uma relação

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positiva entre a taxa de inflação e o investimento dos fundos em debêntures, o que revela que o medo da deflação faz com que os investidores aumentem as porcentagens investidas em títulos de dívida corporativa. No que diz respeito às características dos fundos, tempo e saldo mínimo, não garantem mais investimento em títulos corporativos. Assim, este artigo contribui para a literatura por aproximar a política monetária do mercado de capitais e por discutir a indústria de fundos de um país emergente. Dessa forma é relevante por envolver uma importante fonte de crédito para empresas, com base em dados de investidores institucionais.
Palavras-Chave: Títulos de Dívida. Política Monetária Brasileira. América Latina. Mercado de Dívidas. Investimentos.

* * *

1 Introduction

Investment funds in Brazil are the main investment option by Brazilians about volume (Milan & Eid Jr., 2017). They represent an alternative that allows efficient money management, greater liquidity, lower transaction costs and access to different markets (Varga & Wengert, 2010; Milani & Ceretta, 2013). The Brazilian fund industry is the world's tenth largest, with net funding more than R$ 6 million in 2020, which represents an increase of 10.69% in the last year despite the pandemic context. It shows how resilient is this sector, whose growth was especially huge in equity funds (22.85%) and multimarket funds (19.57%) (Anbima, *Investment Funds Industry Yearbook*, 2021).

Concerning institutional investors' portfolio, over the past decade, they have mainly invested in government bonds (67% on average), while only about 3.6% has been located in corporate bonds (Anbima, *Historical Consolidated Investment Funds*, 2021). It reveals that despite investment funds represent one of the most important creditors in Brazil (Anbima, *Capital Markets Bulletin*, 2020), a small piece of their portfolio is located in corporate bonds.

Allocations in these assets tend to positive affect funds' performance, measured by risk-adjust return (Guimarães & Malaquias, 2020b) and the presence of covenants that protect creditor rights affect multimarket funds' allocation in corporate bonds (Guimarães & Malaquias, 2020a). Further, bonds arrange diversification, and despite these assets have reducing

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returns, investors can be "compensated by the reduction of risk" (Zhang, 2020, p. 18). Thus it highlights the relevance of understanding what drives investment funds allocation in debt securities.

Companies financing with external capital is essential not only for issuing firms, but also for the world financial market and economy development. The credit market is a substantial organizations' source of resources and this market is bigger than capital market when considered the issued volume (Beiruth & Fávero, 2016).

Traditionally, Brazilian companies use long-term financing lines through the National Bank of Economic and Social Development (BNDES). Nonetheless, Brazilian capital market has been especially important for financing this organizations (Anbima, 2017). Organizations use to issue shares, corporate bonds and promissory notes, and it seems to be a great option for reducing debt costs, in addition to providing alternative credit lines to banks (BCB, 2018).

From 2014 to 2020, corporate bonds were the investment with the biggest volume issued, which represented 47% of emissions. Despite the drop in debentures' issuance in 2020, they still are the most expressive kind of issuance. These bonds are specially issued for allocation in working capital, liabilities refinancing, and redemption of previously issued bonds (Anbima, *Capital Markets Bulletin*, 2020).

The Brazilian corporate bond market has passed for reasonable changes since ICVM 476 instruction in 2009. This publication was a "turning point for the bond market" (Belluzo, 2020, p. 66) due to flexibility of the issuing process and the access of non-public companies (Belluzo, 2020), what drives the huge amount of emission discussed previously. In this way, private companies are responsible for half of debt issues in recent years (Anbima, *Capital Markets Bulletin*, 2020).

In the last decade, following the financial crisis of 2008, investment funds became special players in corporate bond market. During the pandemic context of COVID-19, large outflows over several weeks and

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across funds were observed (Falato, Goldstein & Hortaçsu, 2020). In this disruption moment, "investors tried to sell safer, more liquid securities to raise cash" (Haddad, Moreira & Muir, 2020, p. 2).

