Analysis of the basic interest rate on pre-fixed working capital for legal entities

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ABSTRACT

The present work seeks to analyze the impact of the basic interest rate practiced by the Central Bank of Brazil (Bacen) through COPOM and its impact on the interest rates practiced by some Brazilian financial institutions, especially in working capital loans to Legal Entities (PJ). The Brazilian basic interest rate, known as Selic, is one of the main variables that influence the cost of credit for these institutions. Any fluctuation in the Selic rate can trigger changes in several market metrics, such as foreign trade and inflation. In view of the various developments of the impact that the Selic may cause, it was decided to address its effect on credit lines for companies, especially in the Working Capital modality with a term of up to 365 days – Pre-Fixed. To this end, a survey was carried out of companies with more than 2% participation in the Ibovespa Index, and public institutions with mixed capital had their interest rates monitored by the Central Bank.

Keywords: Selic, Interest, Financing, Copom.

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INTRODUCTION

The Selic (Special System of Settlement and Custody) is used as an instrument of economic actions related to financial control to control inflation and regulate the economy, it was created in the early 1990s, whose calculation is based on the average of the financial operations of the day, backed by federal government securities that are registered in the Selic (Vartanian *et al*, 2019).

In this way, when the Central Bank increases the Selic rate, it gradually increases interest rates, this leads to some obstacles for companies, such as the search for resources necessary to finance a company's operating activities becomes more difficult, because if the company is in debt, it will have little chance of getting loans, financing and also the availability of working capital necessary to cover operating expenses, such as payment of employees and suppliers. Working capital, in turn, becomes more costly, due to the increase in the cost of credit, which negatively affects the company's cash flow and capacity for expansion and innovation, as it is intrinsic to the Selic balance. This increase is related to inflation control, fiscal balance and the defense of the currency.

On the other hand, fluctuations in the prices of financial assets, by altering the stock of wealth of economic agents, can influence consumption decisions. A reduction in the basic interest rate, by stimulating economic growth, increases the profit expectation of companies, usually generating an increase in the price of shares (Modenesi, 2022). The cost of working capital increases due to the increase in the cost of credit. This can generate a ripple effect: companies face greater difficulty in obtaining financing at competitive rates, which in turn can negatively affect cash flow and the ability to invest in expansion and innovation.

The research problem of this work is to identify and analyze the main practices of the correlation of the variation of the interest of capital from 365 to PJ of some banks to the Selic.

This study is justified by the need to understand the interest rate fluctuations of different banks with the Selic.

THEORETICAL FRAMEWORK

The Selic Rate was created by Presidential Decree No. 3,088 of June 21, 1999 and regulated by BCB Circular No. 2,900 of June 24, 1999, being the monetary policy tool adopted by the Inflation Targeting Regime implemented in Brazil, it ended up replacing the TBC and TBAN, being used by COPOM until then (Arida and Resente, 2005; Oliveira, 2024).

According to (Oliveira and Costa, 2005; Ribeiro, 2020) The Selic rate is one of the main indicators of the financial market and makes inflation levels under control, causing the government to stimulate the economy and economic growth through its balancing. "The Selic Rate is also

considered as a type of benchmark, ceiling, for the interest paid by banks on term deposits, from this, banks estimate the interest that will be charged on loans granted to companies and individuals.

It reports that Legal Entities are the ones that are most influenced by the SELIC, so when the SELIC is high, the rate will also be higher and when the SELIC is low, the rate will also be low. Thus, impacts with the increase in the Selic rate for legal entities are, Companies that depend on long-term investments are also affected, since the increase in interest rates can make certain types of investments, such as long-term infrastructure projects, less attractive (Medeiros, 2019).

In view of the existence of lags in the conduct of monetary policy, the Central Bank acts prospectively; that is, the Selic rate is calibrated according to inflation expectations: the identification of an inflation trajectory higher (lower) than the target requires an increase (reduction) in the interest rate

The Selic interest rate, which, in turn, is obtained through the so-called daily liquidity management compatible with the inflation target. In view of the existence of lags in the conduct of monetary policy, the Central Bank acts prospectively; that is, the Selic rate is calibrated according to the inflation expectation: the identification of an inflation trajectory higher (lower) than the target requires an increase (reduction) in the interest rate (Moreira, 2009)

The rate of interest is fundamentally determined by the ratio of the supply of money that people are willing to lend to the number of individuals who wish to borrow from them. This rate varies greatly from season to season. Economists take 16 this fact as a "market phenomenon", such as the price of common commodities or the price of food, which also depend on supply and demand, causing interest rates to be determined by the interaction of these forces in the markets where money is available (Farias, 2013).

Knowledge of the future interest rate helps economic agents in the formation of expectations, consumption, investment and production decisions, as well as in the conduct of monetary policy. Because the short-term basic interest rate influences the other rates in the economy, probable scenarios and estimates of the most diverse rates and prices can be drawn (Passos, 2023;).

In the economic scenario, the interest rate plays a fundamental role acting as a mechanism for regulating housing policies, so it is necessary to explain the role, concepts and behavior of basic interest rates in Brazil in recent years. In Brazil, the Selic (Special Settlement and Custody System) is used as the basic interest rate. The increase or decrease in interest rates can have different repercussions according to the universe with which the variable is applied. Interest on its rise, for example, can mean gain in the case of a financial investment, where profitability is expected or it can mean loss for those who, for example, want to finance a property and have in the reduction of the rate an expectation to be able to reduce an installment to be paid (Ribeiro, 2019)

METHODOLOGY

This study aims to evaluate the impact of the basic interest rate, Selic, on the variation of Working Capital interest with a term of up to 365 days – Pre-Fixed for Legal Entities. As a sample, the financial companies that make up the Ibovespa Index have more than 2% participation in the index. Mixed-capital companies with a history of interest rates were also separated from interest rates during the year 2020.

