ISSN: 2047 - 0398
SPECIAL ISSUE – V|4|N|3|, December | 2014

THE AGENCY THEORY AND THE IDENTIFICATION OF CORPORATE FRAUD: A Study Applied to Brazilian Banks

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ABSTRACT

This research investigated the occurrence of corporate fraud in Brazilian banks from January 2001 to December 2012, seven tests hypotheses constructed from agency theory and grouped in the dimensions of Cressey's fraud triangle (1953). The study was designed to identify the factors that influence the likelihood of fraud, based on the model of logit regression multinomial, adapted to each of the hypotheses of work. The hypotheses were grouped into the three dimensions of the triangle of fraud, which are pressure, opportunity and rationalization, which were tested in isolation. For the pressure dimension were confirmed hypotheses 01 and 03, indicating in particular that the higher the largest database size is the likelihood of corporate fraud, and that the stock market value has the opposite effect. In the dimension of opportunity were confirmed hypotheses 04 and 05, suggesting that low corporate governance indicators and the provision for loan losses increase the likelihood of corporate fraud. For the measurement of rationalization was confirmed the hypothesis 07, indicating that the presence of managers trained in business decreases the likelihood of corporate fraud. It follows, therefore, that the agency theory, combined with the triangle Cressey, constitutes an appropriate tool to direct the investigation of the occurrence of corporate fraud in financial institutions.

Keywords: *Banking Institutions; Corporate fraud; Agency Theory; Fraud Triangle*

1. INTRODUCTION

The agency relationship in companies born from the separation of ownership and control. The owner delegates the management functions to one or more persons for the purpose of this work to meet their goals (Ross, 1973; Jensen & Meckling, 1976). However, the parties have different preferences and expectations. The owners want to maximize company profitability while managers aims to increase the size of the company, setting, so the agency conflicts.

In an attempt to solve the agency conflicts owners incur costs to monitor the actions of managers. However, monitoring may not be perfect. As the owners, managers wish to increase their own wealth and, therefore, if not complete, use the position and inside knowledge about the company's corporate governance system information to commit corporate fraud, generating what is called violation of trust between owner and manager (Troy, Smith & Domino, 2011).

The violation of trust between owners and managers caused by fraud is the object of analysis of both the agency theory and criminology. For the theory, the agency relationship may create conflicts of interest due to the differences in goals between the parties, so search agency theory to solve these conflicts. In the criminology observed the study of Cressey (1953), through interviews with individuals fraudsters, developed a hypothesis about the behavior of these individuals. This hypothesis is known as triangle of fraud and is now used by the accounting audit area in identifying fraud risk factors, as can be seen in the regulations of the AICPA - American Institute of Certified Public Accountants, SAS 99, 2002 and Resolution No 1207 2009 CFC - Federal Accounting Council.

Research on fraud and ways of detection showed an increase in the literature from the wave of corporate scandals in the years before 2000 (Wang, Winton & Yu, 2010). In studies are those aimed to check the impact of corporate governance mechanisms and executive compensation in fraud detection models (Beasley, 1996; Erickson, Halon

& Maydew, 2006; Crutcheley, Jensen & Marshall, 2008; Wang, Winton & Yu, 2010) and others that address the alignment between financial and non-financial (Brazel, Jones & Zimbelman, 2009) for detection.

The referenced research have two points that are worth mentioning. The first is the limitation of the study, by not contemplate corporate fraud that do not directly impact on the financial statements; corporate fraud occur within the corporation, and include those classified as financial. The second important point is that we raised studies, banking institutions were not analyzed separately. And according to the importance of these institutions to the economic context, the role of financial intermediaries and as external capital providers to other market activities it is clear that the losses of a fraud in a large bank will be felt by the rest of the economy, so understand and find means for its prevention and detection is crucial for the whole society. Thus, the analysis of the phenomenon in screen, corporate fraud, will contribute to the literature by deal specifically with banking institutions and expand the analysis of the fraud carried out, from the accounting fraud to corporate.

