ANTICIPATION OF RECEIVABLES IN BANKS VRS FACTORINGS: AN ANALYSIS OF THE DIFFERENCES BETWEEN THE RATES CHARGED AND THEIR POSSIBLE CAUSES

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ABSTRACT

This article aims to analyze the difference between the average rates used by commercial banks and factoring companies in the negotiation of corporate receivables in the Brazilian scenario. The variables analyzed were the average effective rates applied by financial institutions and factoring companies in the purchase of trade acceptance bills and checks between the years of 2012 and 2016.The statistical tests used were the parametric means test for independent samples, the D-Cohen statistic and the correlation analysis. The data used in the research were obtained on the website of the Central Bank of Brazil (BACEN) and the National Factoring Association (ANFAC). The results show a difference of 1.35% greater in the ANFAC factor in relation to the average rates charged by the banks. The D-Cohen statistic has shown that such a difference is significant and relevant. Based on the correlation, it was possible to infer that a possible cause for such a difference lies in the methods adopted between the credit risk analysis models used in such entities and environment more flexible and the less bureaucratic in which factoring companies operates. The contributions obtained with this research allow us to direct the users that seek the anticipation of receivables as a credit modality and break the lack of studies related to the factoring agencies in Brazil, mainly from an empirical perspective.

Keywords: Banks. Factoring. ANFAC Factor. D-Cohen.

1 INTRODUCTION

Companies with their own resources will often not be able to remain competitive in the market or even make timely settlement of their debts to employees, suppliers and the government. According to data published in a research performed by the Brazilian Micro and Small Business Support Service (SEBRAE) of São Paulo (2010), more than half of the analyzed companies that started their activities before 2010 closed their doors in a period of up to five years. One of the main difficulties pointed out by the interviewees in the study was the lack of

financial resources to manage their short-term obligations. Another research conducted by SEBRAE of São Paulo in 2014 highlighted that, in the first year of a company's activities, the lack of capital (cash) is considered the second most significant difficulty to continue the business, only losing to the difficulty of training from customers.

As can be seen from the results of SEBRAE research, adequate cash management is crucial for the survival and economic sustainability of both large and small organizations. The task of managing a company's cash position, on the other hand, is not simple and involves a number of complex issues that may or may not be managed by those in charge of the business. (e.g., term of payments of suppliers and receipt of customers, payments of employees and their benefits, theft, fraud and etc.). Gitman and Zutter (2012) point out that managing a company's working capital is one of the most challenging and time-consuming tasks of financial managers.

While it is a challenging task, a company's cash management can be aided by banks or financial firms that, if necessary, can provide resources for the entity to meet its short-term obligations. Among the most common resources for this type of need are working capital loans and negotiation of receivables. In a study conducted by Araújo and Machado (2007), with companies from Paraíba scholars found that almost half of the small companies analyzed used discount checks as a way to finance their cash and more than half use banks for working capital loans.

Working capital loans have the advantage of high agility in obtaining credit and, in most cases, the non-obligation to provide a real guarantee in the operation, since banks and financial institutions calculate a previous limit, based on the entity's credit score. The major disadvantage of these working capital operations is the financial cost of the loan, which is among the highest rates charged in the market.

A second operation, also common to help short-term cash management, is the anticipation of receivables. According to International Financial Reporting Standard (IFRS) 9, there are two main modalities of anticipation of receivables: (1) one that substantially transfers the risk of the financial instrument to whom acquires the security and (2) one in which the holding company bears the risk of not paying the security, using the financial instrument as a mere guarantee for its raising funds with banks (IASB, 2014).

The first form of anticipation of receivables is known by the market as the sale of receivables (securitization). In it occurs the effective sale of the security and its respective accounting write-off by the seller. The second form of anticipation, in turn, is known as discount checks or trade acceptance bills (or sales installments by credit card) and is the most common modality, especially in the scope of small companies. In this situation only the transfer of funds from the bank (or financial operator) to the company that guarantees the trade acceptance bills or the checks that have to receive. The accounting treatment of the second type of transaction is the same as accounting for a loan. The rates charged by the bank or financial institution are part of the effective cost of the operation and must be treated as such, that is, they must be included in the effective cost of the financing. The great advantage of this modality in relation to the working capital loan are the rates charged, substantially lower than those of unsecured loans.

In order to raise funds with the anticipation of trade acceptance bills or checks, an organization may use a commercial bank or a factoring company. The bank mediates financial resources, raises and lends money from popular savings. Capital is absorbed together with surplus agents and delivered to deficit agents. Factoring already operates with its own resources, provides collection services and purchases the direct credits (rights) of its customers. In the bank discount, the cost of the anticipation transaction for the customer is measured by the effective rate that represents the credit risk, the bank spread (difference between the cost of raising and the application of the market value), taxes and the rate that the bank charges for the operation. In factorings, the cost of anticipation is measured by the purchase factor. This factor represents the effective rate charged by the factoring companies together with their margin and their total direct and indirect costs (Anfac, 2017; Capelletto & Corrar, 2008; Gonçalves, Gouvêa, & Mantovani, 2013; Leite, 2011; Wolf, 2008).