Monetary policy shocks can point out the dynamic of investment funds, especially mutual funds. In addition, the effect of these shocks differ according to funds strategy (Banegas, Montes-Rojas & Siga, 2016).

Previously, resource allocation policies accounted for 90 percent of fund performance. However, more recent research shows that this allocation justifies about 50% of the performance, and the remaining 50% is justified by tactical adjustments and the bonds' selection (Clare, Sherman & Thomas, 2016).

The rebalancing strategy "is important for all types of long-term investors, irrespective of whether they choose high or low stock market allocations" (Dichtl, Drobetz, & Wambach, 2016, p. 786).

Thus, it is difficult to maintain the traditional allocation, due to the complexity of dealing with different kinds of investment, that are exposed to many distinct risks and returns. In this way, some factors can influence an efficient allocation process, providing a framework with a clear path that answers, specially, these questions: "what I own, what do I want to own, and how do I get there?" (Bass, Greenberg & Kishinevsky, 2017, p. 265).

Six macro factors can provide a useful structure for analyzing portfolios' return and risk, as follow: economic growth, inflation, real rates, credit, emerging market and commodity (Bass, Greenberg & Kishinevsky, 2017). Complementary, the interaction between macroeconomic factors and bond market is noticeable in emerging economies than developed countries (Boukhatem, Ftiti & Sahut, 2020).

Considering the aforementioned, this paper research's question corresponds to: How does monetary policy influence investment funds' allocation in corporate bonds? Therefore, this paper's general goal is to investigate how is the influence of monetary policy on investment funds' allocation in corporate bonds. Specifically, this study is intended to:

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• Identify the average percentage invested over time in corporate bonds by equity funds and by multimarket funds;

• Verify, separately, the average percentage that equity funds and multimarket funds invest in corporate bonds;

• Evaluate how Brazilian monetary policy, related to interest rate (Special System for Settlement and Custody - SELIC rate, in Brazil) and inflation, affects investment funds' flow dynamic, especially related to the percentage allocated in corporate bonds.

This paper presents theoretical and practical contributions. In relation to academic contribution, this study contributes on the link between monetary policy and financial market. Furthermore, this research is an exploratory investigation, that extend the literature by studying the association between investment funds and corporate bonds. Additionally, despite greater funds growth has been observed since the 1990s, studies about Brazilian fund industry are recent (Milani & Ceretta, 2013). Moreover, even considering an international perspective, where there is more discussion about investment funds, little attention is paid to corporate bond funds (Fulkerson, Jordan & Riley, 2013; Moneta, 2015; Boukhatem, Ftiti & Sahut, 2020).

Regarding empirical contribution, corporate bonds are one of the largest asset classes with public equities of Treasuries (Bredendiek, Ottonello & Valkanov, 2016). This market is one of the most important sources of funding for US companies (Haddad et al, 2020; Bretscher, Schimid, Sen & Sharma, 2020). During disruptions period, mainly for these corporations, spikes in credit spread can be associated with bad future economic activity. In this way, during financial distress, like the pandemic context of COVID-19, it was possible to note disruptions on bonds in general, like corporate bonds and Treasuries (Haddad et al., 2020).

Moreover, during crisis time, when capital markets around the world suffer with losses, investment funds seem to be a resistant kind of investment, besides net funding, especially fixed income, get smaller.

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Despite of this, corporate bonds maintain the same participation in the total mutual fund's portfolio (Anbima, *Consolidated Historical of Investment Funds*, 2020).

2 Litrerature Review

I define the research hypotheses according to corporate bonds market and investment funds' literature, with emphasis on equity and multimarket funds (and international hedge funds).

Take into accounting the macroeconomic context, "volatility in interest rates has direct and indirect effects on the economy, particularly on business" (Shunmugam & Hashim, 2009, p. 247). As presented by the SEC (2013), debt securities' price goes in a contrary direction to market interest rates.

According to Bass, Greenberg and Kishinevsky (2017), there is a sequence of factors that can alter investor allocation. This "top-down" factors allocation process follows the arrangement: economic growth, inflation, real rates, credit, emerging markets, commodity. This way, face to these factors, portfolios can be re-optimized and a particular asset class become more advantageous or disadvantageous for investors.

