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MACROECONOMIC CONDITIONS, INVESTMENT AND FIRM PERFORMANCE: THE CASE OF BRAZIL

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Resumo/Abstract

This paper aims to assess the moderating effect of macroeconomic conditions on the relationship between investment and performance of Brazilian companies from 2009 to 2019. The sample is composed of 231 non-financial Brazilian public companies, with data between 2009 and 2011 in a total of 1,644 observations. The study variables are performance measured by return on assets, investment by CAPEX and macroeconomic conditions of inflation, exchange rate variation, unemployment, and country risk. Control variables are company size, capital structure, and financial constraint. For data analysis, five regression models were estimated in a GMM Difference panel. The results indicate that real investment directly and positively affects ROA. In addition, the macroeconomic scenario directly and negatively affects ROA due to the unemployment rate and country risk, and indirectly and negatively due to the exchange rate variation on corporate investment. The study's main contribution is to identify an indirect channel of moderating the effect of exchange rate policy on investment that affects company performance. The implications of these results are remarkable for the Central Bank of Brazil in terms of exchange policy control, the Ministry of Economy to fight unemployment, and the central government, in improving the institutional environment to reduce country risk and create better conditions for business development.

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ABSTRACT

This paper aims to assess the moderating effect of macroeconomic conditions on the relationship between investment and performance of Brazilian companies from 2009 to 2019[1]. The sample is composed of 231 non-financial Brazilian public companies, with data between 2009 and 2011 in a total of 1,644 observations. The study variables are performance measured by return on assets, investment by CAPEX and macroeconomic conditions of inflation, exchange rate variation, unemployment, and country risk. Control variables are company size, capital structure, and financial constraint. For data analysis, five regression models were estimated in a GMM Difference panel. The results indicate that real investment directly and positively affects ROA. In addition, the macroeconomic scenario directly and negatively affects ROA due to the unemployment rate and country risk, and indirectly and negatively due to the exchange rate variation on corporate investment. The study's main contribution is to identify an indirect channel of moderating the effect of exchange rate policy on investment that affects company performance. The implications of these results are remarkable for the Central Bank of Brazil in terms of exchange policy control, the Ministry of Economy to fight unemployment, and the central government, in improving the institutional environment to reduce country risk and create better conditions for business development.

Keywords: Macroeconomics; Corporate Investment; Firm Performance.

1 INTRODUCTION

To maintain a sustainable performance, companies need investment to maximize marginal productivity for each unit of capital added to the company (Souza, Montezano, & Lameira, 2020). However, the right time to invest depends on the productive activity and the macroeconomic context, as there are favorable or unfavorable scenarios for business decision-making.

The macroeconomic condition influences the demand for private investment through various channels (King & Levine, 1993; Korajczyk & Levy, 2003; Costa & Gomes, 2011; Teixeira, Tiryaki, & Drummond, 2020). For example, a country's monetary policy and country risk influence the cost of capital of funding sources. Exchange rate policy influences price inflation and, therefore, the purchasing power of the population. On the other hand, unemployment influences the average income of the population, reduces private consumption, and impacts investment by companies.

Previous research in Brazil has shown that macroeconomic shocks affect company performance in different directions. Bernadelli and Castro (2020) find an influence of macroeconomic conditions on stock returns, and Caluz, Magnani, Gomes, and Ambrozini (2021) on stock market performance.

Souza et al. (2020) find a relationship of macroeconomic variables with corporate investment, Lopes et al. (2017) and Fonseca, Santos, Pereira, and Camargos (2019) on the effects on liquidity, indebtedness, and profitability indicators, while Cardoso and Pinheiro (2020) identify the effects of the economic recession that occurred in the country between 2014 and 2016 on the structure of sectoral capital of public companies.