Although banks and factoring formally have distinct conceptions of activities and forms of financing, in the operations of anticipation of receivables essentially, they do the same thing; they lend resources based on the guarantee of the security to be received. The rates charged

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by the bank and the factoring factor, despite reflecting the situation and the particular costs of credit operations, also represent the same for those who need resources, the actual cost of the operation. Even so, several authors, such as Cochrane (2005), Dodl (2006), Falcão (2001), Goulart and Paulo (2011), Leite (2011) and Wolf (2008) highlight the relevance of the role of factoring in financing the economy, especially the more informal ones, since the process of obtaining credit in such entities is not as demanding as in banks (the lower requirement can be verified in the research of Anjos, Miranda, Silva and Freitas, (2012), according to which only 3% of the interviewees indicated the most demanding accounting information factories while the banks represent 53% of the cases).

It is natural that in a less judicious environment there are greater risks in operations and this should be reflected in the rates charged and the costs of raising to the market. But to what extent does this cost make a significant difference in factoring rates when compared to commercial banks? Stabile (2012), in his theoretical essay, points out that the costs of credit operations with factoring are greater than those of the operations with banks, but does not investigate the size or relevance of this difference.

In this context, this work aims to analyze the difference between the average rates used by commercial banks and factoring companies in the negotiation of corporate receivables in the Brazilian scenario. More specifically, this study analyzed the differences in effective rates charged by factoring agencies and commercial banks over a five-year horizon (2012-2016). In addition, ancillary analyzes were carried out to measure the size of the economic effect of the differences between the rates charged and the possible macroeconomic drivers of these relationships.

Works such as those made by Batista and Junior (2012) and Silveira (2010) have created a kind of "mystical" relevance around the role of factoring in regional economic development, especially in the context of small enterprises. The purpose of this research is to contribute with empirical data and to show that, although factoring has a relevant role in the distribution of funds in the market for the anticipation of receivables, the rates charged reflect a higher risk of its operations and are significantly higher than the rates charged by commercial banks. In practical terms, this research can also serve as a basis for economic agents to decide the vehicle used to anticipate their receivables, given their credit conditions.

2 THEORETICAL FOUNDATION

2.1 Factoring companies and commercial banks as working capital lenders

Although Gitman and Zutter (2012) point out the high degree of difficulty in calibrating an adequate financial policy for a successful management of working capital, there are some tools that can help the financial manager in this endeavor. Among these tools is the discount of trade acceptance bills or checks. A company that decides to anticipate its receivables may resort to commercial banks or factoring agencies.

For Leite (2011), factoring is characterized as an atypical mixed commercial activity, which involves the continuous provision of services, together with the purchase of credit rights resulting from commercial sales or service rendered over the long term. Law No. 9,430/96, in its art. 58, item XV, indicates factoring as companies:

> XV - that explore the activities of cumulative and continuous rendering of credit, marketing, credit management, selection and risk management services, administration of accounts payable and receivable, purchases of credit rights resulting from forward sales or services rendered (factoring).

Markusons (1997, as cited in Wloch, 2006, p.13) describes the use of services provided by developers as an important tool for firms that have restrictions and are unable to operate with Banks, as the level of demand and bureaucracy are many different. The flexibility to open the register and to grant credit is greater than in other institutions, since the contact of the developer is closer to the customer company. Another advantage is that the focus of factoring is the

purchase of receivables. Therefore, they do not require reciprocity from customers; such as the sale of insurance, capitalization and consortia (Diário do Comércio, 2016; Gonçalves, 2012).

In this way, factoring helps as support for its customer companies and contributes to the growth, continuity and development of these companies in the market. Therefore, factoring can act to foster and assist small and medium-sized businesses with day-to-day cash flow problems. This would enable faster business growth and greater turnover of your working capital. The activity also has a speed that other systems do not offer (Katayama, 2003; Santos, 2014; Silveira, 2010; Sinfac-SP, 2016; Wolf, 2008).

The activity of a commercial bank, on the other hand, is financial intermediation. Banks raise funds from popular savings and invest in activities that demand resources. Taylor (2013) points out that banks' capital is made up of deposits from their account holders and that their result is derived from the difference between the rate paid to capture these deposits from the rate charged to those who need them. In Taylor's view (2013), the best banks will be the ones that raise the cheapest and lend more expensive within a certain level of credit risk.

In an operation to discount trade acceptance bills or checks, however, the role of factoring and commercial banks has a great similarity. In both cases, the financial agent transfers resources to customers. It takes collateralized receivables as guarantee. The main difference between the two operations, in this case, would be the way they are funded. In banks, capital is regulated and financed by the depositaries. In the factoring agencies, in turn, the capital employed is often their own and this gives greater flexibility to investment. As a consequence, factoring can cede resources to customers that banks would not cede due to, for example, having cadastral restrictions. This aspect was pointed out in the research of Eckert, Rizzon, Mecca and Biasio (2015).

In addition, commercial banks need the authorization of the Central Bank to operate, differently from developers who do not require such authorization (Gonçalves, 2012). Falcão (2001, p. 4) cites factoring as "a limited, or anonymous, mercantile company whose legal existence arises with the filing of its constituent acts at the Commercial Board".