Macroeconomic instabilities affect volume and private debt securities' issuance conditions, as it may increase the risk, due to the possibility of loss security's value and the default's risk. Investing in long-maturity securities requires a premium for bond's high risk. Thus, an expectation of high future interest rates increases the preference for currency and high liquidity assets (Paula & Faria Jr., 2012).

Corporate bond portfolios are influenced by bond-specific features and macroeconomic environment, in other words, the portfolios' weighs depend on the state of economy. It means that, during recessions periods and macroeconomic uncertainty, it is better to invest in low maturity and low credit risk bonds (Bredendiek et al., 2016).

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During periods of "expansionary monetary policy, both equity mutual funds and bond funds gain inflows" (Zhang, 2020, p. 4). In different moments of economy, the interest rate environment affects investors behave. While during moments with lower interest rates, investors from equity mutual funds change their portfolios from large-cap equities to mid-cap and short-cap equities, bond investors put their money in global bond mutual funds. Thus, during juncture of low interest rates, bond markets turn into less attractive for investors (Zhang, 2020).

Monetary policy can influence mutual funds' allocation decision, due to, specially, the periods of shocks that promote a flow dynamic process. On the one hand, during periods of positive shocks, there is a persistent outflow from funds in bond market. On the other hand, all along a tighter monetary policy, there is inflows into equity funds. This way, for bond fund environment there is, for example, a pressure by taxable bond segment, the government and multisector (Banegas, Montes-Rojas & Siga, 2016).

Relating to Brazilian corporate bonds, Guimarães (2018) points out that, during the period from 2009 to 2017, indentures use to be issued with an index related to Selic rate, in other words, interbank deposit, with rate restricted efforts, and debt maturities of three years or less. However, few series corresponded to incentive corporate bonds and provided collateral to bondholders. It reveals that as higher were Selic more interesting are corporate bonds returns.

These findings lead to the following statement: **H**$_1$: The increase in Selic rate inhibit funds' allocations in corporate bonds.

Besides the interest rates, it also important to consider credit risk in investment decision-making process. This way, macro factors, including inflation, can affect credit risk, then, inflation rate needs to be studied in corporate bonds' context (Chang & Fang, 2020).

In the face of high rates, populations' purchasing power falls, which makes received money in interest and principals' payments buy less goods and services than before (SEC, 2013). In this sense, if a central bank

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maintains interest rates in low levels, there is an increase in inflation rates and, consequently, it results in a continue cycle "inflationary spiral" (Shunmugam & Hashim, 2009, p. 247).

Despite during moments with high inflation rate consumers expenditure increases and, consequently, available money for investment decreases, this moment also reflects investors future expectations for central bank problems. Thus, it can shake investors' confidence and can affect the demand of bond market (Chang & Fang, 2020).

Credit spreads are linked to corporate bonds' demand and stock market fluctuations. It means that, in a context with stock market strong fluctuations, there is an increase in corporate bonds' demand. As a consequence, bonds' price rises and credit spread tends to decrease (Chang & Fang, 2020).

Kang and Pflueger (2015) provide a new evidence about the relationship between the bonds and inflation's risk. They analyzed debt spread credit indices from six developed countries (Australia, Canada, Germany, Japan, the European Union and the United States), from 1969 to 2010. Then, they note that corporate bond yields reflect concerns about debt deflation, because, given the increase of one point in the inflation' standard deviation, the credit spread of debt securities increased by 14 points. Thus, the observed relationship between inflation's risk and debt securities indicates investors' fear in losing securities' value due to possible deflation. Therefore, the second hypothesis of this research is described according to the following statement: **H2**: The decrease in inflation rates discourages the funds' investments in corporate bonds.