In this context, this research aims to answer the question: How does the Agency Theory and the Fraud Triangle may contribute to the investigation of the occurrence of corporate fraud in Brazilian banks? Is established as the main objective to investigate the occurrence of corporate fraud in Brazilian banks using detection of factors proposed by the agency theory and grouped according to the dimensions of the triangle of fraud.

2. THEORY AND HYPOTHESES

2.1 Agency Theory

The separation of ownership and control led to the occurrence of new relations agency. These relationships arise when one or more people - the agent - working for or on behalf of another - the main - with a particular domain decision (Ross, 1973; Jensen & Meckling, 1976). Therefore he called the main, in the expectation that their goals are met, will delegate the management function for the agent to make decisions on your behalf.

Following the thought of Alchian and Demsetz (1973) and Goldberg (1976), Jensen and Meckling (1976) argue that the agency relationship is governed by contractual terms, and that a firm can be seen as a network of contracts, implicitly and explicitly between stakeholders such as shareholders, creditors, employees and society in general (John & Senbet, 1998).

As John and Senbet (1998) the payment structure of the classes of stakeholders are distinct, as well as the degree of alignment between these stakeholders with the agents who control the decisions of the company, because the parties are maximizing utility and have goals and different preferences. These distinctions between the goals of the parties give rise to conflicts known as agency problems, and these can be classified as: conflicts between shareholders and the direction; shareholders and debt holders; between the public and private; and finally, between agents of the public sector and society in general (John & Senbet, 1998).

For this research was approached the classic problem of agency: principal-agent. Derivatives agency problems of the relationship between owners and managers may adversely affect the efficient functioning of a company. To minimize these problems, the owners incur agency costs, which can be subdivided in charge of monitoring of managers, award costs of contractual guarantees by the agent and residual losses (Jensen & Meckling, 1976; John & Senbet, 1998).

The monitoring costs to Jensen and Meckling (1976) consist of the limitation of the main differences by creating appropriate incentives for the agent, which will limit their abnormal activity, and corporate governance mechanisms to limit abnormal activity of the agent. Already guarantees concession costs are resources that the agent will receive as a way to ensure that this does not make decisions that affect the main, but also to ensure that the principal will be compensated if the agent taking such decisions. The residual loss occurs when the cost of the total year of a contract exceeds its benefits (Fama & Jensen, 1983).

In addition to the measures to be used for monitoring the activities of managers described by Jensen and Meckling (1976), it can be said that between principal and agent there is a relationship of trust, in which the principal believes that the agent works for the purpose of meet your goals. However, this trust can be broken by the agent when, unlawfully, seek to maximize their own interests.

2.2 Corporate Fraud

The breach of trust of the study was marked by the work of Cressey (1953), which, through interviews with fraudsters, developed the hypothesis known as the triangle of fraud. Cressey (1953) abandoned the concept of embezzlement, a term used in the literature, and replaced him with criminal violation of financial trust, which expanded the fraud vision, to fit this new concept every individual who took a position of trust in good faith, and who raped her to commit a crime.

The hypothesis formulated by Cressey (1953) is based on the proposition that persons holding positions of trust become violators when they see with a financial problem not shared, and are aware that they can solve it secretly for violating the position of trust being able to apply their own conduct situations that enable them to adjust their conceptions of themselves as users or owners of entrusted funds. The elements of this triangle is presented in Figure 1.

The hypothesis of fraud triangle is represented by the literature in the dimensions of pressure, opportunity and rationalization. The pressure refers to something that happened in the personal life of the fraudster creating a stressful need, and this need can be classified as a non-shareable problem, motivating him to commit unlawful acts (Coenen, 2008; Singlenton & Singlenton, 2010). To Cressey (1953), the rapist considers several different situations in the production problems that are structured as non-shareable. And these problems are related to a required status or maintenance of the offenders behavior status. The opportunity is related to deficiencies in internal control of the company. And the rationalization is the process by which the individual overcomes their personal ethical objections to conduct fraud (O'Gara, 2004).