2.2 Credit and risk

The word credit originates from the Latin creditum and means confidence or security of something (Securato, 2002). According to Schrickel (1997, p. 25), "credit is every act of willingness of someone to highlight or temporarily assign part of his or her equity to a third party, with the expectation that this portion will return to his/her possession in full, after the stipulated time".

Credit can be considered as an important instrument in the development of an economy, since it aims to finance and foster deficit agents, such as the State, companies and families (Palmuti & Picchiai, 2012).

In the context of this work, credit consists in the provision of a certain amount to a company as payment for the negotiation of a security with future maturity, and with the expectation of payment of the security by another company, that bought a particular product or had the provision of after the agreed period. Thus, it represents the expectation of the institution, which put the value in the market, to receive it at a future date (Brito & Assaf, 2008a; Brito & Assaf, 2008b; Silva, 2014).

However, the fact that there is an expectation of future return entails the existence of a risk that it will not be realized. The credit involved in the transaction is associated with the risk that the borrower does not make the settlement under the agreed conditions. This risk is known as credit risk and, as defined by Jorion (2011), is the risk of an economic loss derived from the failure of a counterparty to fulfill its contractual obligations, that is, to fail to pay the agreed upon risk.

In the case of banks and factoring, this is the main risk underlying their receivables anticipation operations. Jorion (2011) composes credit risk based on three elements: default risk, recovery risk and market risk. For the author, the default risk and the recovery risk can be managed, but market risk affects the entire system. Although the credit risk inherent in the activity of anticipating banks and factoring is not subject to elimination in its entirety, it can be minimized through efficient management. (Brito, Assaf & Corrar, 2009; Capelletto & Corrar,

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2008; Dantas, Rodrigues, Rodrigues, & Capelletto, 2010; Palmuti & Picchiai, 2012; Schrickel, 1997; Silva, 2014; Souza, 2015).

Jorion (2011) points out three main drivers for determining credit risk: (1) the probability of default, (2) the credit exposure, and (3) the actual loss resulting from the default (it is the loss less what was recovered). When it comes to dealing in receivables, there is yet another element, which is the default probability of the original borrower of the obligation. In the case of banks this risk is managed directly with your customer. The bank evaluates the credit of those who will make the transaction of anticipation of the receivables. In the case of non-payment of the counterparty originating from the security, the bank charges the amount of the customer who made the anticipation.

Therefore, the bank does not merit the quality of the receivable that it takes as guarantee, since it has the right of return in the transaction. In the case of factoring this right of return is not yet legally well established, which may increase the focus of its risk analysis, leaving only the customer (as in banks) and also including the debtor originating from the security. In short, each institution, whether financial or not, can analyze the risk involved in discount operations in its own way (Katayama, 2003; Silva, 2014). Credit institutions need sound policies to measure and control such risks in order to avoid insolvency and financial success through profit (Capelletto & Corrar, 2008).

In addition to the intrinsic risk of the customer and the security that are involved in the negotiation, there is a macroeconomic or market risk. Hull (2015) points out that market risk is linked to the future movement of market variables. In the case of dealing in receivables, the market variables that may affect credit risk are: the basic interest rate represented by Selic and the general default level of the economy. Market risk sensitivity is the only one that can be tested because it does not depend on the individual credit model of each bank or financial institution. The correlation of the discount rate of receivables practiced by factorings and banks with market variables may be a sign of the complexity of the credit analysis models present in such entities. The more correlated with the lower market risk will be the weight that the risk of the individual analysis of the customer will have in the composition of the total credit risk.

In the case of banks, a lower correlation is expected because their models are able to assess the particularities of each customer or portfolio of customers with greater accuracy, which makes their model less susceptible to general fluctuations in the economy. Factoring is the opposite. A greater correlation with economic variables is expected because they do not invest in models as sophisticated as banks.

In the banking risk model, statistical programs are used to classify the customer companies according to their probability of default. Depending on the test result the company fits into a risk group. The credit concession is also tied to the statistical models used and the group in which the company fits. The model is more general and has greater accuracy (Gonçalves et. al., 2013; Palmuti & Picchiai, 2012).

In addition, banks often operate with larger companies that have a credit analysis performed by rating agencies, which can aid in the accuracy of risk models. In factoring, the analysis is done on an individual basis to each customer company and to each company responsible for the purchased security, since it is understood that each one of these companies has its peculiarities, its way of managing and its business perspectives. Risk classification is performed more flexibly by the factoring company manager. The decision to grant credit is more dynamic and directed to each situation (Diario de Comercio, 2016, Lima, Ensslin, & Montibeller, 2008; Wolf, 2008) .Eckert et al. (2015) even point out that factoring agencies are highly sought after by firms with cadastral restrictions because of their greater flexibility in granting credit.

The view of the risks involved in operations can directly affect the rate applied since it must absorb the risk of loss. In the rate used by banks are included the cost of purchased capital from third parties, the banking spread, the risk involved and the taxes. In factoring, the composition of the purchase factor includes the opportunity cost of equity, fixed and variable costs, operating taxes, collection expenses and risk and profit expectation (Anfac, 2017; Gonçalves et. al., 2013).