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Previous studies investigated the direct relationship between macroeconomic conditions and corporate performance. However, as King and Levine (2003) and Korajczyk and Levy (2003) argue, the effects of aggregate shocks in the economic scenario reverberate the capital market in different directions, and the economic situation promotes effects on different sources of capital, consumption, and private investment, therefore having indirect effects on this relationship. Thus, the question arises: **Is macroeconomic conditions a moderating effect on the relationship between investment and company performance?**

As a result of this presentation, the purpose of this paper is to assess the moderating effect of macroeconomic conditions on the relationship between investment and performance of Brazilian companies from 2009 to 2019. For this, a research strategy is developed that relates company performance to investment in capital goods and the interaction with the macroeconomic variables of inflation, exchange rate, unemployment, country risk, and control of firm size, capital structure, and financial constraint.

This study is justified by the heterogeneity of the existing performance of companies in turbulent environments (Bandeira-de-Mello & Marcon, 2006), as is the case in the Brazilian scenario, and the understanding of factors that contribute to explain the dynamics of business decisions. In addition, the Brazilian scenario is marked by high macroeconomic volatility and financial fragility (Teixeira et al., 2020), arising from financial frictions in the capital market, which affect the dynamics of the financial system and influence the availability of resources for the investment of companies.

A summary of the results indicates that the macroeconomic variables of unemployment and country risk directly and negatively affect performance, while the exchange rate variation indirectly and negatively influences performance through the corporate investment channel.

The study's main contribution is the identification of the moderating effect of exchange rate policy on investment and company performance. These results have relevant implications for the country's economic policy, which can stimulate exchange rate and employment and income policies to induce private investment and improve business performance.

2 LITERATURE REVIEW

Private investment is a component of the economic growth of nations associated with the countries' products. According to King and Levine (1993), as it is an endogenous component of the economy, shocks in macroeconomic policy affect the investment demand of companies in a way that favors or does not private investment.

However, the effects of macroeconomic variables on companies' corporate policies vary according to the context analyzed. For example, Korajczyk and Levy (2003) analyze how macroeconomic conditions affect firms' financing decisions and find that equity issuance varies in line with the economic cycle, while debt issuance is pro-cyclical, with distinct effects for companies facing credit restrictions.

More recently, Teixeira et al. (2020) reported that frictions in the financial system influence private consumption and investment in capital goods, increasing the volatility of economic cycles and increasing the cost of companies' external financing sources. Bernadelli and Castro (2020) complement this view, explaining that macroeconomic variables affect the capital market, influencing stock returns. Therefore, there is a relationship between macroeconomics and corporate performance.

In this sense, the channels through which macroeconomic variables act and affect the performance of companies are a matter of interest to public policy theorists and makers. Bandeira-de-Mello and Marcon (2006), for example, when researching the factors that explain the heterogeneity of the performance of Brazilian companies, identify the transient effects of the industry (product cyclicality, sensitivity to variation in the level of macroeconomic activity,

and seasonality of demand) explain more the heterogeneity of performance than the fixed effects related to the characteristics of the firms.

Costa and Gomes (2011) complement this argument by identifying in an empirical study in Brazil that economic segments are unevenly affected by macroeconomic variables when observed over longer periods. Souza, Montezano Lameira (2020) state that economic uncertainty negatively influences the performance of companies, as it affects the long-term investment horizon.

In order to understand how the economic crisis influences the performance of companies, specifically in periods of global crisis, Lopes, Costa, Carvalho, and Castro Júnior (2016) analyze the behavior of liquidity, indebtedness, and profitability of Brazilian capital companies and their results are interesting from a theoretical point of view.

In the subprime crisis that originated in the USA in 2008, the companies analyzed had less liquidity, greater indebtedness, and greater profitability, caused by the scarcity of credit and corporate liquidity, which generated the need for marginal productivity of investments. On the contrary, in the Eurozone crisis in 2012, companies showed greater liquidity, lower indebtedness, and lower average profitability because there was a slowdown in the world economy, with effects on employment and income of countries (Lopes et al., 2016).