We can see that the triangle of fraud prepared by Cressey (1953) is related to the agency theory, as one of the premises of this triangle is that fraudster took a position of trust. Therefore, the fraudster is one of the leading agent that violated his position of financial trust, using the opportunities identified for conducting a fraud. These opportunities usually are linked to stocks of weaknesses in corporate governance of the entity. And these weaknesses translate into an imperfect monitoring by the corporation in the activities of managers. Thus, the agency theory and the fraud triangle appear to contribute to the identification of variables that allow the measurement of the likelihood of fraud in corporations.

2.3 Empirical Studies and Contemporary Hypotheses Search

Occur in the literature research, which sought to detect accounting fraud through econometric models to measure the likelihood of their occurrence as the Beasley (1996), Summers and Sweeney (1998), Abbott Park and Parker (2000), Spathis (2002), Erickson, Hanlon Maydew (2004; 2006), Crutchley, Jensen and Marshall (2007), Peng and Roell (2008) Brazel, Zimbelman and Jones (2009) and Pittman Lennox (2010), Troy Smith and Domino (2011), Wang, Winton and Yu (2010), Wang (2011). In these studies, we observe two common focus: the analysis of remuneration packages for managers and aspects of corporate governance for fraud detection, used by the agency theory as monitoring costs of the main managers. Both of great value to the screen theme of the study.

No different from the focus of the listed research fraud triangle dimensions can also be measured by these elements - pay structure and corporate governance - as you can see in the polls Brazel, Jones and Zimbelman (2009) and Troy Smith and Domino (2011).

Brazel, Jones and Zimbelman (2009) measured the effect of non-financial variables on the probability of accounting fraud, when using the fraud triangle to the design of the model variables, however, replacing the size of rationalization by accounting suspicion. The other dimensions, Brazel, Jones and Zimbelman (2009), in addition to financial data, indicators used interaction with the capital markets to measure the pressure of size, and for the opportunity to dimension made use of variables related to corporate governance company.

Have Troy Smith and Domino (2011), analyzed and measured the size of rationalization through the characteristics of managers such as age, number of management positions taken before becoming a manager and knowledge in business, which deserves to be highlighted in relation to other research presented.

The other studies listed in the first paragraph of this topic, different Brazel, Jones and Zimbelman (2009) and Troy Smith and Domino (2011), did not use the fraud triangle dimensions, however, showed variables that lead to measurement of their dimensions: pressure, opportunity and rationalization. This triad should also be taken into account in the different theme approaches.

The assumptions for the implementation of this study were prepared in accordance with the theory of agency, triangle fraud and results in empirical research already listed. Thus, seven cases were built, which are presented in three topics, one for each dimension of the triangle of fraud.

2.3.1 Fraud Triangle size: Pressure

The size of pressure relates to the pressures of personal and professional association in demand experienced by the manager or maintain behavior status (Cressey, 1953). Brazel, Jones and Zimbelman (2009) argue that this dimension include the induction of capital markets and compensation systems that result in a perceived benefit to commit fraud.

The owners are interested in maximizing the profitability of the company and managers, if they control the company, seeking to increase the size of the entity, as this is associated with the prestigious increase manager, risk diversification and the compensation (Tosi & gomez-Mejia, 1989; Rosen, 1990), however, this manager's position will decrease the wealth of its shareholders (Denis, Denis & Sarin, 1999). The size of the organization, Ryan and Wiggins (2001) argue that when a company gets bigger, managers have more resources at their disposal, the operations become more complex and the possibility of agency conflicts increases. Thus, increasing the size of the company, and therefore the complexity of its operations and conflicts arising from the agency relationship, managers can use this environment for the implementation of corporate fraud.