2.3 Related research

At the national level, the work related to factoring is more theoretical and hardly presents empirical data. For the most part, they cite what the activity is and how it can help companies that need working capital (Gonçalves, 2012; Silveira, 2010; Stabile, 2012). Those who present some empirical data use a questionnaire or case study to base their analyzes and seek to investigate aspects related to the management models of factoring companies or the reasons that send other companies to use their services (Wolf, 2008; Decker& Gomes, 2014; Rotta& Lima, 2006; Eckert *et al.,* 2015).

Among the outstanding theoretical works, Gonçalves (2012) and Silveira (2010) describe the origin of the activity and the history in Brazil. Wolf (2008), in turn, presents the activity and analysis procedures for granting credit used by a factoring.

Silveira (2010) and Wolf (2008) also cite the lack of interaction between accounting and factoring agencies. According to Silveira (2010), the accountant needs to know this modality better, taking into account the number of companies that use the services. This would avoid problems at the time of accounting and add knowledge. The author also points out that a small number of factorings are managed by accounting professionals. Wolf (2008), in his research, sought to present, through an interview and data collection, the practices adopted by a factoring to grant credit to its customer companies. The author suggested that the company studied use more the indexes and the accounting data of its customers for the analyzes performed.

Regarding the work related to credit risk, those developed by Brito and Assaf Neto (2008a), Brito and Assaf Neto (2008b) and Brito, Assaf Neto and Corrar (2009) can be highlighted. The authors sought to highlight risk classification models, with companies listed on BM&FBOVESPA. The data used were financial economic indexes, drawn from the Securities and Exchange Commission (CVM) or Economática® software, in order to classify the companies used in the samples in solvents and insolvent, and after analyzing the risk classification systems, to evaluate the risks of the credits granted to companies or propose procedures to measure such risks. The statistical technique used in the three studies was logistic regression, in which the dependent variable is categorical and assumes one of two possible outcomes (binary), such as: "failure or success", "solvent or insolvent".

The research conducted by Brito and Assaf Neto (2008a) aimed to develop a risk classification model to measure the credit risk of companies in the Brazilian scenario. The results indicate that the model of classification of such risks, developed by the authors, predicts default events one year in advance and with a good level of precision. The work also indicates that the financial statements have information that makes it possible to classify companies as probable solvent or probable insolvent.

The other study developed by the same authors, Brito and Assaf Neto (2008b), proposed a set of methods to evaluate the credit risk granted by banks to companies. A simple conceptual approach was used. The proposed model used a methodology based on the simulation of the explanatory variables of a credit scoring model - a method used by financial institutions to verify the default risk of the credit requesting company. The results obtained with the research show that the model proposed by the authors represents an option that allows for the risk of measured loan portfolios.

Finally, the research by Brito, Assaf Neto and Corrar (2009) examined whether default events of listed companies in the country could be predicted by a credit rating system based on accounting indices. The proposed system used cluster analysis to classify firms into risk classes. The variable used to confer the risk classification to the companies was the probability of default, foreseen in the credit risk model prepared by Brito and Assaf Neto (2008a). The system assigned annual ratings to companies. Next, risk migration matrices were generated. The results demonstrate that the risk classification system developed shows the risk of insolvent companies prior to the year of default. Most of these companies were classified in the worst risk classes or showed migrations to lower classes in the years after the default.

In theoretical terms, this work can contribute with empirical evidence on the difference in the behavior of the rates charged by banks and factoring in receivables discount operations. As previously mentioned, some works, such as Stabile (2012) and Eckert et al. (2015), point out advantages and disadvantages of operating with factoring agencies, but without a relevant

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empirical contribution. This research seeks to show with data that the cost of raising discount receivables operations in factoring agencies is much higher than in banks and that this cost may be linked to the more rudimentary and flexible credit risk analysis model used.

3 RESEARCH DESIGN

3.1 Collection and organization of data

In order to satisfy the aim proposed in this study, a quantitative approach was chosen, with a descriptive character, using the average rates charged by banks and factoring in the negotiation of receivables between the years 2012 and 2016. The data of the factoring agencies were withdrawn from the website of National Factoring Association (ANFAC), while bank variables were obtained from the website of the Central Bank of Brazil (BACEN).

The historical series of the purchase factor factoring was found in the magazine Fomento Comercial, edition number 102 - referring to the months of October, November and December of 2016 - present on the Anfac website. No adjustment was necessary in the factor, since it represents the general costs and the profit margin of the raising of such companies.

The bank variables, found on the Bacen website, were obtained in "interest rate". "Credit transaction interest rate" was selected, then "history after 01/01/2012" was selected. The next field has been changed to legal entity and the modality for trade acceptance bill discount and later check discount. This was done, since the average factor of factorings had already been obtained by joining the purchase of trade acceptance bills and checks and also on a monthly basis, while at the bank rate it was necessary to make the sum of the rate applied to trade acceptance bills and checks and calculate the monthly rate since it was found in weekly.

The rates on the Central Bank's website were arranged in intervals of days. One period of days differed from the other by the exclusion of the last business day and the sum of the subsequent business day. As some days were repeated in the periods, the intervals of time were separated, so that they could be distinct, but without omitting any day. The sum of the bank rates corresponding to each selected period was then calculated and divided by the number of banks in the time interval of the period, since the number of banks disposed in the website changed in the intervals of days. Some institutions did not operate in the modalities in the referred periods or did not provide information to the Central Bank.