First, a correlation was made with the interest on capital practiced by the banks analyzed and the history of the basic interest rate. Next, the relationship between the interest rate and the Selic was verified and a trend line of interest rates practiced by banks was drawn.

A logistic regression was performed as a way to measure the odds ratio of the Selic variation in the banks' rate. To do so, the values were exchanged for dichotomous variables, 0 and 1. It should be noted that during the year 2020, the meetings from the 237th to the 236th of COPOM were analyzed and the following financial institutions were analyzed, Banco do Estado de Sergipe, Banco da Amazônia, Banco Itaú, Banco Bradesco, Banco do Nordeste, Banco do Brasil, Banco do Estado do Rio Grande do Sul and Caixa.

LOGISTIC REGRESSION

Logistic regression is usually used for binary variables, 0 and 1. This type of methodology is used for polls of voting intentions, yes or no, democracy or no (Nicolau, 2007; Soares, 2000, Epstein *et al2013).*

In logistic regression, the target or dependent variable assumes a value of 1, as it is the variable of interest, and the independent variable assumes a value of 0. By means of logistic regression, it is possible to analyze the odds ratio of the independent variables over the dependent variable. With each unit that is increased from X, how much influences the increase of Y.

LINEAR CORRELATION

Linear correlation aims to verify whether the relationship between two variables has a positive or negative trend. A positive trend indicates that the increase in one of the variables is also followed by the increase in the other variable – but it is not a cause-and-consequence relationship.

In this case, the correlation will generate a number that will vary from 0 to +1, where the closer to 1 the value is, the stronger this correlation between the two variables will be.

A negative trend indicates that the increase in one of the variables is accompanied by a reduction in the other variable. In this case, the correlation ranges from -1 to 0, where -1 indicates a stronger correlation between the two variables. In both cases, in order for the result found to be extrapolated to the population from which the sample originated and to consider it in a certain way a

pattern of relationship, this correlation must be significant, that is, it must present a value less than or equal to 0.05. In the chart below, it is possible to see the level of correlation between the working capital interest charged by financial institutions and the Selic.

Table 1. Correlation between Banks and Selic

Correlation	Selic	Type of Company
B. Est. De Ser	0,81	Mixed
B. Amazon	0,78	Mixed
B.Itaú	0,72	Private
Box	0,72	Public
B.Bradesco	0,57	Private
B. Northeast	0,37	Mixed
B.Brazil	0,29	Mixed
B. of the State of RS	-0,31	Mixed

Source: Prepared by the authors themselves

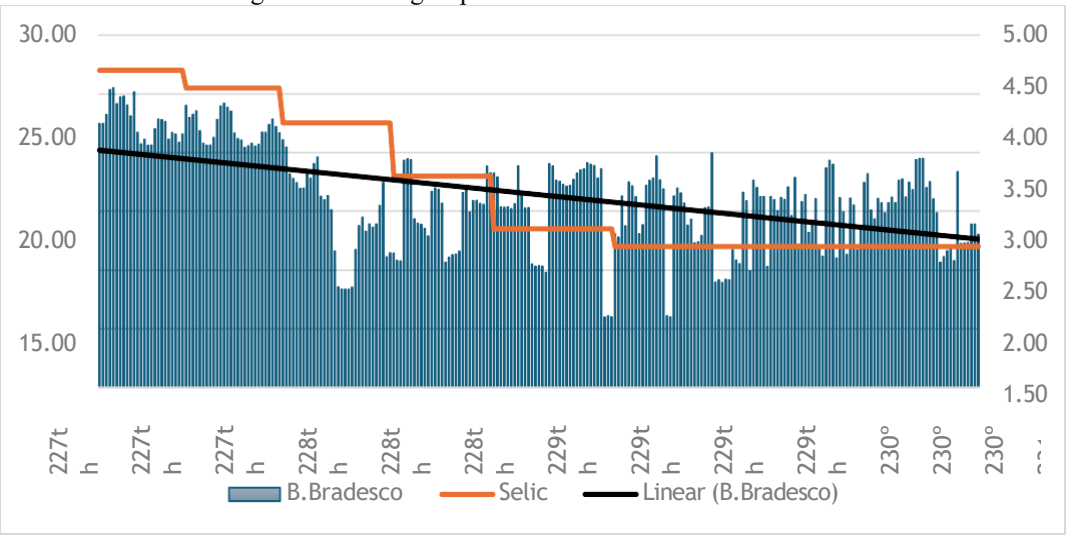
In the graph, it is thus possible to observe the level of correlation of the variation of the interest rate of 365 for PJ of some banks with the Selic. However, it is not possible to draw many conclusions from the table above, only that the interest rates of banks, with the exception of the Bank of Rio Grande do Sul, tend to increase the interest on working capital in the event of an increase. It should be noted that due to a period of analysis, the country was going through a pandemic. The graphs below will detail the ratio of the working capital interest rate for legal entities of the financial institutions under study, Selic and the trend line of the interest rates practiced by the financial institutions.