3 Methodological Procedures

3.1 Study Sample

I used the Economatica® database to collect Brazilian investment funds' data, and I selected only stock funds and multimarket funds. The period of analysis is from December 2009 to July 2020, which percentages

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considered refers to the last month of each year, except for 2020 (in other words, at the end of December of each year, and at the end of July for 2020). The beginning period is due to funds' available data only after September 2009. Funds with no data in all periods were excluded of the sample. This funds' selection process may result in some survivor bias. However, due to the main goal of this study, which comprises monetary policy, it was fundamental to evaluate only funds with historical information during the complete period. These procedures led to the selection of 1,437 funds, of which 352 are equity funds and 1,085 are multimarket funds, as I present in Table 1.

Table 1. Number of investment funds in the sample study

Type of Fund	**# Funds**	**%**
Equity Funds	352	24.50%
Multimarket Funds	1085	75.50%
Total	1,437	100%

Source: The author.

These selected funds also have sub-categories, resulting in 26 funds' sub-categories, of which 9 are from equity funds and 17 are from multimarket funds, as shown in Table 2.

3.2 Study variables

The dependent variable of this paper is the percentage which investment funds allocate in corporate bonds. As already discussed, the independent variables comprise two fundamental monetary policy's rates: interest rate (Brazilian SELIC) and inflation rate.

For this investigation, I consider only funds' features as control variables, because the literature already shown the importance of funds' characteristics for performance and funds' portfolios.

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Table 2. Number of investment funds in the sample study, by sub-categories

Category	# Funds
Stocks – Dividends	19
Stocks – Indexed	31
Stocks - Active Index	77
Stocks - Foreign Investment	27
Stocks – Free	126
Stocks – Sector	15
Stocks - Small Caps	20
Stocks - Sustainability / Governance	17
Stocks - Value / Growth	20
Multimarkets – Balanced	14
Multimarkets - Protected Capital	6
Multimarkets – Dynamic	45
Multimarkets - Specific Strategy	14
Multimarkets - Foreign Investment	471
Multimarkets - Rates / Currency	44
Multimarkets - Long/Short - Directional	11
Multimarkets - Long/Short - Neutral	6
Multimarkets - Free	397
Multimarkets - Macro	72
Multimarkets - Trading	5
Total	1,437

Source: The author.
Note. Free translation based on ANBIMA's classification.

Concerning funds' size, usually this variable is positively related to funds' performance, especially in multimarket funds' context (Malaquias & Eid Junior, 2014; Milani & Ceretta, 2013). The increase in funds' equity generates an increase in funds hierarchical structures what, consequently, raises operations' complexity and provides scale gains reducing funds' costs (Milani & Ceretta, 2013).

Liu (2011), considering United States' mutual funds from 2003 to 2010, sought to understand why some funds are more diversified than others. The main results had showed a negative and statistically significant relationship between the fund's size and the fund's concentration, which

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indicates that larger funds used to be more diversified. In this way, larger funds and funds which hold small stocks have more liquidity constraints, that prevent them from maintaining concentrated portfolios.

The lack of debentures' liquidity may be a factor that inhibits investments and corporate bonds generally have an average maturity of three years (Guimarães, 2018), and have few daily trades (Sheng & Saito, 2008). However, in a long-term horizon, investors have few liquid assets; as analyzed by Amihud (2002), the stocks' expected returns are a growing function of the expected liquidity shortage.

Regarding liquidity constraints, the study of Aragon (2007) shows that investment restrictions, understood not only as lockups, but also as minimum investments required, allow investors to earn a premium for lack of liquidity. Considering monthly data from 1994 to 2001, this author identified an overpayment when comparing the alphas of funds with and without lockup. Then, the noted difference was considered as a lockup premium. In this way, investors in hedge funds, which have higher expectations of return, give managers greater flexibility to manage illiquid assets. Since debentures have few daily trades and liquidity restrictions imposed by investment funds can facilitate the management of illiquid assets.

Additionally, because there is a restriction that imposes a minimum value to be made available by each investor in the respective fund, there is greater managers' freedom for composing their portfolios with illiquid financial assets.