In Brazil, interest in the relationship between macroeconomic variables and performance has aroused interesting recent discoveries. For example, Paredes and Oliveira (2017) identify that the Selic Interest Rate, Exchange Rate, IPCA Inflation Rate, and Risk variables are significant predictors of asset pricing in the oil and gas, steel, construction, and electricity and stock exchange financial statement. Pandini, Stüpp, e Fabre (2018) extend this view and indicate that the macroeconomic effect is greater for cyclical consumption than non-cyclical consumption.

Fonseca, Santos, Pereira, and Camargos (2019) analyze the relationship between lagged macroeconomic variables and the profitability and indebtedness indicators of Brazilian public companies show a significant impact of the Selic Interest Rate on companies' indebtedness. Furthermore, it is evident that inflation and exchange rates affect both companies' profitability and indebtedness.

Cardoso and Pinheiro (2020) analyze the effects of the economic recession from 2014 to 2016 on Brazil's sectorial capital structure of public companies. The main results reveal that the Brazilian recession was relevant to modifying the sectors' capital structure, with the basic materials sector being the most dependent and the telephony and utilities sector the least dependent on economic fluctuations. Exchange variation was significant to explain the capital structure of all sectors analyzed during the recession period.

Caluz, Magnani, Gomes, and Ambrozini (2021) analyze the relationship between the performance of the Brazilian stock market and economic changes. The survey results indicate a long-term equilibrium in which the stock market's performance is positively affected by the country's inflation targeting policy. However, fiscal policy negatively influences the country's macroeconomic scenario regarding public debt and interest and exchange rates.

As noted, most previous studies establish a direct relationship and test the macroeconomic effects on firm-level or aggregate performance on the stock market (Fonseca et al., 2019; Cardoso & Pinheiro, 2020; Caluz et al., 2021).

However, following the tradition in King and Levine (1993), the response to macroeconomic shocks on output and income affects companies through the channel of investment in physical capital or through the influence of frictions in the financial system (Teixeira et al., 2020), which affect companies' financing policies. As a result, the first hypothesis of the study is developed, which establishes a moderating influence of macroeconomic conditions on investment, and thus influences corporate performance:

H1: There is a moderating effect of macroeconomic variables on the relationship between investment and corporate performance.

Therefore, based on the main hypothesis established, this study intends to investigate the effect of macroeconomic variables of inflation, exchange rate, unemployment, and country risk on the relationship between investment and corporate performance. The next section presents the methodological strategy adopted in the research.

3 METHODOLOGY

3.1 Design and sample

This research is classified as a descriptive, documentary, and quantitative. The sample consisted of 231 publicly traded non-financial companies on the Brazilian stock exchange [B3], with data between 2009 and 2019 in an unbalanced panel. The companies' data were collected from Refinitiv database. The macroeconomic variables inflation, exchange rate, and unemployment were collected from the World Bank database, and the country risk, measured by the value of EMBI+ bonds at the IPEA Institute in Brazil.

The criteria for selecting the sample were: the company does not have negative equity, sales growth, or asset growth above 100% in consecutive periods and has at least five consecutive data periods. In addition, outliers with data greater than 3 standard deviations from above or below the mean were excluded. In the end, a total of 1,644 observations were obtained for the analysis.

3.2 Variables and econometric model

Performance was measured by return on assets (ROA) and corporate investment by CAPEX (Capital Expenditure), representing physical capital expenditure. The inflation rate was measured by the Brazilian annual IPCA index (%) and the exchange rate by the annual variation of the BRL/USD exchange rate (%) as of December 31st. The unemployment rate was calculated as the number of unemployed people (%) to the economically active population in the year and the country risk measured by the EMBI+ index calculated by the American bank J.P. Morgan, which is based on the volatility of government bonds in emerging economies.

After estimating the model, with the segregation of constrained and unconstrained firms by the tangibility criterion, the value of a dummy variable of 1 for constrained firms and 0 for unconstrained firms are assigned. Table 1 presents the study variables.