The methodology of an article outlines the procedures employed to conduct the research, including the type of study, sample selection, methods of data collection and analysis, ethical considerations, and limitations of the study. Its detailed and transparent description is essential to ensure the replicability and reliability of the results, in addition to providing a solid basis for the interpretation and generalization of the findings.

RESULTS AND DISCUSSIONS

In the graphs below, it will be possible to verify the relationship between the interest rates charged by the Central Bank through COPOM during the year 2022, interest rates charged by the financing institutions, the trend line of interest rates charged by the institutions, and the odds ratio measured through logistic regression by analyzing the study variables.

Figure 2. Working Capital Interest of Banco do Bradesco



Source: Elaboration authors

The analysis carried out was between the meeting of No. 227 and No. 226 of the Copom. Meeting No. 227 took place on December 10 and 11, 2023 and meeting No. 236 took place on June 15 and 16, 2024. Between 12/11/2023 and 06/16/2024, 188 days passed, within this interval there were oscillations in the Selic target to changes in the interest rates practiced by banks. Following the information from the Central Bank itself, every adjustment in the Selic rate takes 6 to 9 months to impact the market, with its main developments being in the exchange rate, credit, market expectations and investments. Between meeting No. 226 and No. 229, the average interest rate practiced by Banco Bradesco was 19%. This can be seen in the chart above. However, the reduction in the bank's interest rate did not happen immediately, the reduction in the Selic rate. Even during the period of maintaining the basic interest rate at 2%, the interest rate practiced by the bank was not constant, with oscillations up and down during the period. However, it is worth mentioning that the trend line shows that the reduction in the bank's interest rate in the long term followed the Selic.

Figure 3. Logistic Regression Banco do Bradesco

Logistic regression — Number of obs = 255
LR chi2(1) = 0.23
Prob > chi2 = 0.6318
Log likelihood = -176.30618 — Pseudo R2 = 0.0007

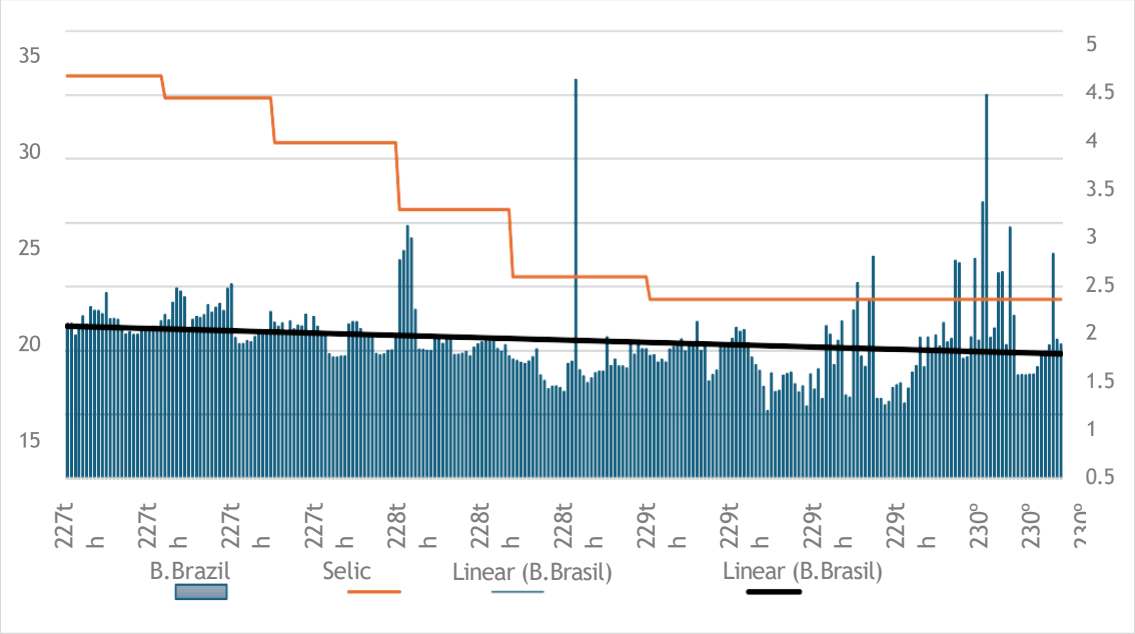
bbradesco	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
selic	1.223765	.5158899	0.48	0.632	.5356315	2.795956
_cons	.8852459	.1169596	-0.92	0.356	.6832856	1.1469

Source: Elaboration authors

The odds ratio for "selic" is 1.223765, suggesting that an increase of one unit in the Selic rate is associated with a 22.38% increase in the chances of the event associated with "bbradesco". However, the p-value (0.632) indicates that this coefficient is not statistically significant, as it is much higher than the usual level of significance (0.05). Therefore, there is not enough evidence to

conclude that "selic" has a significant effect on "bbradesco". The LR chi2 was 0.23, this is the value of the likelihood ratio test. It compares the probability of seeing the data under the full model versus a simpler model. The rob > chi2 was 0.6318, this is the p-value associated with the likelihood ratio test. A high p-value (usually greater than 0.05) indicates that there is insufficient evidence to reject the null hypothesis. The Pseudo R2 was 0.0007. This is an analogue to R-squared in linear regression, which represents the proportion of variance explained by the model. The results of the logistic regression show that the variable "selic" does not have a statistically significant effect on "bbradesco" in the analyzed sample. The low chi-square statistic and the high p-value indicate that the model as a whole is also not significant.