Hence, in Table 3, the research's variables are described, that is, the dependent variable, as well as the independent and control variables.

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Table 3. Description of the study variables

Variable	Description	Operational Description	Sources
INVEST	Funds' Investment in Debt Securities	$\text{INVEST} = \frac{\text{Investment in Debentures}}{\text{Total Fund's Investment}}$	(a)
SELIC	Interest rate for the analyzed period	Selic = Selic rate's value in the period/year of allocation in the debt	(b)
INFLA	Inflation rate of the analyzed period	Infla = IGPM's value in the period/year of allocation in the debt	(b)
Size	Investment Funds' Size	TNA - Total Net Assets	(a)
		$\text{LnTNA} = \ln(\text{Total Net Assets})$	(a)
LnLockUp	Investment Fund's Contract Lockup	Lockup = period, in days, stipulated in a contract for the maintenance of the capital in the investment fund	(a)
		Lnlockup = ln(Lockup)	(a)
LnMinBal	Minimum balance required in investment fund contracts	MBalanc = Minimum balance required in investment fund contracts	(a)
		Lnmbalanc = ln(MBalanc)	(a)

Source: The author.
Note: * The data were obtained by four-month periods, considering the period from December 2009 to July 2020. Sources - (a) Economatica; (b) Ipeadata.

3.3 Panel data regression

This study considers cross-sectional data "i" related to the characteristics of investment funds over a time series "t" from 2009 to 2020, involving both a spatial and temporal dimension. Thus, I used panel data regressions (Greene, 2002), according to the model described below (Equation 1), which evaluate the variables related to the funds' investment percentage in private debt securities.

$$\text{Invest}_{it} = \beta_0 + \beta_1 \text{Size}_{it} + \beta_2 \text{Lockup}_{it} + \beta_3 \text{MBalanc}_{it} + \beta_4 \text{Selic}_{it} + \beta_5 \text{Infla}_{it} + \varepsilon_{it} \quad (1)$$

Where: Invest_{it} = dependent variable on private debt securities (debentures) investment; i = cross section index; t = time index; β = independent and control variables' coefficients; Size_{it}

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= independent variable of funds' size; $Lockup_{it}$ = independent variable of funds' lockup; $MBalanc_{it}$ = independent variable of investment funds' minimum balance of investment; $Selic_{it}$ = variable for interest rate; $Infla_{it}$ = variable that indicates the country's inflation in the analyzed period; ε = equation's error term.

Three different models were considered for hypotheses testing: Fixed Effects, Random Effects and Pooled Data. In the Fixed Effects model, two control variables were omitted of the results, since they do not vary over time. In order to select the most appropriate model (Random Effects versus Pooled Data), the Lagrange Multiplier Breusch & Pagan test was performed, indicating that the Random Effects Model presented better adjustments. Therefore, the Random Effects Model was used to test the study hypotheses.

4 Results

4.1 Descriptive Statistics

As described in third section, the sample period is from December 2009 to July 2020, comprising 12 periods. The number of funds is 1,437, which resulted in 17,244 observations. Therefore, as Table 4 shows, debentures applications from 2009 to 2020 were, on average, 1.3% of the total funds' investment.

Table 4. Descriptive statistics of the variables used in the study

Variables	n	Average	Stand. Dev.	Min	Max.
Invest	17,244	1.317	4.563	0.000	81.509
Selic	17,244	9.938	3.047	4.500	14.250
Infla	17,244	6.152	3.899	-1.720	11.320
LnTNA	17,244	17.701	1.519	10.707	23.789
lnLockUp	17,244	1.114	0.926	0.000	7.497
lnMinBal	17,244	5.345	4.922	0.000	15.425

Source: The author.

This result shows a drop in corporate bonds in relation to the evidence of (Paula & Faria Jr, 2012), since these authors noted that from

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2000 to 2008 the investments corresponded to around 3% to 4%. Despite institutional investors are one of the most important creditor in Brazil (Guimarães & Malaquias, 2020a), only about 1.3% of their portfolios are alocated in corporate bonds. I point out two important notes: (i) this study's sample selection, which comprises only stock and multimarket funds; (ii) these selected funds' policies, that impose fixed percentages in specific assets, as stock funds case, which have to locate 67% of their portfolios in stocks.