Table 1. Variables of research

Variable	Description
Performance (ROA)	EBITDA / Total Assets
Corporate Investment (INV)	CAPEX / Property, Plants and Equipment (PPE) in t-1
Inflation Rate (IR)	IPCA – Extended National Consumer Price Index (%)
Exchange Rate (ER)	Exchange USD/BRL in t / Exchange USD/BRL in t-1 (%)
Unemployment Rate (UR)	Unemployed Population / Economically Active Population (%)
Country Risk (CR)	Ln EMBI+
Firm Size (SIZE)	Ln Total Assets
Capital Structure (LEV)	Onerous Liabilities / Total Assets
Financial Constraints (FC)	Dummy variable 1 for constrained and 0 for unconstrained firms

Source: Own elaboration.

Among the control variables, firm size is measured by total assets, the capital structure measured by onerous debt leverage, and a dummy variable for financial constraint, measured

according to Almeida and Campello (2007). In the authors' financial constraint model, investment is a function of future investment opportunities, cash flow, and tangibility, with the presence of investment sensitivity to cash flow and the presence of asset tangibility indicative of the presence of financial constraint.

Data analysis was conducted with descriptive statistics, graphical analysis, simple correlation, and GMM Difference panel regression to control endogenous regressors (Wooldridge, 2010). For analysis of the regression models, error autocorrelation tests (Arellano & Bond, 1991) and instrument validity (Sargan, 1958) were developed. All estimated models were significant for data analysis.

In total, five regression models were calculated, progressively including the variables in the model to relate to performance: (1) investment only (INV); (2) more macroeconomic variables (IR, ER, UR, and CR); (3) plus moderation term (INV*IR, INV*ER, INV*UR and INV*CR); (4) more SIZE and LEV control variables; (5) plus dummy control variable δRF. The baseline econometric model of the study is presented in Equation 1.

$$ROA_{\text{it}} = \beta_1 ROA_{it-1} + \beta_2 ROA_{it-2} + \beta_3 INV_{it} + \beta_4 IR_{it} + \beta_5 ER_{it} + \beta_6 UR_{it} + \beta_7 CR_{it} + \beta_8 INVxIR_{it} + \beta_9 INVxER_{it} + \beta_{10} INVxUR_{it} + \beta_{11} INVxCR_{it} + \beta_{12} SIZE_{it} + \beta_{13} LEV_{it} + \beta_{14} \delta FC_{it} + \varepsilon_{it} \quad (1)$$

Where ROA_{it} = performance of firm i in period t, ROA_{it-1} and ROA_{it-2} = lagged performance, INV_{it} = fixed capital investment of firm i in period t, IR_{it} = effect of the average annual inflation of the country in firm i in period t, ER_{it} = effect of the average annual variation of the exchange rate of the country in firm i in period t, UR_{it} = effect of average unemployment in the country in firm i in period t, and CR_{it} = effect of country risk in firm i in period t.

The terms $INVxIR_{it}$, $INVxER_{it}$, $INVxUR_{it}$ and $INVxCR_{it}$ represent the moderation of macroeconomic conditions in the relationship between investment and performance of firm i in period t. The control variables are $SIZE_{\text{it}}$ which represents the size of firm i in period t, LEV_{it} which consists of the capital structure of firm i in period t and δFC_{it} which represents a dummy variable for the financial constraint of firm i in period t. Parameters β_1 ... β_{14} are model coefficients, and ε_{it} represents the regression residual

4 RESULTS AND DISCUSSION

The descriptive summary of the variables is presented in Table 2. The sample's average ROA performance is 44%. CAPEX's average investment (INV) with the companies' lagged fixed assets in the period was 40%, far from the median of 4 %, and with a high standard deviation (σ) of 301%. These results suggest a high degree of heterogeneity in the level of investment of Brazilian firms in the period under analysis.