Figure 4. Banco do Brasil's Working Capital Interest



Source: Elaboration authors

This analysis indicates that the impact of changes in the Selic rate on the interest rates practiced by Banco do Brasil occurs with a certain time lag and may present variability due to various factors in the financial market. What can be observed is that there is a trend in the bank's interest rate falling, but very tenuous, compared to the Selic. On average, the interest rate practiced in the period was 10.81%, another factor was the correlation between the interest charged by the bank and the interest rate, which was 0.29. It should be noted that the bank in question is a mixed economy and has the federal government as the majority partner.

Figure 5. Logistic Regression Banco do Brasil

```
. logistic bbrasil selic

Logistic regression                                     Number of obs   =        255
                                                        LR chi2(1)      =       0.01
                                                        Prob > chi2     =     0.9074
Log likelihood = -175.51831                             Pseudo R2       =     0.0000

------------------------------------------------------------------------------
     bbrasil | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       selic |   1.050505   .4455548     0.12   0.908     .4574828    2.412246
       _cons |   1.211538   .1605089     1.45   0.148     .9344735    1.570751
------------------------------------------------------------------------------
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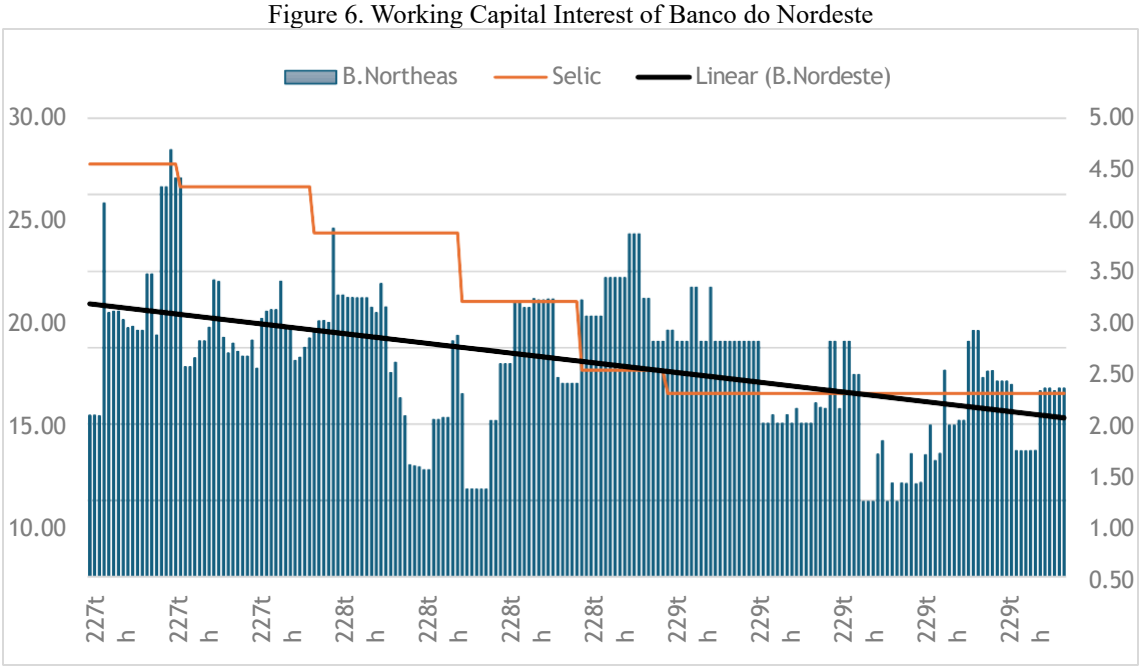
Source: Elaboration authors

For each increase of one unit in the selic, the chance of the bank's rate being adjusted increases by 1.050505 times (an increase of 5.05%) (1.050505 - 1 = 0.0387), keeping the other conditions constant. This result shows that the variation in the banks' rate is little influenced by the Selic oscillation. This is also proven by several other indicators, low correlation and the Pseudo R^2. The Pseudo R^2 was 0.0000, indicating that the logistic model could not explain any variation in relation to the null model, Selic. The value of LR $chi^2(1)$ is 0.01 with a p-value (Prob > chi^2) of 0.9074, indicating that the model is not statistically significant.

Figure 6. Working Capital Interest of Banco do Nordeste



Source: Elaboration authors

It can be observed that there is no uniformity in the interest rates practiced by Banco do Nordeste. Even in periods of Selic cuts, there was an increase in the internal interest rates practiced by the bank. Correlation is not a cause, that said, even if there is a correlation of 0.37 between both variables, it is not possible to say the reasons for the fluctuations in the interest rates practiced by the financial institution. It is worth mentioning that the interest in this chart is related to Working Capital with a term of up to 365 days – Pre-Fixed for Legal Entities. Therefore, it can be inferred that any upward fluctuation in the interest rates charged by the bank discourages access to credit.

Figure 7. Logistic Regression of Banco Bradesco

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. logistic bnordeste selic

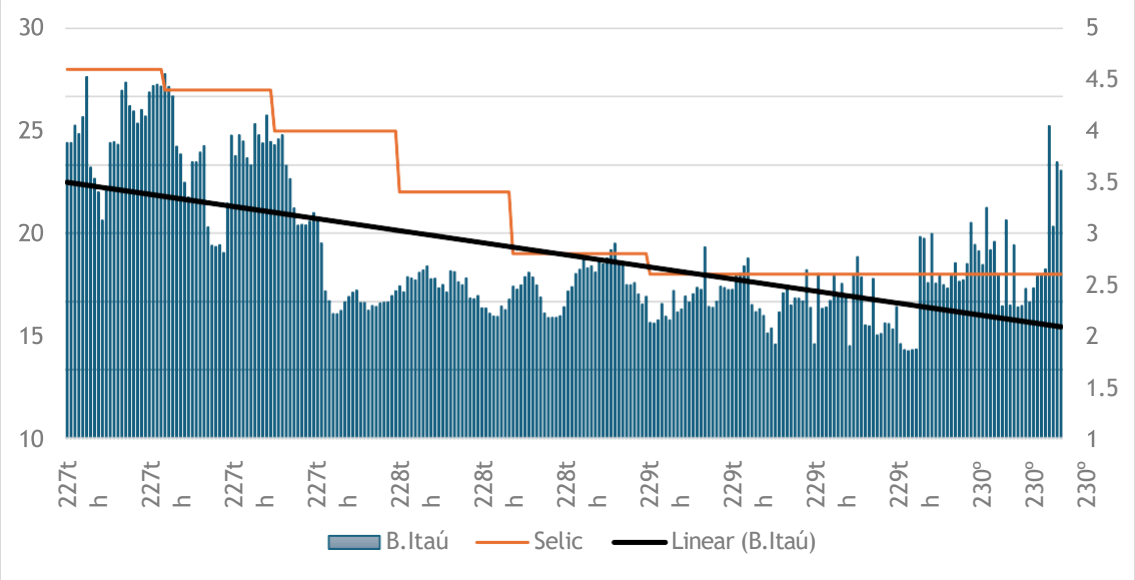
Logistic regression                             Number of obs   =        205
                                                LR chi2(1)      =       0.33
                                                Prob > chi2     =     0.5644
Log likelihood = -141.37982                     Pseudo R2       =     0.0012
```