The theory stipulates agency that compensation policies provide incentives for the manager select and schedule actions that increase shareholder wealth (Jesen & Murphy, 1990). Among these policies are those related to company profitability, which will give a positive relationship between increased profitability and the manager's remuneration (Troy, Smith & Domino, 2011; Schrand & Zechman, 2012) and which impacts negatively on the probability the occurrence of corporate fraud. It is estimated, therefore, the existence of a relationship between firm size, profitability and structure of remuneration for managers, which enabled the creation of the following cases:

H1: The probability of corporate fraud is positively influenced by the size of banks.

H2: The likelihood of corporate fraud is negatively influenced by the wage compensation tied to profitability.

As the argument Brazel, Jones and Zimbelman, (2009), the pressure scale of the fraud triangle also includes interactions with the capital market. These interactions represent both the company's performance and market perception / shareholders for management exercised by corporate executives. It is expected that the interaction between companies and the market is negative for fraudadoras companies, representing, in the presence of event liable to corporate fraud identification, the market reacts negatively by reducing its stake in the company. Thus, the hypothesis was designed No. 03:

H3: The likelihood of corporate fraud is negatively influenced by the variation of the corporate stock market value.

2.3.2 Fraud Triangle size: Opportunity

The opportunities resulting from circumstances that offer chances for the manager commit fraud. For Troy Smith and Domino (2011) the opportunity arises from the privileged position of CEO - Chief Executive Officer - as chief executive of the organization therefore has confidential information about the company's financial position, knowledge of the weaknesses in the corporate governance structure and internal control, and is in a position of power and influence to engage in or facilitate the perpetration of fraud. As for governance mechanisms observed in the literature those related to the composition of the board of directors and independent audit elements. The first, board composition, it is essential as a corporate governance mechanism in market economies to exercise control over the executive board (JOHN and SENBET, 1998; Byrd, Parrino and PRITSCH, 1998). The second mechanism, independent audit, countersign the financial statements through the issuance of a report by external auditors whose opinion is unbiased. Thus developed the hypothesis No. 04, as follows:

H4: The likelihood of corporate fraud is positively affected by low indicators of corporate governance.

In addition to the corporate governance are recorded items endowed with subjectivity to the number of accounting choices allowed by the legislation of the area, such as depreciation of fixed and the provision for doubtful accounts. The latter is the subject of studies on earnings management, being used as the dependent variable management identification models, as can be seen in researches Ahme, Thomas and Takeda (1999), Fonseca and Gonzalez (2008) and Jiang Deboskey (2012). Therefore, this variable can create elements that lead to opportunities for implementation of corporate fraud, hence the hypothesis # 05:

H5: The likelihood of corporate fraud is positively affected by the provision for doubtful accounts.

2.3.3 Fraud Triangle size: Rationalization

The size of rationalization includes items that reveal the propensity of management to rationalize fraudulent behavior, to consider this behavior as "correct", acceptable and justifiable in solving a problem not shareable (Brazel, Jones & Zimbelman, 2009; Cressey, 1953) .

According to Troy, Smith and Domino (2011) elements such as age and training in business influence the cognitive behavior of the manager when the rationalization of fraud. Following the thinking of the authors as to the age of the manager before rationalize fraud manager with more experience, endowed with a wider range of experience and maturity, reflect on fraud discovery of repercussions in the financial statements, which can be devastating, given that there are reputational individual costs that the market imposes on individuals associated with these crimes. Therefore, following the thought of Troy Smith and Domino (2011) was elaborated the following research hypothesis:

H6: The likelihood of corporate fraud is negatively influenced by the age of managers.

As for the formation of the CEO, Troy Smith and Domino (2011) state that there is a preponderance of literature to indicate that higher education in business in general is associated with a more refined decision-making. Then, with an education geared to the business area, the manager will be less prone to rationalize an accounting fraud as executives trained in the business area will have a greater awareness of accounting fundamentals, subjects related to business processes, internal controls, role of the board of directors of monitoring and potential consequences and penalties of unethical behavior. Following this line of reasoning developed the hypothesis of paragraph 07:

H7: The likelihood of corporate fraud is negatively influenced by managers with training in business.