Regarding macroeconomic variables, the average inflation rate (IR) in the period was 5%, and the average exchange rate variation (IE) was 8%. The average unemployment rate (EU) was 7%, and the country risk (CR) measured by the logarithm of the EMBI+ was 5.41, with stability noted by the low standard deviation at 0.4%. The average size (SIZE) of companies in total assets is BRL 1.4 billion or USD 280 million (quoted USD/BRL 5.24 on 08/09/2021). The average onerous liability of the companies' capital structure (LEV) is 26% of total assets.

Table 2. Descriptive results

	ROA	INV	IR	IE	UE	CR	SIZE	LEV
Mean	0.44	0.40	0.05	0.06	0.08	5.50	20.74	0.26
Median	0.42	0.04	0.05	0.08	0.07	5.41	21.11	0.26
σ	0.24	3.01	0.02	0.17	0.03	0.40	3.95	0.17

Source: Data research.

Then, the distribution of macroeconomic variables from 2009 to 2019 is plotted in Figure 1 for graphical analysis. First, it is noted that inflation was high between 2014 and 2016 to levels above the average due to the economic recession that occurred in the country in the period. This result is corroborated by the increase in exchange variation and the increase in country risk in the same period. Average unemployment, however, was high only after 2016, probably as a result of weak economic activity resulting from the country's internal crisis.

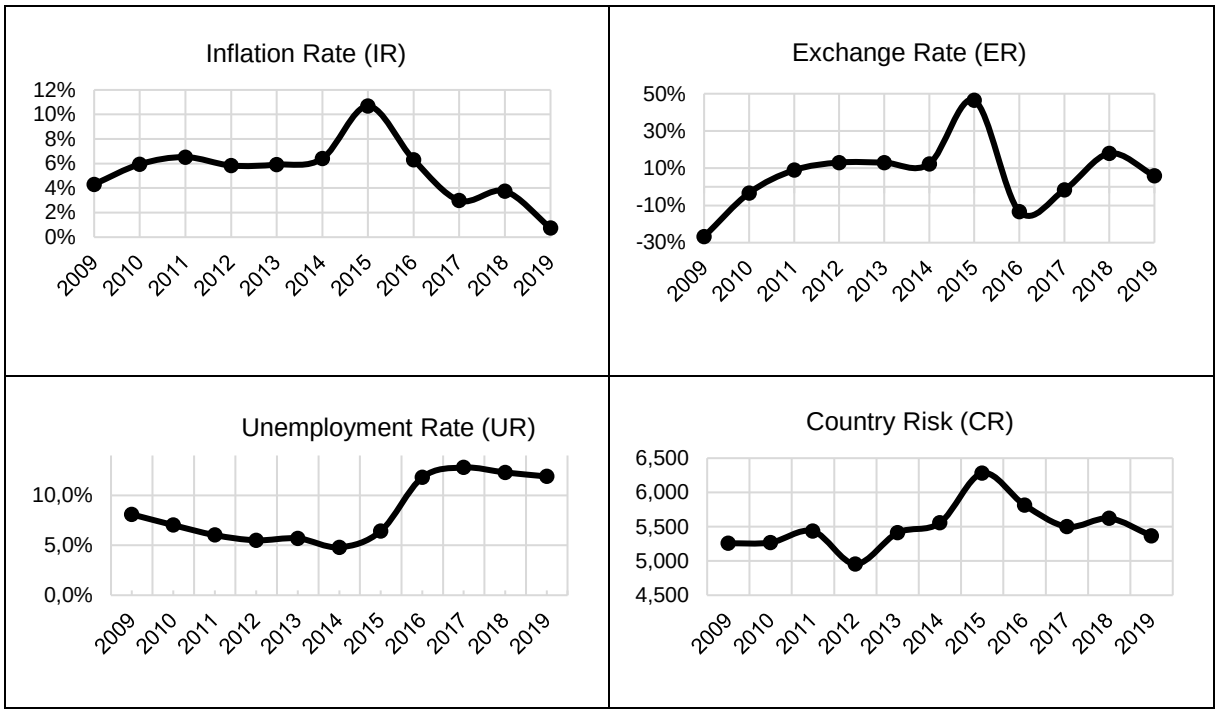

Figure 1. Evolution of macroeconomic variables in Brazil between 2009 and 2019
Source: Data research.