bnordeste	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
selic	1.320261	.6369858	0.58	0.565	.5128391	3.398902
_cons	.8415842	.1238751	-1.17	0.241	.6306768	1.123022

Source: Elaboration authors

For each increase of one unit in the selic, the chance of the bank's rate being adjusted (1.320261 - 1 = 0.320261) increases by 1.320261 times (an increase of 32.03%), keeping the other conditions constant. The Pseudo R^2 is a measure that attempts to capture the variation explained by the model, similar to the R^2 in linear regression. A value of 0.0012 is extremely low, indicating that the model barely accounts for the variation in the response variable. Prob > chi2, represents the p-value of the chi-square test. A value of 0.5644 indicates that the model is not statistically significant (it is generally considered significant if $p< 0.05$). In other words, there is not enough evidence to affirm that the model with the "selic" variable is better than a model without predictors.

Figure 8. Working Capital Interest of Banco do Itaú



Source: Elaboration authors

In the graph, it can be seen a significant drop in the interest rates practiced by Banco Itaú after the 229th meeting. However, it can be seen that interest rates are not uniform, similar to what happens with the Selic. It is also possible to verify that even in periods of cut-off of a meeting, such as in the 231st, the interest charged by the institution in question fluctuates more and less. Of the private banks analyzed, it was the one that showed the highest correlation with the COPOM rate, of 0.72. However, it is not possible to say.