Subsequently, they were grouped roughly to represent the weeks of each month. After that, the group rates were added in periods, which represented the weeks, and divided by the number of weeks of each month. The procedure was applied first for the trade acceptance bill discount and later for the check discount. Finally, adding the rates of trade acceptance bills and checks, since the periods were identical, and dividing them by two, the average monthly rate of the banks was obtained.

This average rate represents the average of the rates charged by all banks in the periods of interstices analyzed. Since within this average there are banks with very different characteristics and this could influence it, a sensitivity analysis was made only with the rates charged by the six largest banks in the country (to perform the sensitivity analysis): These are: Banco Bradesco, Banco do Brasil, Banco Santander, Caixa Econômica Federal, HSBC Bank Brasil (this one with data prepared until October 2016, was later incorporated into Banco Bradesco) and Itaú Unibanco. The process of data organization was the same applied at the rate of all banks.

In order to fulfill the research goal, secondary data were also obtained, in order to analyze the reflection of the different rates applied in the negotiation of the receivables and in the risk models applied. The secondary data were the SELIC rate and the default indicator, both obtained on the Central Bank website. No adjustment was required at these rates.

The SELIC rate was caught in "interest rate", "daily Selic rate"; the "accumulated factors" option was selected and then the monthly option. The default indicator was found on the "economy and finances" tab, in the "time series" guide, the "Access to the SGS (Time Series Management System)" option was selected, then accessed "Delays and defaults", then

"Default", and subsequently "Portfolio Default - Legal Entities - Total". The series was consulted, then the desired period was selected and finally the values were consulted.

It should be noted that the rates used by both factoring and banks are the general average effective rates, that is, the credit risk of each customer is not considered. This is a limitation of the work, since the rates charged between the best and worst customers may not vary in a homogeneous way.

3.2 Statistical tests

For the data analysis, three main statistical tests were used: the parametric means test of independent samples to verify if the differences between the rates charged are statistically significant, the D-Cohen statistic to calculate the size of the effect of the differences between the rates and the correlation of Pearson to verify the relation of the rates with other economic measures, in order to raise possible justifications for the results found.

The first test performed in the work was the means of independent samples. The first step of this test was to verify the normality of the data to define the type of test applied: parametric or non-parametric. The results (not shown) of the normality tests showed that the data presented normal distribution, therefore, it was opted to use the parametric means test (which follow the parameters of the normal distribution). The second step of the means test was to analyze the homogeneity of the variance between the samples of rates. In this case, the hypothesis of homogeneity was rejected and it was necessary to use a correction in the test that leaves it more conservative, since it increases the standard error and the size of the non-rejection interval of the null hypothesis (of non-statistical significance).

In order to verify the size of the effect on the variables, the D statistic of Cohen (1998) was applied. According to the author, this statistic portrays the degree to which the phenomenon is present in the population or the degree to which the null hypothesis is false. Cohen (1998) points out that the larger the effect size, the greater the degree to which the phenomena studied is manifested, and if the null hypothesis is not rejected or the D statistic contains zero within its confidence interval is equal to say that the effect is null. The formula for calculating the D statistic uses the mean of the populations and the standard deviation set between them. This relationship can be expressed as follows for a non-directional (two-tailed) effect:

$$\mathcal{D} = \frac{|m_A - m_B|}{\sigma}$$

Equation (1)

On what:

m_A = Mean of population A.

m_B = Mean of population B.

σ = Population set standard deviation.

Finally, a correlation analysis of the bank rates and the ANFAC factor with economic indicators of the basic economic rate and of default was made. This analysis was made with the purpose of justifying the differences found between the rates based on their relationship with the economic indicators.

The tests were performed with the aid of STATA13® software. The description of the variables used in the work is shown in Figure 1.

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Variable	Description	Source
Anfac Factor	Indicator that indicates the reference price of purchase of credits for the factoring (mere parameter). The composition of the factor takes into account the items: cost - opportunity of equity, fixed costs, variable costs, operating taxes, collection expenses and risk / profit expectations. In the composition of the factor calculation, ANFAC uses as an indication of the cost - opportunity the Bank Deposit Certificate - CDB rate (security issued by a financial institution of 1 st line, with interest rate fixed for 30 - day periods).	ANFAC
Bank Rate	They correspond to arithmetic averages weighted by the values of the operations contracted in the five business days mentioned in each presented period. These rates represent the average effective cost of credit operations to customers, composed of interest rates effectively practiced by financial institutions in their credit operations, plus tax and operating charges on operations.	BACEN
Selic Rate	Adjusted average rate of daily financings determined in the Special Settlement and Custody System (Selic) for federal securities. For the purpose of calculating the rate, the daily financing of the transactions recorded and settled in the Selic itself and in systems operated by clearing houses or providers of clearing and settlement services (Article 1 of Circular No. 2,900, dated June 24, 1999, with the amendment introduced by article 1 of Circular No. 3,119, of April 18, 2002).	BACEN
Default Indicator	Percentage of the loan portfolio of the National Financial System with at least one installment with arrears greater than 90 days. Includes operations contracted in the free credit segment and in the targeted credit segment.	BACEN

Figure 1. Description of the variables used in the research

4 PRESENTATION AND ANALYSIS OF RESULTS

4.1 Descriptive Statistics

The monthly data of five years were used, from January 2012 to December 2016, totaling sixty observations for each variable analyzed. The average of the rates indicates a higher value of the ANFAC factor compared to the bank rate, which was already expected due to a higher risk in factoring activities. The maximum and minimum values of the two main variables also differ, but within an interval close to 1 percentage point. The standard deviation of the ANFAC factor was much higher than the bank rate. This greater deviation denotes a greater dispersion of the factoring rate within the analyzed period. It may be an indication of the malleability in the credit granting process of factoring agencies, since the rate rises and falls within a larger range, that is, it is a more flexible rate than the rate of banks that change within a smaller range over time.