Regarding economic variables, I noted that Brazilian interest rate "Selic" on average was 9.9% and inflation rate "Infla" 6.15%. These rates decreased over the period, which indicates more stable economy during last years.

About funds' features, funds' total net asset was, on average, R$ 4.87 billions ($e^{17,701}$), lockup period was 3.04 ($e^{1,114}$) and minimum balance was R$ 209.55 ($e^{5,345}$).

Table 5. Test of means' difference of investment in debentures by each type of investment fund

Year	% Invested in Debentures		T Statistic.	Sig.
	(Equity Funds)	(Multim. Funds)		
2009	0.039	1.700	-6.875	***
2010	0.041	2.207	-7.094	***
2011	0.122	2.378	-6.769	***
2012	0.063	2.231	-7.504	***
2013	0.048	1.749	-7.273	***
2014	0.103	1.680	-6.205	***
2015	0.667	1.620	-5.712	***
2016	0.090	1.449	-5.069	***
2017	0.042	1.607	-5.343	***
2018	0.029	1.400	-5.495	***
2019	0.004	1.363	-4.854	***
2020	0.001	1.336	-4.823	***

Source: The author.
Note. Asterisks indicate significance levels: *p< 0.10; **p< 0.05; ***p<0.01.

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In order to analyze whether investments in corporate bonds vary according to the fund's type, the t test of average's difference of the percentage invested in each kind of fund was calculated, taking into account each of the 12 periods of the analysis. Table 5 contains the results, and it indicates that multimarket funds invest a higher percentage in debentures and, during all period analyzed, and this difference is significant at 1% level. This evidence is in line with Aragon (2007) research, because this author emphasizes that hedge funds, in function of their redemption restrictions, have more illiquid investments.

4.2 Analysis of the monetary policy influence

After presenting the descriptive statistics of the database, the other research's hypotheses were analyzed. Table 6 presents the results for all investment funds (equity and multimarket), therefore, this table present the results of the linear coefficients of each variable considered, as well as the respective significance's levels.

Table 6. Hypotheses Analysis

Variables	b	Rob. Std. Err.	z	Sig.
Selic	0.031	0.013	2.420	0.015 **
Infla	0.015	0.005	2.910	0.004 ***
LnTNA	0.011	0.049	0.220	0.827
LnLockUp	-0.671	0.066	-10.180	0.000 ***
LnMinBal	-0.037	0.020	-1.880	0.061 *
_cons	1.667	0.954	1.750	0.081 *
n =	17,244			
nº Groups =	1,437			
Obs. Per Group =	12			
R-sq. within =	0.06%			
between =	3.94%			
overall =	2.24%			

Source: The author.
Note. Letter (b) indicates each variable's linear coefficients, while (sig) corresponds to each variable's significance value. The model considers robust standard errors. Asterisks indicate the significance levels adopted: * p <0,10; ** p <0.05; *** p <0.01. The model was estimated with pooled data (random effects). Source: Research's results.

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Concerning macroeconomic factors, the positive and statistically significant relationship between the variables "Selic" and "Invest" is opposite what the assumptions of the first hypothesis of this paper. Despite the literature shows that during moments of expectation of high future interest rate the preference is for currency and high liquidity assets (Paula & Faria Jr., 2012), and bond markets turn into less attractive for investors (Zhang, 2020), in Brazilian case, the situation is completely opposite. However, the noted relationship reinforce that macroeconomic factors influences funds' portfolios (Bass, Greenberg and Kishinevsky, 2017) and flow dynamic process (Banegas, Montes-Rojas & Siga, 2016).

This way, I point out two possible reasons for this evidence: (i) in the Brazilian context, corporate bond market isn't developed as the US market; (ii) historically, Brazilian interest rates are high and fixed asset become more attractive. Thus, even if corporate bonds are riskier asset then government bonds, they are one fixed investment option, whose remuneration is associated to Selic rate (Guimarães, 2018).