Figure 9. Logistic Regression of Banco Itaú

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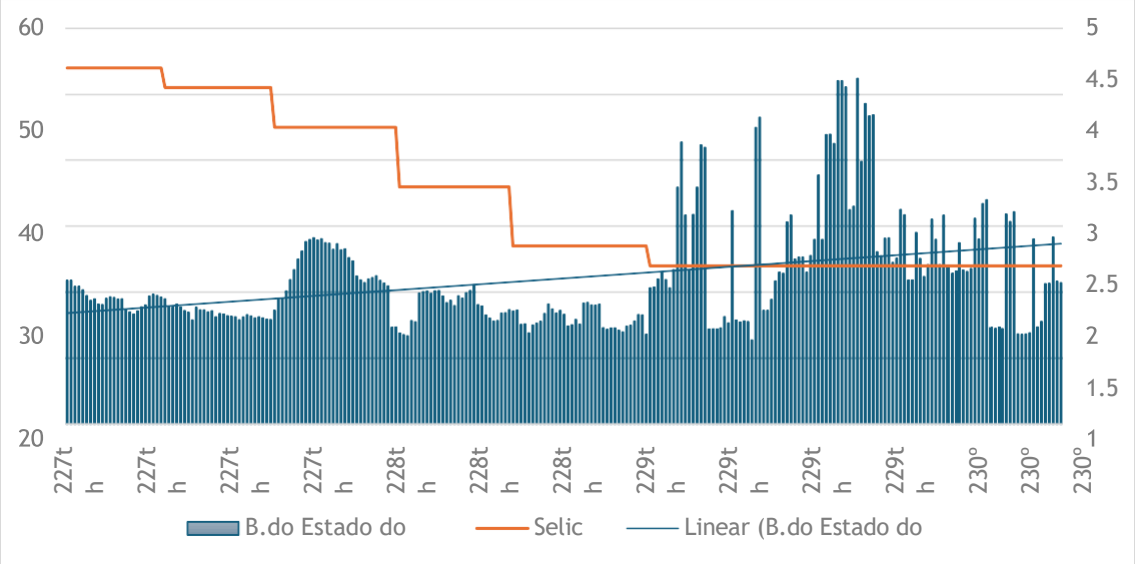
Logistic regression                             Number of obs   =        255
                                                LR chi2(1)      =       0.13
                                                Prob > chi2     =     0.7225
Log likelihood = -176.59337                     Pseudo R2       =     0.0004
```

bita	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
selic	1.161411	.4895439	0.36	0.723	.5083912	2.653225
_cons	.9327731	.123085	-0.53	0.598	.720203	1.208084

Source: Elaboration authors

For each increase of one unit in the selic, the chance of the bank's rate being adjusted increases by 1.161411 times (an increase of 16.14%) (1.161411 - 1 = 0.161411), keeping the other conditions constant. However, the p-value (0.723) indicates that this coefficient is not statistically significant, as it is much higher than the usual level of significance (0.05). Thus, there is not enough evidence to conclude that "selic" has a significant effect on "Itaú". Likelihood ratio (LR chi2(1)): This is the value of the chi-square test of the likelihood ratio. A higher value indicates a better fit of the model. In this case, the value is 0.13. Prob > chi2 is the p-value of the chi-square test of the likelihood ratio. A value less than 0.05 usually indicates that the model is significant. In this case, the value is 0.7225, indicating that the model is not statistically significant. Log likelihood is the logarithm of the likelihood function. The higher the value, the better the model fits the data. In this case, the value is -176.599337. Pseudo R2 is an analogue of R-squared in linear regression. It ranges from 0 to 1, and a higher value indicates a better fit of the model, in this case, the value is 0.0004, indicating that the model does not fit well with the data.

Figure 10. Working Capital Interest of the Bank of the State of Rio Grande do Sul



Source: Elaboration authors

Based on the graph, it can be inferred that even with the Selic cuts, there were fluctuations in the interest rates practiced by Banrisul. This volatility is similar to that of the other financial

institutions in our study. What can be inferred is that the correlation with the Selic goes in opposite directions during the 232nd and 233rd meetings and this can be seen in the correlation table, but taking into account all meetings. Finally, it is not possible to determine the reasons why this oscillation in the interest rate of the institution under study occurred, but we can conclude that its increase reflects on the cost of credit of companies that are in need of resources for their working capital.