After the graphical analysis, the simple correlation between the analyzed variables is calculated, as shown in Table 3. The correlation results indicate a positive and weak association between INV and ROA and a negative and weak association between the macroeconomic variables IR, ER, UR, and CR and ROA. The control variable SIZE has a weak and positive relationship, while LEV has a moderate and negative relationship. All signs of associations are in line with the research literature.

Table 3. Simple correlation

	ROA	INV	IR	ER	UR	CR	SIZE	LEV
ROA	1.00							
INV	0.02	1.00						
IR	-0.00	-0.01	1.00					
ER	-0.02	0.00	0.51	1.00				
UR	-0.03	0.01	-0.62	-0.31	1.00			
CR	-0.02	0.00	0.51	0.44	0.14	1.00		
SIZE	0.03	0.01	0.07	0.07	0.10	0.20	1.00	
LEV	-0.43	0.01	0.05	0.05	0.00	0.11	0.30	1.00

Source: Data research.

After the correlation analysis, we analyze the influence of macroeconomic variables on the relationship between investment and performance, which is the main object of the research. The results of the GMM Difference regression are shown in Table 4.

In the first model (1), INV has a positive and significant effect on the ROA, and the ROA lagged at t-1 and t-2. Adding to the macroeconomic variables in model (2), a negative but non-significant effect of the variables on ROA is noted because the macroeconomic scenario does not directly affect the performance of companies.

When adding the interaction term between INV and the macroeconomic variables in the model (3), it is observed that the variables INV*IR, INV*ER, and INV*CR are negative and significant to explain the ROA. This means that the increase in inflation rates, exchange rate variation, and country risk affect investment and negatively influence ROA.

In addition to the macroeconomic conditions, the control variables SIZE and LEV are added in the model (4). The results suggest these variables are significant to explain the ROA and that in the presence of control for size and capital structure, the direct effect of ER, UR and CR becomes significant to explain the ROA. This may reflect the heterogeneity of the sample.

In the last regression model (5) applied, a dummy control variable for the financial constraints of the investment was inserted to verify the persistence of the previous results. The results indicate that the financial constraint is positive and significant to explain the performance of the ROA and that in the presence of the control variables, only UR and CR maintain the direct effect on the ROA. The variable ER has a moderating effect on the relationship between INV and ROA, and the moderating effect of IR disappears.

Table 4. Panel Difference GMM Regression

Dependent var. ROA	GMM Difference Panel				
	(1)	(2)	(3)	(4)	(5)
ROA(-1)	0.38*	0.32*	0.33*	0.20*	0.20*
ROA(-2)	0.10*	0.06*	0.06*	0.05*	0.06*
INV	0.001*	0.001*	0.02*	0.02*	0.01**
IR	-	-0.10	-0.06	0.18	0.01
ER	-	-0.01	-0.01	-0.01***	-0.01
UR	-	-0.14	-0.15	-0.25*	-0.27*
CR	-	-0.01	-0.01	-0.02**	-0.01*
INV*IR	-	-	0.06***	0.02	0.01
INV*ER	-	-	-0.009**	-0.008***	-0.009**
INV*UR	-	-	-0.0003	-0.01	-0.02
INV*CR	-	-	-0.004**	-0.003**	-0.002
SIZE	-	-	-	0.02*	0.02*
LEV	-	-	-	-0.42*	-0.43*
δFC	-	-	-	-	0.05*
Observations	1644	1644	1644	1644	1644
Root MSE	0.18	0.18	0.18	0.16	0.16
J-Statistic	64.39*	63.29*	61.71*	67.89*	63.96*
AR(1)	-4.09*	-4.47*	-4.66*	-4.17*	-4.21*
AR(2)	0.18	0.63	0.65	-0.16	-0.22

Source: Data research.

