SOCIO-ENVIRONMENTAL DISCLOSURE AND LEGITIMACY: AN INVESTIGATION OVER THE MAJOR BRAZILIAN BANKS

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ABSTRACT

This paper analyzes the relationship between sustainability and financial performances of the six biggest banks in Brazil. Brazilian banks were analyzed regarding their socio-environmental and economic disclosure. We collected socio-environmental data from annual reports, available on banks websites and financial data at Economática® database. Although disclosure data are not audited, which represents a limitation, these banks conduct their business in accordance with sustainable development policies and regulations, and publish information about initiatives. Methodological procedures include a content analysis, canonical correlation analysis and panel data regression providing a relationship assessment between variables. Results in this paper mostly showed a positive relationship between socio-environmental responsibility (SER) and financial performances, even considering the impacts of Brazilian crisis. The objective of this voluntary disclosure lays on companies' legitimacy as a dialogue mechanism with society.

Keywords: Banks; Brazil; Voluntary disclosure; Legitimacy theory; SER.

1 INTRODUCTION

The effects of the American subprime crisis in 2009 and the slow economic recovery resulted in greater skepticism about banking decision-making process. Throughout the crisis, and after that, banks (especially large ones) were heavily criticized for the impact of management decisions (SALTER, 2012; CORNETT; ERHEMJAMTS; TEHRANIAN, 2016). The heavy social burden of being literally saved by public funds meanwhile thousands of north

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americans were dumped from their homes for mortgage defaults, moved US banks to improve their social and environment disclosure, in order to seem socially relevant.

This misgiving effect was felt by banks all around the globe, since the crisis reached almost every country in the world and, in Brazil, in spite of its stronger financial regulation compared to US, a strong debate about banking intervention emerged, even before the crisis reach the local market and several months after the US and other rich countries. Brazil has a very concentrated banking structure, with 6 banks holding 84% of the total assets in 2016. Therefore, these big banks behave as an oligopoly keeping high interest rates even when Central Bank drops its rate. It could be counterintuitive, since banks have great monopoly power to determine prices and behave as they please, but our tests will show that are evidence about banking spending on voluntary disclosure, in an attempt to justify their huge profits.

Given the consequent economic insecurity banks, in Brazil and other parts of the world, are increasingly seeking for trust from shareholders and stakeholders, in order to legitimize themselves before society through transparency in resource management, disclosure of results, policies, practices, adoption of best corporate governance practices and voluntary disclosure of social and environmental information mechanisms (CHO; PATTEN, 2007). Hence, manifold regulatory and motivational mechanisms (monetary and non-monetary) have been discussed and implemented with the common objective of achieving better social management and accountability transparency.

The disclosure of socio-environmental responsibility actions and investments refers to companies' interactions with society and the environment. It is an important dialogue mechanism between them. Other authors complement that adapting corporate strategies to meet economic and social changes is a rational process that every successful company needs to undertake today (HOPWOOD; UNERMAN; FRIES, 2010).Thus, it is assumed that banks are able to influence the economy through its customers to become "greener", without sacrificing their financial return, reaching a positive image and therefore contributing to sustainable development.

At the same time that many efforts in recent years were engaged to enhance the sustainable development importance and awareness in companies, costumers demand for corporate socio-environmental responsibility (SER) grew up considerably (DE MELO *et al.*, 2017). In addition, investors and stakeholders currently evaluate financial institutions by

traditional and non-traditional metrics, as much as their socio-environmental commitment (FREEMAN; WICKS; PARMAR, 2004; JAMALI, 2008).

The main objective of this article is to investigate the relationship between financial and SER performance from 2010 to 2017, focusing on banks socio-environmental disclosure and its financial performance, mainly in crisis periods, and try to unveil their strategy to deal with this consequent liquidity excess. The paper has three parts beyond this introduction. The first presents a literature review and theoretical reference on socio-environmental responsibility, legitimacy theory and voluntary disclosure. In the second part, methodological analysis is described, and in the third part, the results are discussed regarding specific theories and impacts for Brazilian market.