Figure 11. Logistic Regression Bank of the State Bank of Rio Grande do Sul

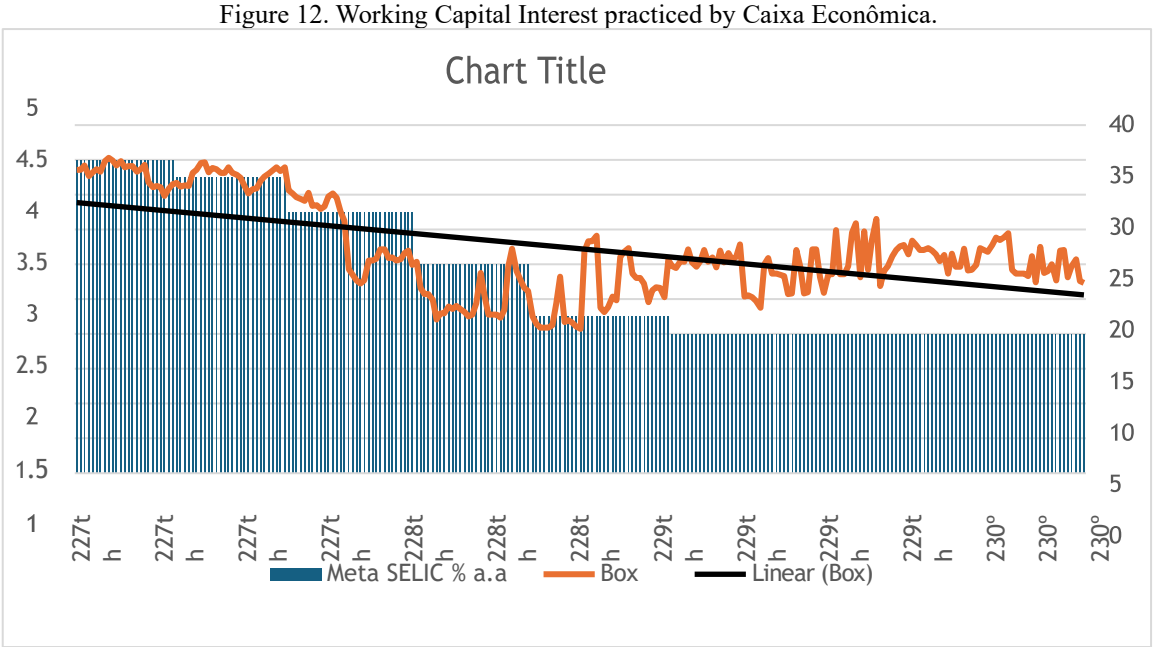
Logistic regression — Number of obs = 255; LR chi2(1) = 0.00; Prob > chi2 = 0.9473; Log likelihood = -176.65426; Pseudo R2 = 0.0000

bers	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
selic	1.028249	.4334035	0.07	0.947	.4501108	2.348967
_cons	1.053571	.1389882	0.40	0.692	.8135282	1.364443

Source: Elaboration authors

For each increase of one unit in the selic, the chance of the bank's rate being adjusted increases by 1.028249 times (an increase of 2.25%) (1.028249 - 1 = 0.28249), keeping the other conditions constant. LR chi2 of 0.23, this is the value of the likelihood ratio test, it compares the probability of seeing the data under the full model against a simpler model. Prob > chi2 of 0.6318 is the p-value associated with the likelihood ratio test. A high p-value (usually greater than 0.05) indicates that there is insufficient evidence to reject the null hypothesis. Overall, the results indicate that the adjusted logistic regression model does not have significant predictive power. Neither the coefficient of the "selic" variable nor the intercept are statistically significant.

Figure 12. Working Capital Interest practiced by Caixa Econômica.



Source: Elaboration authors

It can be seen that the interest rate of Caixa and Selic in the long term follow the same trend. Based on the graph, it is not possible to infer the cause of the fall in the rate practiced by the financial institution, but its correlation with the rate practiced by COPOM of 0.79, shows a certain adherence. Even in the period of Selic cuts, the interest charged by Caixa, referring to 365-day working capital for legal entities, fluctuated up and down. It should be noted that oscillations for more expensive the credit taken by companies and consequently increase the price of services or products offered by the borrower. However, it is not possible to determine the factors that contributed to the fluctuations in the interest rates of the financial institution in question.

Figure 13. Caixa Econômica Logistic Regression

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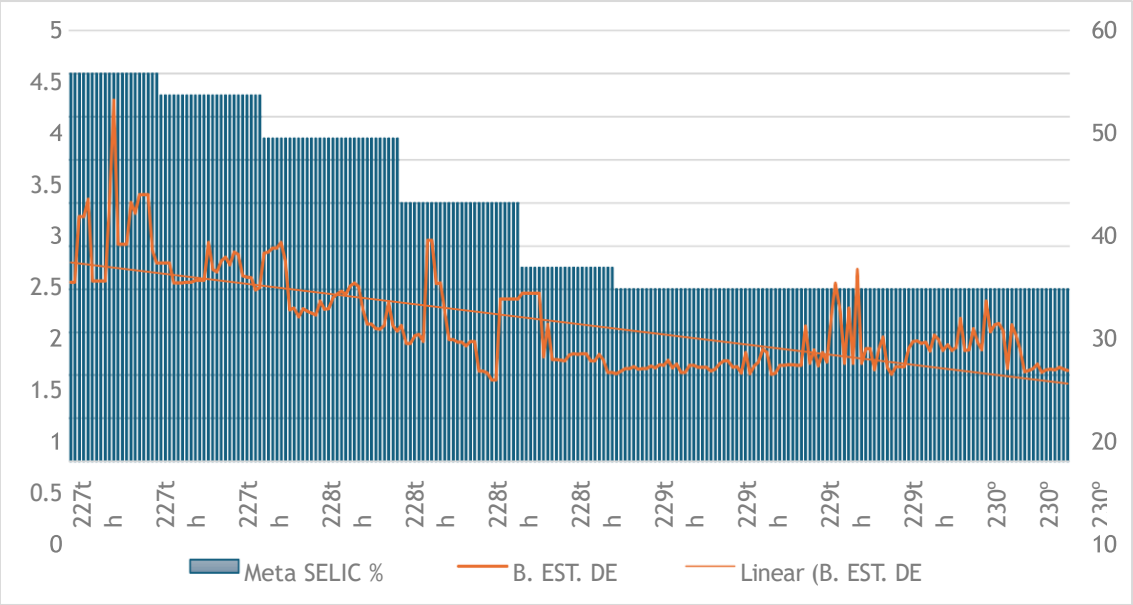
Logistic regression                               Number of obs   =        253
                                                  LR chi2(1)      =       0.24
                                                  Prob > chi2     =     0.6261
Log likelihood = -175.15071                       Pseudo R2       =     0.0007
```