With the results in Table 3, research H1 is accepted, which states a moderating effect of macroeconomic variables on the relationship between investment and corporate performance. These results complement the research by Souza et al. (2020) on the effect of investment on performance and Lopes et al. (2016), Paredes and Oliveira (2017), Fonseca et al. (2018), Pandini et al. (2018), Bernadelli and Castro (2020), Caluz et al. (2021) on the effect of macroeconomic conditions on the performance and value of companies in the capital market.

Therefore, after controlling for the firm's characteristics of size, capital structure and financial constraint, and the endogeny between variables, it is evident in this work that real investment directly affects the ROA of companies. In addition, the macroeconomic scenario

directly affects the performance of the ROA of Brazilian companies through the unemployment rate and country risk and indirectly through the exchange rate variation on investment.

The implications of these results are notable for the Central Bank of Brazil in terms of exchange policy control to stimulate private investment and for the Ministry of Economy to encourage policies that fight unemployment, thus increasing the average income of families, stimulating private consumption and business investment. In addition to the above, for the central government, improving the institutional environment would reduce country risk and create better conditions for improving business performance and development.

5 FINAL REMARKS

In order to assess the moderating effect of macroeconomic conditions on the relationship between investment and performance of Brazilian companies from 2009 to 2019, this research demonstrates that the country's economy, directly and indirectly, influences the performance of companies located in the capital market.

The research sample consisted of 231 non-financial public companies in Brazil with data between 2009 and 2019 and a total of 1,644 observations. Performance was observed by return on assets (ROA) and investment by CAPEX. The macroeconomic variables inflation, exchange and unemployment, and country risk were used to verify their direct influence on performance and indirect influence by moderation with investment. As control variables, the firm's size, capital structure, and the existence of financial constraints on investment were selected.

The main results of the research, obtained by regression in a GMM Difference panel to control the endogeny between the financial variables, indicate that the performance of Brazilian public companies is significantly and directly influenced by investment, unemployment rate, and country risk, and indirectly by exchange variation on investment, after controlling for the variables. Thus, the study's hypothesis is accepted, which states that there is a moderating effect of macroeconomic variables on the relationship between investment and performance through exchange rate variation.

These results indicate that in an emerging and turbulent market like Brazil, aggregate economic policy can influence companies' real investment through exchange rate policy and that policies to reduce unemployment and country risk are important to improve the performance of companies. The Brazilian capital market is developing, and, therefore, favorable macroeconomic conditions drive the growth of the private sector and, in the same way, the country's economic growth.

Among the study's limitations, it is mentioned that investment was analyzed only with gross fixed capital formation, ignoring other investment possibilities such as working capital. Another limitation is the choice of the IPCA inflation variable as an aggregate index instead of the IGP-M, INPC, among others, which reflect specific inflation or different weights in sectors of the economy.

Another limitation is analyzing country risk by bond volatility through EMBI+, which analyzes risk from the perspective of government bonds in the capital market. Finally, the last limitation resides in the choice of the GMM Difference Panel model, which despite the benefit of controlling endogeny, removes a portion of the economic meaning of the relationship between variables in the real world.

For future research, we suggest continuing research on the direct and indirect effect of macroeconomic conditions on corporate policies, such as on financing decisions, investment in working capital, dividends, and liquidity. Sectoral analysis and sample segregation in terms of financial constraint can also help better understand macroeconomics' effect on business

decisions. New studies on private companies are also needed to make this and previous researches more robust for countries.