Table 1
Statistics of the variables used in the research

Variables	Nº of Observations	Average	Standard Deviation	Minimum	Maximum
ANFAC	60	4.04	0.40	3.56	4.69
BACEN	60	2.68	0.28	2.34	3.45
SELIC	60	0.87	0.20	0.49	1.22
DEFAULT	60	2.35	0.46	1.80	3.61

The next analysis was to verify the trend of the behavior of the two rates within the analyzed period. This is shown in Figure 2. It can be seen from the graph that the ANFAC factor is constantly higher than the banks rate. The variation in rates, on the other hand, showed that banks had a more radical increase in the rate at the beginning of 2016. This may be related to some economic deterioration in the period, such as an increase in the default rate that did not have such a radical reflection on factoring because they already operate in a larger default environment. The work done by Dodl (2006) also presents a graph with some credit modalities, including the variables ANFAC factor and BACEN rate, in comparison to the SELIC rate.
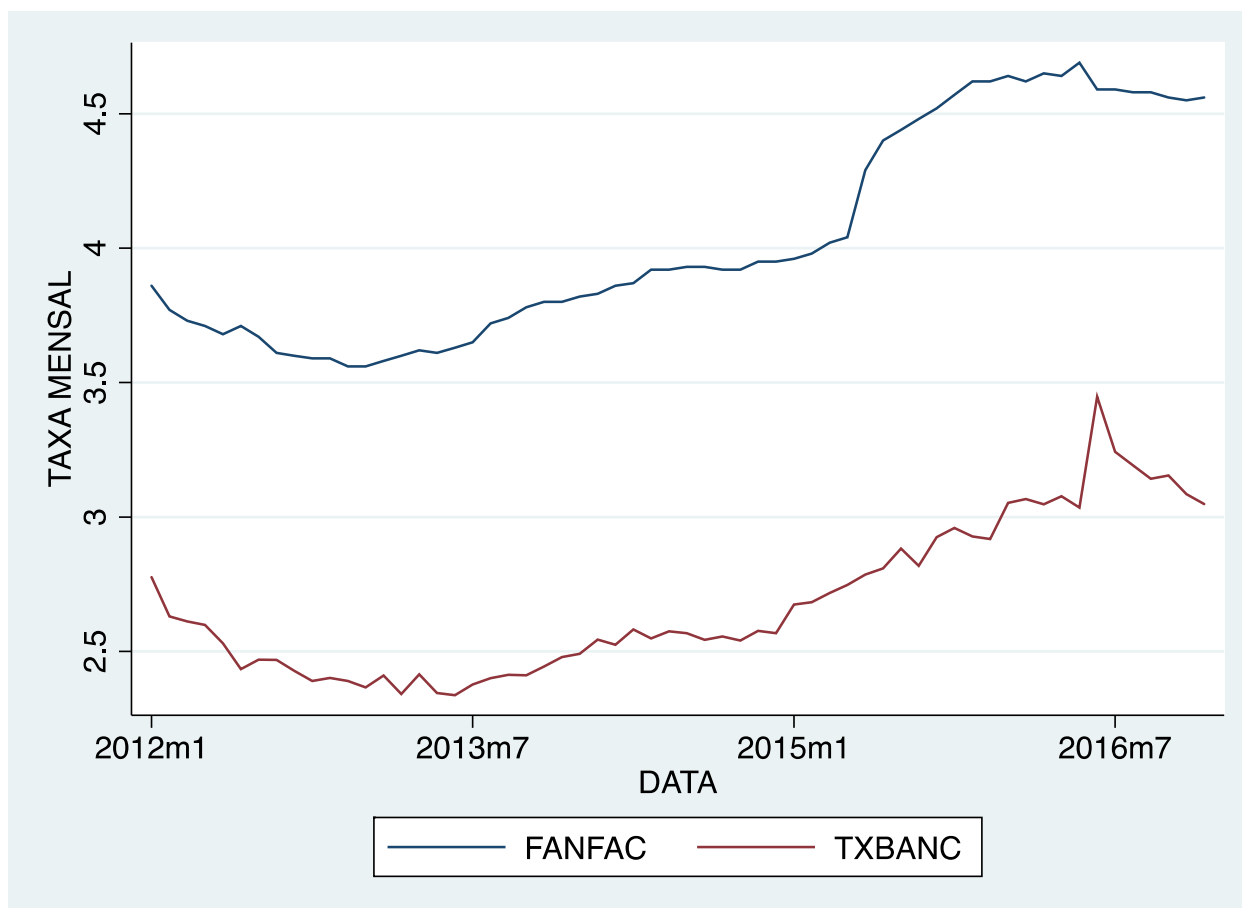

Figure 2. Evolution of the monthly average rates over time

The data used in this work refer to January 2001 to November 2004. According to Dodl (2006), obtaining the discount of trade acceptance bill in the banks has a lower cost to the customer company. However, the use of factoring services can be explained by the fragility of management controls in credit contracting companies, which increases credit risk and hampers the process of raising funds with banks. In addition, the activities provided by the factoring agencies include a series of market analyzes. They contribute to the management of the companies requesting the credit.