caixa	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
selic	1.22884	.5211889	0.49	0.627	.5351488	2.821734
_cons	1.035714	.1372048	0.26	0.791	.7988739	1.34277

Source: Elaboration authors

For each increase of one unit in the selic, the chance of the bank's rate being adjusted increases by 1.22884 times (an increase of 22.88%) (1.22884 - 1 = 0.0387), keeping the other conditions constant. This result shows that the variation in the banks' rate is little influenced by the Selic oscillation. A pseudo R^2 of 0.0007 indicates that the logistic model explains a very small amount of the variation in the dependent variable compared to the null model. In other words, the independent variables included in the model ("selic") have almost zero explanatory power over the dependent variable ("box"). This value suggests that the fitted model is not significantly better than a model without independent variables.

Figure 14 Working Capital Interest practiced by Banco do Estado de Sergipe



Source: Elaboration authors

Of all the banks analyzed, the Bando do Estado de Sergipe was the one with the highest correlation with the Selic rate. It can be observed that the interest rates charged by the bank continue on a downward trend, similar to the Selic. However, it is possible to see a certain volatility in the interest rates practiced by the bank, even in periods of COPOM cuts.

Figure 15. Logistic Regression Bank of the State of Sergipe

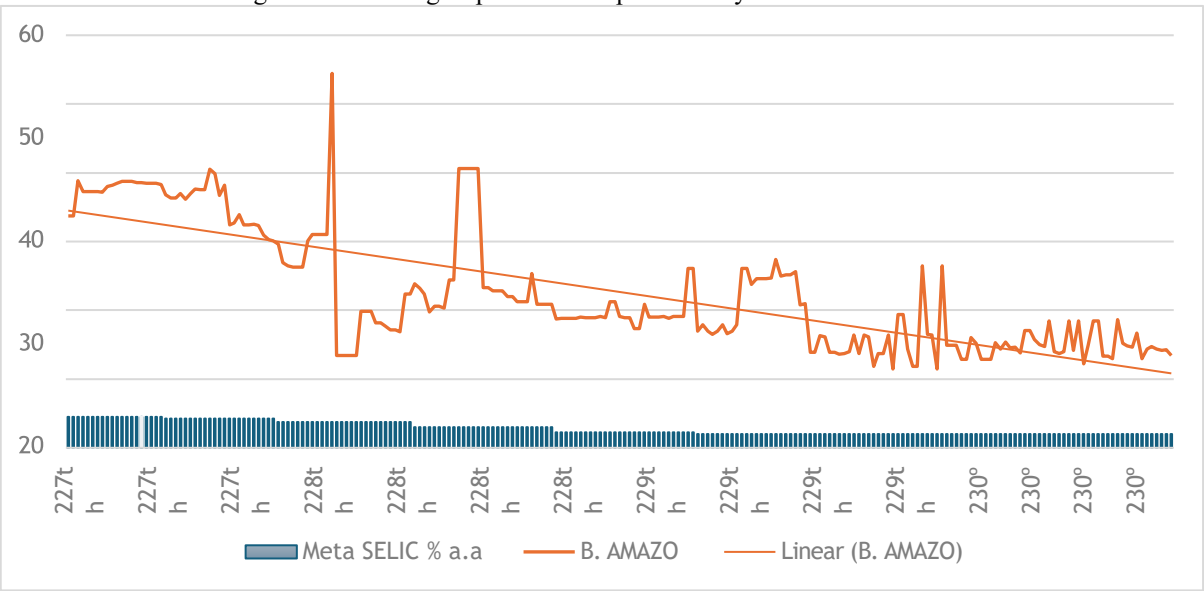
```
Logistic regression                             Number of obs   =        233
                                                LR chi2(1)      =       0.00
                                                Prob > chi2     =     0.9984
Log likelihood = -161.24354                     Pseudo R2       =     0.0000
```

bess	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
selic	1.000901	.4584728	0.00	0.998	.4078398	2.456363
_cons	1.09901	.1511288	0.69	0.492	.8393629	1.438976

Source: Elaboration authors

Overall, this model does not seem to be adequate to predict the dependent variable based on the data provided, since none of the coefficients is statistically significant and the explanatory power of the model is practically nil. Pseudo R2 indicates that the model does not account for the variation in the data.

Figure 16. Working Capital Interest practiced by Banco da Amazônia.



Source: Elaboration authors

Banco da Amazônia S.A.'s rates have a complex relationship with the SELIC, with fluctuations and moments of divergence, demonstrating that factors other than the SELIC influence its decisions. Banco da Amazônia S.A.'s rates ranged from 11.46% to 54.45% during the analyzed period, while the SELIC rate ranged from 2% to 4.5%. The bank's rates showed a higher percentage variation than the SELIC, and its correlation with the rate practiced by COPOM of 0.78 shows a certain tendency of the bank to follow the SELIC.

Figure 17. Logistic Regression Banco da Amazônia.

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Logistic regression                             Number of obs   =        227
                                                LR chi2(1)      =       0.05
                                                Prob > chi2     =     0.8303
Log likelihood = -154.91423                     Pseudo R2       =     0.0001
```

bamaz	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
selic	1.106405	.5210535	0.21	0.830	.439589	2.784719
_cons	.7394958	.1039695	-2.15	0.032	.5613851	.9741157

Source: Elaborated by author

The odds ratio for "selic" is 1.106405, suggesting that a one-unit increase in the Selic rate is associated with a 10.64% increase in the odds of the event associated with "bamaz". However, the p-value (0.830) indicates that this coefficient is not statistically significant, as it is much higher than the usual level of significance (0.05). Therefore, there is not enough evidence to conclude that "selic" has a significant effect on Banco Amazônia.

FINAL CONSIDERATIONS

The main objective of this work was to analyze the impact of the basic interest rate practiced by the Central Bank through COPOM on the interest rates practiced by financial institutions in the Working Capital modality with a term of up to 365 days – Pre-Fixed for PJ. It should be noted that, in addition, it was sought to verify the odds ratio of the variation of the basic interest rate practiced by COPOM, Selic in the variation of interest rates practiced by financial institutions through *odds ratio.*

With the results obtained, it was found that among the institutions studied, all followed the same trend of reducing the interest rates practiced by COPOM. However, even during the period of the Selic cut, there were situations of high interest rates practiced by the institutions studied.

This study aimed to contribute to the capital markets sector, for market professionals such as independent investment agents, brokers, banks, society, companies in general that need working capital to manage their businesses.

It was shown that the Selic is important in reducing the interest rates practiced in the long term, but explains very little of the variation in the working capital interest practiced by the institutions studied.

One of the limitations of the study is that it is only for the period of 2022. During the study period, the world was coming out of a pandemic, so the market was in an abnormal operating situation.

For future work, it is recommended to carry out new studies based on a larger cut of the Selic oscillation in the interest rates practiced for working capital. It should be noted that an increase in the cost of credit for working capital loans to companies reflects the increase in the prices of products and services in the market.

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