3. METHODOLOGY OF EMPIRICAL ANALYSIS

3.1 Methodological Procedures

The research is classified as empirical and quantitative approach. For the research, it was necessary to first identify the number of financial institutions for which the Central Bank of Brazil - Brazilian Central Bank - provides data inherent to the quarterly financial information - IFT. It was found that there are 231 institutions with data from January / 2001 to December 2012. From December 2012, the Central Bank stopped disclose quarterly information of the institutions on its review.

As there was a need for this research, collection of existing data also in the Annual Information (IANs) and reference forms available to the market, we chose to work only with financial institutions publicly traded and possessing quarterly financial information does not less than 3 years of age.

Due to this limitation is reached to 44 financial institutions, which comprised the sample survey. As the data was collected and organized quarterly, had a panel with 2,112 lines of comments.

For identification of the existence, or not, of corporate fraud, we adopted decisions taken by the Board of Appeals of the National Financial System (CRSFN), the body charged with judging at second and ultimately punitive administrative procedures by the Central Bank. Not had access to the data of first instance because, according to the Central Bank itself (2013), they are protected by bank secrecy, pursuant to Supplementary Law No. 105/2001. There were, for the study period, 121 punitive processes for 27 financial institutions, corresponding to 61.13% of the 44 institutions. Organizations that have not integrated fraudadoras ratio amounted to survey control sample, and therefore allows the identification of different patterns between the two groups of institutions: with and without corporate fraud. The cases were classified and organized by the type of demand, as Table 1.

It is observed in Table 1 that the main type of demand is related to foreign exchange transactions of banks, with 34.71% of the total, followed by loans with current accounts and deposits, rural credit and writ, which in total listed demands is 66.12% of the total punitive administrative proceedings.

It is noteworthy that for the classification of cases was observed the concept of corporate fraud, to that committed by or against a corporation (Singlenton & Singlenton, 2010), which allows the joint analysis of the types of agency conflicts in the corporation.

3.2 Econometric modeling

It was used to identify the likelihood of corporate fraud multinomial logistic regressions, whose independent variables were extracted from constant econometric models of international articles on fraud and management

 ISSN: 2047 - 0398
SPECIAL ISSUE – V|4|N|3|, December | 2014

results. To deepen the analysis of punitive administrative proceedings, it was decided to better qualify the dependent variable to point out not only the existence of fraud - order with processes - but also institutions with fraud evidence - without condemnation proceedings - and institutions that did not have processes - without trial.
The functional relationship between corporate fraud and independent variables was determined by applying a multinomial logistic regression, as follows:

$$Ln\Omega_{m\backslash b}(x) = ln\frac{\Pr(y = m\backslash x)}{\Pr(y = b\backslash x)} = x\,\beta_{m/b} \qquad para\ m = 1\ a\ j$$

Where

$$Y = \begin{cases} 0 = no\ process \\ 1 = Process\ without\ condemnation \\ 2 = Process\ with\ condemnation \end{cases}$$
$$x = f\ (pressure, opportunity, rationalization, control\ variables)$$

Formula 1 shows formally, the relationship between the dependent variable y and the independent variable x. In this, the reference category, which will be compared the other is represented by b, while the number of categories is displayed as m. For resolution of j equations we use the following equation to calculate the predicted probabilities:

$$PR\ (y = m\backslash x) = \frac{\exp(x\beta_{m\backslash b})}{\sum_{j=1}^{J}\exp(x\beta_{j\backslash b})}$$

The set of independent variables, x, is represented by measurements of fraud triangle dimensions as well as control variables. These variables were mostly defined with the help of the empirical literature on fraud and earnings management in banks.