4.2 Results of statistical tests

The next step of the research was the analysis of the statistical tests. The first test was averages. Their results are set forth in Table 2.

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Table 2
Results of the test of averages between the rates analyzed

Variables	Obs	Average	Standard Error	Standard Deviation	[95% Confidence Interval]	
ANFAC	60	4.036333	0.051043	0.395380	3.934196	4.138471
BACEN	60	2.681918	0.036315	0.281295	2.609252	2.754584
Combined	120	3.359126	0.069474	0.761052	3.221560	3.496692
Dif	60	1.354415*	0.062644		1.230226	1.478605

Note. * denotes statistical significance at a level of P-value <1% bi-flow. The statistical test used was the test for independent samples with control of variance homogeneity.

Based on the results, it can be seen that the average ANFAC factor is significantly higher than the average rate charged by the banks. It should be noted that both rates are effective and already include all the costs of the discount operation, such as the rates charged by the institutions. The difference obtained between the average rates was 1.35% and its range of variation is relatively small, according to the standard error obtained. Based on the data obtained, it is inferred that the rates charged by the factorings reflect their risk environment and that they transfer the cost directly to the borrower because the rates charged are significantly higher.

The second test was the Cohen D, in order to evaluate the magnitude of the difference between the variables. According to Cohen (1988), the effect size is classified as small, medium and large. A statistic with D <0.20 has a small effect; between 0.21 <D <0.79 an average effect and D> 0.80 a large effect. This research has an effect of 3.95. Therefore, it has a large distribution pattern in relation to the Cohen D test, as observed in Table 3.

Table 3
Effect size test results

Effect Size	Estimate	[95% Confidence Interval]	
Cohen's Test (d)	3.947438	3.305338	4.583145

Note. According to Cohen (1988), effect size has the following average distribution pattern in relation to the D-Cohen result: a statistic D <0.20 represents a small effect; between 0.21 <D <0.79 an average effect and when it is D> 0.80 a large effect.

The evidence provided by the Cohen (1988) test corroborates the statistical significance of the differences and indicates that the size of the difference between the rates is also economically significant for the borrower, that is, the criteria adopted in the granting of credit affect relevantly the borrowers in anticipation of the factoring agencies compared to the borrowers in the anticipation of the banks.

These results corroborate those of the theoretical works of Stabile (2012) and Eckert et al. (2015). The cost of raising funds through the discount of receivables in factoring agencies is significantly and economically higher than in banks. Stabile (2012) points out that among the reasons that generate this difference are the cost of malleability, which makes the operation more expensive and not always advantageous for those who need to raise funds. Eckert et al. (2015) also follow the same line and point out, based on the results of their research that companies, which need to finance their working capital, do so in factoring, mainly because they have cadastral restrictions, which makes such operations impossible in banks. In addition, the researchers point out that respondents also choose factoring agencies because they have a low operating limit on banks and in factoring the process is less bureaucratic.

In order to try to understand the possible reasons why there are significant differences between rates, a correlation analysis of the rates used with some economic variables, such as the basic rate of the economy and the default indicator (Table 4), was made.

Table 4
Correlation between variables

	ANFAC	BACEN	SELIC	DEFAULT
ANFAC	1			
BACEN	0.9392*	1		
SELIC	0.9261*	0.878*	1	
DEFAULT	0.7478*	0.8139*	0.5736*	1

Note. * denotes statistical significance at a level of P-value <1% bi-flow.

The results obtained with the correlation test provide some inferences about the relation of the rates charged with other indicators. The first aspect, which can be observed, is the higher correlation of the ANFAC factor with the SELIC (0.9261) than the rate charged by the banks with SELIC (0.878). This may be an aspect related to the malleability and sophistication of credit risk analysis models. A higher correlation with SELIC is an indication that the factoring rate follows more the global economic picture (market risk) than the rate charged by banks, which depends more on their own credit analysis model. This was also clear in the correlation of the rates with the default indicator. The ANFAC factor is less correlated with default (0.7478) than the banks rate (0.8139). This higher correlation indicates that bank rates vary more closely from default than the ANFAC factor and may be a reflection of the fact that banks transfer this cost more quickly and more accurately to their rates, which does not occur in factoring agencies, for undertaking a more flexible and less bureaucratic process of credit analysis (Eckert *et al.,* 2015).

4.3 Sensitivity analysis

Finally, a sensitivity analysis was made with the rates charged by the six largest commercial banks in Brazil (Bradesco, Banco do Brasil, Banco Santander, Caixa Econômica Federal, HSBC Bank Brasil and Itaú Unibanco). As the average bank rate involved all banks with trade acceptance bills and check discount transactions, it would be possible that, by involving banks with diversified operations, cheaper and more expensive rates could distort average results. In this way, the main banks (those with the largest customer base, which increases the probability of being searched for this type of operation) were selected to perform a sensitivity analysis with their average rates. The results of this analysis are shown in Table 5.