REFERENCES

Almeida, H., & Campello, M. (2007). Financial constraints, asset tangibility, and corporate investment. *The Review of Financial Studies*, *20*(5), 1429-1460. https://doi.org/10.1093/rfs/hhm019

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, *58*(2), 277-297. https://doi.org/10.2307/2297968

Bandeira-de-Mello, R., & Marcon, R. (2006). Heterogeneidade do desempenho de empresas em ambientes turbulentos. *Revista de Administração de Empresas*, *46*, 34-43. https://doi.org/10.1590/S0034-75902006000200004

Bernardelli, L. V., & Castro, G. H. L. (2020). Mercado acionário e variáveis macroeconômicas: evidências para o Brasil. *Revista Catarinense da Ciência Contábil*, *19*, 1-15. https://doi.org/10.16930/2237-766220202892

Caluz, A. D. R. E., Magnani, V. M., Gomes, M. C., & Ambrozini, M. A. (2021). A relação de políticas econômicas e de fatores macroeconômicos com o desempenho do mercado de ações brasileiro. *Enfoque: Reflexão Contábil*, *40*(1), 31-47. https://doi.org/10.4025/enfoque.v40i1.48863

Cardoso, V. R. D. S., & Pinheiro, M. C. (2020). Influência da recessão e das variáveis macroeconômicas sobre a estrutura de capital setorial. *Revista Contabilidade & Finanças*, *31*, 392-408. https://doi.org/10.1590/1808-057x201908100

Costa, C. T., & Gomes, F. P. (2011). Análise da variação do desempenho de empresas brasileiras. *Revista Organizações em Contexto*, *7*(13), 85-105. https://doi.org/10.15603/1982-8756/roc.v7n13p85-105

Fonseca, S. E., Santos, A. O., Pereira, M. V. L., & Camargos, M. A. (2019). Análise do Impacto de Variáveis Macroeconômicas no Desempenho Financeiro e Endividamento de Empresas Listadas na B3. *Revista Universo Contábil*, *14*(4), 93-114. doi:10.4270/ruc.2018429

King, R. G., & Levine, R. (1993). Finance and growth: Schumpeter might be right. *The Quarterly Journal of Economics*, *108*(3), 717-737. https://doi.org/10.2307/2118406

Korajczyk, R. A., & Levy, A. (2003). Capital structure choice: macroeconomic conditions and financial constraints. *Journal of Financial Economics*, *68*(1), 75-109. https://doi.org/10.1016/S0304-405X(02)00249-0

Lopes, P. F., Costa, D. F., Carvalho, F. C., & Castro Júnior, L. G. (2016). Desempenho econômico e financeiro das empresas brasileiras de capital aberto: um estudo das crises de 2008 e 2012. *Revista Universo Contábil*, *12*(1), 105-121. doi:10.4270/ruc.2016106

Pandini, J., Stüpp, D. R., & Fabre, V. V. (2018). Análise do impacto das variáveis macroeconômicas no desempenho econômico-financeiro das empresas dos setores de Consumo Cíclico e Não Cíclico da BM&FBovespa. *Revista Catarinense da Ciência Contábil*, *17*(51). https://doi.org/10.16930/2237-7662/rccc.v17n51.2606

Paredes, B. J. B., & Oliveira, M. R. G. (2017). O Impacto dos Fatores Macroeconômicos e de Risco Sobre a Mensuração do Valor das Empresas. *Revista Universo Contábil*, *13*(2), 43-64. doi:10.4270/ruc.2017208

Sargan, J. D. (1958). The estimation of economic relationships using instrumental variables. *Econometrica: Journal of the Econometric Society*, 393-415. https://doi.org/10.2307/1907619

Souza, J. D. M., Montezano, R. M. S., & Lameira, V. J. (2020). Os impactos dos investimentos em ativos reais no desempenho de empresas brasileiras. *Contabilidade Vista & Revista*, *31*(3), 6-25. https://doi.org/10.22561/cvr.v31i2.4868

Teixeira, D. N., Tiryaki, G. F., & Drummond, C. E. I. (2020). Fragilidade Financeira e Volatilidade dos Ciclos Econômicos no Brasil Pós-Plano Real. *Estudos Econômicos (São Paulo)*, *50*, 125-158. https://doi.org/10.11606/1980-5330/ea173917

Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. MIT Press.