In econometric models also been considered two control variables, as can be seen in Table 1. The first variable used to identify the type of bank, if multiple or commercial. And the second, the variable convergence, will be used in the models containing variables extracted from financial statements, in order to distinguish the period in which conversion to international accounting standards became effective, according to BCB's Resolution No. 3786 of 2009 emphasized was found that, as the Central Bank of information, the accounting standards established by the National Monetary Council and the Central Bank of Brazil embodied in COSIF - accounting Plan of the National Financial System institutions have differences with regard to international accounting standards issued by the IASB - International accounting Standard Board, representing a partial convergence with international accounting standards.

Table 1 shows the applied econometric models, divided by size of the fraud triangle, but also present the independent variables used in these models and the authors demonstrate that served as the source for the selection of these independent variables.

To verify that the use of the multinomial model is appropriate will apply the Hausman-MacFadden tests (1984) and Hsiao-Small (1985), in order to verify the independence of irrelevant alternatives, and therefore, the supposition independence between the terms error. In these tests, the marginal effect of the variables will be analyzed under each model in order to verify the contribution of each variable used in the likelihood of corporate fraud.

4 EMPIRICAL ANALYSIS

4.1 Results for the Dimension Fraud Triangle pressure

The results in testing the hypothesis # 01, on the relationship between size and likelihood of corporate fraud is presented in Table 2.

The test Hausman-MacFadden (1984) and Small-Hsiao (1985) show that, given the p-values greater than 0.05, the assumption of independence of irrelevant alternatives can be accepted, so mistakes can be considered independent .

Analysis of the results found for companies with evidence of fraud and for those convicted of fraud indicate that the size positively influences the occurrence of corporate fraud, which corroborates the findings of Lennox and Pittman (2010). And this result is further complemented by the reaction marginal effect of variable size on the likelihood of corporate fraud. In companies with marginally increased evidence of fraud in the probability is 0.6%, and companies convicted the increase is 0.7%, due to changes in size. Therefore, the hypothesis No. 01 was not rejected.

Hypothesis # 02 tests the relationship between the likelihood of corporate fraud and wage compensation tied to profitability. Thus, besides the variable profit sharing was used management compensation, approved at the regular meetings and the personnel expenditure growth. The results are shown in Table 3.

As the results presented in Table 3, both the Hausman as the Small-Hsiao (1985) show that the multinomial logistic model is adequate.

The variable profit sharing was significant only for companies with fraud evidence, showing a positive relationship with the probability of companies being framed as having evidence of corporate fraud. Have to pay, was significant for both companies as evidence for those who have been convicted of fraud, whose relationship with the probability is inversely proportional. Thus, the higher the remuneration of the lowest administration the likelihood of corporate fraud. The variable growth in personnel expenses was significant only for companies with corporate fraud evidence. This variable includes incentives tied to company profitability and the sign depicts expected by this research, the greater the incentives, the lower the likelihood of corporate fraud evidence. The results are in line with research Crutcheley, Jensen and Marshall (2008) found no evidence that the company's compensation structure plays a role in the potential for fraud.

Depending on the results found with profit sharing and growth in personnel expenses, it can not accept the hypothesis that the likelihood of corporate fraud is negatively influenced by the wage compensation tied to profitability.

Hypothesis # 03 concerns the relationship between the likelihood of corporate fraud and the stock market value of the company. The test results are shown in Table 4.

The test Hausman-MacFadden (1984) and Small-Hsiao (1985) show that, given the p-values greater than 0.05, the assumption of independence of irrelevant alternatives can be accepted, so mistakes can be considered independent .

For banks with fraud evidence only the variable open market significantly impacted their likelihood of occurrence, with a positive influence. This result corroborates the findings of Brazel, Jones and Zimbelman (2009) due to the positive coefficient found.

In banking institutions classified as fraudadoras the corporate stock market value variable was statistically significant and the coefficient sign was negative. This result indicates the market's perception regarding the occurrence of corporate fraud, in which it negatively react to the existence of fraud in the bank, the decrease in its stake in the company, indicating a positive change in the corporate stock market value will result in a decrease 9.04% in the probability of corporate fraud.