2 THEORETICAL FRAMEWORK

2.1. Background

Brazilian banking institutions have their own regulation regarding socio-environmental (SER) commitment that they must comply with. According to National Monetary Council (CMN) Resolution 4.327/2014, the Social and Environmental Responsibility Policy (PRSA) report guarantees for companies and projects minimum of investments transparency, in which financial institutions invest. Moreover, these reports show how they apply management criteria in social and environmental investments. In order to operate well, the resolution requires each financial institution to define its own policy regarding the search to identify ways to mitigate the negative risks, such as bad reputation, caused from socio-environmental damages (HOPWOOD; UNERMAN; FRIES, 2010).

Globally, the banking sector began to embed environmental and social aspects into business from 1980's (CORNETT; ERHEMJAMTS; TEHRANIAN, 2016). Firstly, activities focused on internal environmental management (JEUCKEN; BOUMA, 2017) resulting in saving environmental resources, lower emissions and better reputation (BABIAK; TRENDAFILOVA, 2011). Secondly, banks incorporated environmental and social issues related to project finance, loans, investments, and assets management (SCHMIDHEINY; ZORRAQUIN, 1996; SCHOLTENS, 2009).

From the gradual embedding of sustainable attitudes, it has been found that environmental risks, such as those caused by climate change, can have a significant influence

on credit risk and investment portfolio. In other words, emphasized is the perception that sustainability affects long-term business continuity (HOPWOOD; UNERMAN; FRIES, 2010).

Risks and opportunities need to be fully identified and managed (WEBER; SCHOLZ; MICHALIK, 2010; WEBER; HOQUE; ISLAM, 2015; ZEIDAN; BOECHAT; FLEURY, 2015). Consequently, many banks have implemented procedures of environmental credit risk assessment (WEBER, 2012). Finally, financial institutions have adopted socially responsible investment processes (SRI) to manage investments, risk and take advantage of opportunities (CERIN; SCHOLTENS, 2011).

Financial sector regulations focus primarily on the provision of risk-adjusted financial capital to ensure its stability (WEBER, 2017). Consequently, for long time, the pressure on the financial sector to have a responsible performance, regarding impacts of its main products and services, such as loans and investments, was lower than in many other industries (WEBER; DIAZ; SCHWEGLER, 2014). However, studies show that the environmental and sustainability report is positively correlated with the size and profitability of financial institutions (ALBERICI; QUERCI, 2016; CHIH; CHIH; CHEN, 2010), and the embedding of environmental aspects and issues of sustainability in products and services in the sector have increased over time (SCHOLTENS, 2009).

2.2. LEGITIMACY THEORY

In order to contribute to such embedding of social, environmental, economic and financial aspects in companies' everyday activities and in their decision-making process, companies adopt corporate social responsibility reporting models (CSR), which has contributed to their performance evaluation. Therefore, institutions that wish to enjoy a competitive advantage in market, choose voluntarily to disclose such data, since they are often not required to do so by law (SUTANTOPUTRA, 2009; HOPWOOD; UNERMAN; FRIES, 2010; DE MELO *et al.*, 2017).

This study is based on legitimacy theory, on which companies disclose information of socio-environmental nature to show a positive and responsible image and legitimize their behavior for stakeholders and society. Derived from political economy, the theory of legitimacy is based on the idea that there is a "social contract" between companies and society, that is, symbolize the multiplicity of implicit and explicit society expectative about the organization operation (DEEGAN, 2002).

Deegan (2002) supports the idea that the society holds the power to allow companies to exist and have rights, and in turn, it's necessary to realize and achieve their expectations in relation to how their operations should be conducted. Therefore, in order to survive, a company must ensure that the activities it performs are actually (or are perceived) in accordance with socially acceptable values and rules. When society's expectations are frustrated, there is a breach of contract and there may be a legitimacy gap.

In this sense, companies must not only comply with the parameters of legal requirements, but also respond to social demands and pressures. It is fundamental to their reputation that they have the ability to communicate to society its alignment with those values. Legitimacy theory show that social responsibility disclosures are related to industries with high public visibility or potentially more significant environmental impacts or, with less favorable public images that reveal more social responsibility information than their competitors (PATTEN, 1991; 2002; ADAMS; HILL; ROBERTS, 1998; TSANG, 1998; CLARKE; GIBSON-SWEET, 1999; BELL; BECK, 2004; PATTEN; CRAMPTON, 2004).