Table 5
Sensitivity analysis results

Variables	Obs	Average	Standard Error	Standard Deviation	[95% Confidence Interval]	
ANFAC	60	4.036330	0.051043	0.395380	3.934196	4.138471
BACEN	60	2.572373	0.046371	0.359190	2.479585	2.665162
Combined	120	3.304353	0.075375	0.825694	3.155103	3.453604
Dif	60	1.463960*	0.068962		1.327397	1.600523

Note. * denotes statistical significance at a level of P-value <1% bi-flow. The statistical test used was the t test for independent samples with control of variance homogeneity.

On the basis of the results, it can be seen that there was a slight increase in the differences between the rates charged when only large banks were taken into account, that is, the statistical significance remained the same.

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4.4 Evaluation and implications of results

The results obtained by the work confirm that there is a significant and relevant difference between the rate charged by factorings (ANFAC factor) and the average rate charged by the banks in the operations of anticipation of receivables. Among the possible factors that explain this difference is the level of sophistication of risk analysis models employed by factoring agencies and banks. At the time of anticipation of financial resources, banks and factories analyze customer companies, credit borrowing companies and marketable securities in divergent ways. Companies that need credit and have cadastral restrictions are more difficult to operate with banks and end up using factorings as an alternative. This aspect was pointed out in the research by Eckert et al. (2015). On the other hand, the financial institutions do not usually examine the debtor companies because they consider that this analysis has already been performed by the company that gives the security to discount. Factorings also check the credit risk, also based on the debtor of the security, which increases the scope of its service compared to commercial banks.

Works such as those by Wolf (2008) and Wloch (2006) also highlight some differences between activities and emphasize that the factoring agency works together with its customers, providing a series of non-credit services, which makes both business, and this could bring a reflection on the rates charged. According to Dodl (2006), companies initially seek the working capital they need, but the differential of factoring services are in the long term.

Finally, another point that can be considered as a reason for the difference in the applied rates is the right or not to the factoring return (if the debtor does not pay the agreed security, the creditor institution has the right, or not, to collect the amount negotiated from its customer company). In cases in which the factoring company cannot return the values of the receivables with its customer companies, it will have to assume as loss the receivable acquired and not paid by the debtor company. On this subject, there is a lack of specific legislation regulating such activity, which has opposite positions in both jurisprudence and doctrine. In financial institutions, the theme is consonant. Goulart & Paulo (2011, p. 296) cite that, "the bank has direct return against the cedent of the security in the event of default." Thus, if the debtor does not fulfill his obligation of discharge, the financial institution charges the company that made the discount of the security. It is guaranteed, therefore, that there will be no loss in the discounted security.

All of these factors may be the driving force behind the differences found between rates in this research. However, despite these motivational factors and the role that factorings have as a mechanism of development in a more malleable economy and in the midst of small companies (Batista & Junior, 2012; Silveira, 2010), the rates charged by them reflect greater risk. For whom need to anticipate their receivables, it is more economically feasible to look for a commercial bank because they have a lower effective rate. If the customer does not have the necessary credit score or has some restriction that prevents the assignment of bank credit the solution is to anticipate the receivables in a factoring.

5 CONCLUSIONS

This research aimed to analyze the difference between the average rates used by commercial banks and factoring companies in the negotiation of corporate receivables in the Brazilian scenario. The analyzed period comprises the last five years and it was analyzed how different the rates are, as well as the possible explanations for the phenomenon observed.

The results show that the main variables, ANFAC factor and bank rate, follow a similar trend of increase or decrease over the periods. However, their values differ markedly. The ANFAC factor of factorings, which is the average rate charged to make the anticipation of receivables, is significantly higher than the effective average rate charged by the banks, which can be explained by the risk model applied and the peculiarities of the two activities. Jorion

(2011) and Hull (2015) point out that there are several types of models to analyze credit risk and that each model must be adapted to the risk appetite of the company that analyzes it. Due to the differences between the forms of financing, regulation and even the design of its activities, banks and factoring companies are likely to have different models. The banking risk model is generally quite technological and more accurate, while the factoring model is more malleable and less bureaucratic, which allows it to be more targeted to each customer business situation, but at a higher rate. This aspect was reflected in the correlation analysis, which showed a higher ratio of banks to default and lower SELIC, compared to the ANFAC factor rate, which showed the opposite and showed a higher correlation with the base rate and lower with default.

In the market, a reflection of this significantly higher rate charged by factorings is that companies end up using their services in the second instance or when they have some cadastral restriction that prevents them from operating with banks (Stabile, 2012). With this, the risk involved in the factoring operation ends up being superior to the banking one and must be passed on the applied rate.

One limitation of this research is that it was not possible to deepen the composition of the applied rates, verifying cost, risk and profit of each institution. Another limitation was the small amount of work found with related topics. As a suggestion, other research may be more focused on the rates charged with more advanced econometric models to try to discover novelties in the behavior of such rates. Another point that can be deepened is a study more directed to a specific region or sector of the market that seeks to assist companies in the management of their business.

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