The results for the corporate bursábil value does not corroborate the findings of Lee, Ingram, and Howard (1999) and Brazel, Jones and Zimbelman (2009), because these studies the stock market value was not statistically significant compared the likelihood of fraud accounting. However, the results do not allow the rejection of the hypothesis # 03, so the likelihood of corporate fraud is negatively influenced by the variation of the corporate stock market value.

4.2 Results for the Fraud Triangle Opportunity Dimension

For this dimension were prepared hypotheses No. 04 and 05. Hypothesis # 04 tests the relationship between the likelihood of corporate fraud and low indicators of corporate governance. The results are shown in Table 5.

The test Hausman-MacFadden (1984) and Small-Hsiao (1985) show that, given the p-values greater than 0.05, the assumption of independence of irrelevant alternatives can be accepted, so mistakes can be considered independent.

According to the results of Table 5, the size of the top management had a positive and statistically significant relationship with the probability of fraud evidence. Thus, the increase of a executive on the top management will result in an increase of 0.3% in the probability of fraud evidence.

For institutions that have committed corporate fraud, among the variables classified as corporate governance, one that was statistically significant was the big five variable. As can be seen in Table 5, the big five variable influenced inversely corporate fraud, indicating that hiring an audit firm considered big five decreases the likelihood of corporate fraud. This result corroborates the findings of Lennox and Pittman (2010) that according to these authors this reflects the economic importance of audit quality. Thus, the likelihood of corporate fraud will have a marginal decrease of 0.2% if the institution uses external audit services of a company considered big five. The increase in the number of directors implies increasing the agency conflict. This is because owners and managers have different objectives, and there is good reason to believe that the manager does not always act in the best interest of the owner, which will result in higher monitoring costs (Jensen & Meckling, 1976). And as monitoring costs, hiring audit firms with higher market reputation will assist in controlling the actions of managers. Therefore, allow an increase in the number of top management, and hiring audit firms not considered as big five can be evaluated as low indicators of corporate governance. Therefore, we can not reject the hypothesis that the likelihood of corporate fraud is positively affected by low indicators of corporate governance.

Hypothesis # 05 tests the relationship between the provision for loan losses and the likelihood of corporate fraud. Table 6 shows the results.

Small Hsiao-test (1985) indicates the model fit, since the p-values greater than 0.05 are thus the hypothesis of independence of irrelevant alternatives can not be rejected. The Likelihood Ratio test indicated that the model coefficients are statistically significant when analyzed together, and therefore, the model has a good fit into the survey data.

It can be seen by the results of table 6 that the provision for doubtful accounts was statistically significant for both institutions with evidence of fraud, and for those who have been convicted of corporate fraud. Therefore, the hypothesis # 06 of this research can not be rejected, and therefore the likelihood of corporate fraud is positively impacted by the provision for doubtful accounts. For companies with fraud evidence of the increase in the provision implies an increase in their probability of 0.36%, while the probability of a corporate fraud will increase by 0.57% by the increase in the provision for doubtful accounts. This result is consistent with the findings Crutchley, Jensen and Marshall (2007), which to analyze the effect of earnings management for the occurrence fraud, used the absolute value of discretionary accruals (DCA) and observed that this was positive and significant for fraud detection.

4.3 Results for the Rationalization of Dimension Fraud Triangle

For this dimension was given two chances. The first to analyze the relationship between age of managers and likelihood of corporate fraud, and the second for the training manager in the business areas and the likelihood of corporate fraud. Table 7 shows the measurement results for this search hypothesis # 06.

The outputs of the Hausman-MacFadden tests (1984) and Small-Hsiao (1985) indicate that the multinomial logistic model is appropriate, therefore, there is evidence that the assumption of independence of irrelevant alternatives can be accepted.

The results in Table 7 indicate that the age of the manager does not have significant influence on the likelihood of fraud indications as well as the occurrence of corporate fraud, which differs from the findings of Troy, Smith and Domino (2011). Therefore, it can not accept the hypothesis # 06 of this research that the likelihood of corporate fraud is negatively influenced by the age of managers.