Related to inflation rate "Infla", as expected, it was observed a positive and significant relation with funds' investment in corporate bonds at the level of 1%. Hence, the second hypothesis of this paper was corroborated. This positive and significant relationship between the variables demonstrates us that, during moment with high inflation rates, there is an increase of corporate bonds' demand (Chang & Fang, 2020). Thus, in a circumstance with high inflation rate, investors choose investment that, at least, guarantee the purchase price with a small remuneration. Probably it is due to the Brazilian reality, with historic and huge inflation rates that make investors more averse to lose securities value (Kang & Pflueger, 2015).

About funds' characteristics, despite to be expected that larger funds could be more diversified and, consequently, they could be interested in corporate bonds, there was no significant relation noted between the variable "LnTNA" and the investment in debt securities. This lack of link

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differs from Liu (2011), whose study shows that funds size is a considerable factor for diversify portfolios.

Related to the variable "LnLockUp", it was recognized a negative and significant relation with the percentage allocated in debentures at the level of 1%. This evidence shows that even though corporate bonds have long maturity (Sheng & Saito 2008), relative to an average of 3 years (Guimarães 2018), this kind of funds' restriction does not result greater flexibility to manage illiquid assets as Aragon (2007) presented.

Complementarily, funds' constraints concerning the variable "LnMinBal", the results reveled a negative and significant relation with funds' investment in debentures at the level of 10%. According to Aragon (2007), the minimum value imposed by each investor influences managers' freedom for balance their portfolios with illiquid assets. This way, it was expected a positive relation between these variables. Thus, instead of these two factors (lockup and minimum value) encouraging the fund's investments in debentures, they had the opposite effect.

5 Conclusion

In this paper, I investigate how monetary policy influence investment funds' allocation in corporate bonds. Despite the lack of literature about the association between these subjects, this research contributes for promoting financial market and monetary policy approximation.

In order to analyze the impact of macroeconomic scenario and funds' characteristics in the debentures' allocation, this paper comprised 352 equity funds and 1,085 multimarket funds, from December 2009 to July 2020.

Investment funds are one of the main creditors in Brazilian capital market, but, on average, only about 1.3% of their portfolios are located in corporate bonds. This evidence reveals singularities of Brazilian funds, whose classes have fixed allocations' percentages in certain types of assets,

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according to their investment strategies, as equity funds, that allocate 67% in stocks.

About monetary policy, the economy seems to be more stable in recent years, with Selic and inflation rates lower than in the beginning of the period.

Regarding the regression models, I highlight that macroeconomics features affect funds' allocation in corporate bonds, mostly in Brazilian context, where interest and inflation rates were historically high. The increase in interest rate stimulates investment in corporate bonds, certainly for the remuneration be related to the index DI, which follow Selic rate. Moreover, only the fear of deflation was noted, which answers the second hypothesis of this paper.

Additionally, the most observed relationships diverge from the literature. This way, I noticed that time or amount restrictions do not guarantee more investment in this kind of illiquid asset.

About this paper's limitations, I point out the sample, because it was not balanced by each funds' type, and involved more multimarket funds than equity funds. Moreover, this study has survivorship bias, due to only survivor funds during the whole period be considered. The lack of studies, about funds' investment in corporate bonds represented other limitation, because there were few empirical evidences to construct this study's hypothesis. The last limitation observed involves the restrict analysis in just one country, Brazil.

Nevertheless, this study contributes not only to researches about investment funds in Brazil, but also to studies on Brazilian's corporate bonds' market and to other emerging economies with similar characteristics. Some factors encourage funds to invest in corporate bonds, and these results can motivate future studies to be carried out on these subjects. New researches may expand the discussion about corporate bonds' market, as well as greater stimulus for the development of this market. Furthermore, these future studies may consider other countries, such as those in Latin

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American, for identifying the cross-country differences about fund's investments in corporate bonds.

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