Table 8 presents the results to measure the hypothesis # 07, which tests the relationship between the training manager in the business area and the likelihood of corporate fraud.

As the results presented in Table 8, both the Hausman as the Small-Hsiao (1985) show that the multinomial logistic model is adequate.

As Table 8 results for institutions with variable fraud evidence that identifies the training in business was statistically insignificant. However, for companies convicted of corporate fraud, the existence of managers trained in business negatively influence the likelihood of corporate fraud. This result is supported by the marginal effect of the variable training in business area in the probability of fraud, indicating a decrease to 2.5%.

Troy Smith and Domino (2011) identified that untrained in the business area managers are more likely to rationalize fraud as a right act for which found that the estimated parameters as the training manager is inversely proportional to the probability of fraud. This same relationship was found, as can be seen in Table 8, confirming the findings of Troy, Smith and Domino (2011). Thus, the hypothesis # 07 was confirmed.

5. CONCLUSION

This research investigated the occurrence of corporate fraud in Brazilian banks, using extracted detection variables of agency theory and grouped according to the dimensions of the triangle of fraud. It is noteworthy that the fraud triangle Cressey (1953) was used to justify the analysis of behavioral assumptions manager deviations (agent) on the objectives of the shareholders (main), which may result in the occurrence of corporate fraud.

Overall, the results corroborated much of the research hypotheses. In the case of pressure dimension, there is evidence that the larger the size of the bank, the greater the likelihood of corporate fraud. In terms of the size of opportunity, it is emphasized that low indicators of corporate governance and provision for loan losses increase the likelihood of corporate fraud. If the size of rationalization, there is evidence that the presence of managers trained in business decreases the likelihood of corporate fraud.

These results confirm that the combination of agency theory to the fraud triangle size is appropriate for the investigation of the occurrence of corporate fraud, considering the sample of surveyed financial institutions.

Thus, the results have shown points that enrich the literature. First, by identifying non-convergent points to the theory of agency and require further investigation, which may be represented by the variables that resulted not significant in the analysis, such as variable incentive compensation. Second, to identify the contribution of the triangle of fraud allied to the theory of agency, especially by the fact that one of the dimensions, if the dimension of rationalization, it analyzes the manager's behavior elements that seem to favor the commission of corporate fraud.

For future research suggests the identification of new proxies to the occurrence of corporate fraud, such as the use of court proceedings, as this research only considered the administrative proceedings brought by the appropriate regulatory body.

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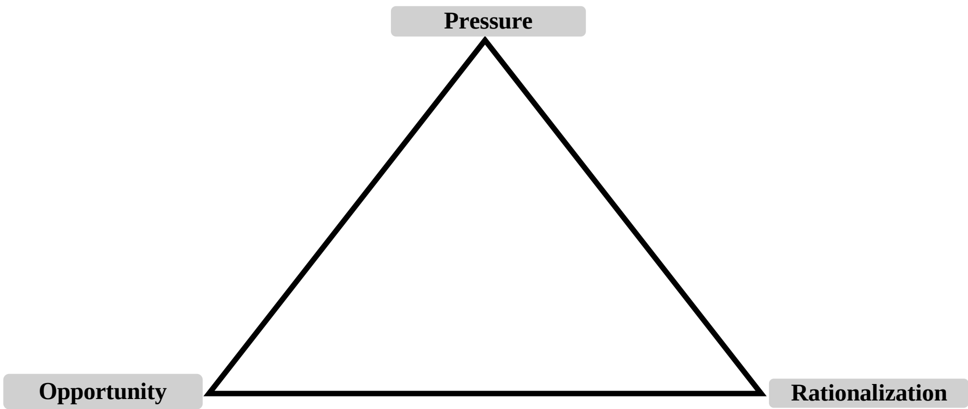

Figure 1. Cressey fraud Triangle (1953)
Source: Adapted from Coenen (2008) p. 10