The legitimacy theory suggests that larger and more visible banks tend to disclose more socio-environmental information (PATTEN 1991; 2002; ADAMS; HILL; ROBERTS, 1998; TSANG, 1998; CLARKE; GIBSON-SWEET, 1999; BELL; BECK, 2004; PATTEN; CRAMPTON, 2004 and LOPES *et al.*, 2017).

Current research such as Lopes *et al.*, (2017) confirm that companies with high visibility or greater potential risk of negative impacts should express greater concern about improving corporate reputation, for this can be a positive influence on sales and is also an efficient mechanism to disseminate their socio-environmental responsibility. Thus, companies with higher potential environmental impact are more likely to provide environmental information for legitimacy reasons, and companies in sectors with higher consumer's visibility, such as banks, are more likely to consider important engagement with the community and disclose this information (CLARKE; GIBSON-SWEET, 1999). It can be anticipated, therefore, that a bank will have different disclosure practices in relation to environmental and community involvement, in comparison to that of an extractive industry company, with little visibility among the public, for example.

Therefore, the disclosure of environmental information can be used as a competitive differential by large banks. It is more likely to be important for companies with high visibility

a positive social image through activities involving the community, partly because these activities can attract consumers but also can justify their existence.

2.3. VOLUNTARY DISCLOSURE

The disclosure of socio-environmental information was broadly defined as a communication process to stakeholders and society, about socio-environmental impacts arising from the organization's economic actions (GRAY; OWEN; ADAMS, 1996). Thus, the need to analyze several socio-environmental aspects is emphasized, on which the company's activities can have an impact: employee issues, community involvement, environmental concerns, other ethical issues, etc. Tinker and Neimark (1987) argue that society demands investments from companies to avoid and repair environment damage, to ensure consumers and employees health and safety, and those living in communities where products are manufactured, and waste are dumped. As a result, companies with poor socio-environmental performance increasingly find difficulties to obtain the necessary resources and support to remain operating within a community that appreciate a clean environment.

This kind of information report is the subject of some studies carried out between 1998 and 2004. The internet was analyzed as a tool for communicating with stakeholders and an easy way of spreading social responsibility with increasing numbers (ESROCK; LEICHTY, 1998; 2000; WILLIAMS, 1999; MAIGNAN; RALSTON, 2002; PATTEN, 2002; COOPER, 2003; SNIDER; HILL; MARTIN, 2003; CAMPBELL; BECK, 2004; DOUGLAS; DORIS; JOHNSON, 2004). The benefits of the Internet regarding traditional communication channels are substantially related to its interactive nature, with the possibility of disseminating more information in a fast and economic way (CASTELO BRANCO; LIMA RODRIGUES, 2006). The internet allows companies to provide information for different stakeholders and obtain feedback. As pointed out by Esrock and Leichty (2000), differently of traditional mass media channels, a single website can include multiple sections, each one targeting a different audience, and currently include the annual reports already incorporating socio-environmental aspects.

Comparing to other sectors such as chemicals, pulp and paper, etc., the financial services sector has a significantly lower direct environmental impact. Therefore, it's used as an argument for excluding banks and finance companies from studies which analyze all the components of the social responsibility disclosure (ARCHEL DOMENCH, 2003). However, there are strong arguments for its inclusion. Thompson and Cowton (2004) argue that banks can be facilitators of industrial activities, which can cause environmental damage. Thus, banking and financial

companies' activities, such as their lending and investment policies, can be considered equally sensitive to the environment, comparing to direct impacts of polluting industries (CASTELO BRANCO; LIMA RODRIGUES, 2006).

Banks can report what they are doing to avoid fostering, through their lending and investment policies, industrial activities that are harmful to the environment. Thereby, these banks can mitigate possible reputational impacts from lending with significant environmental impacts risks. In addition, financial institutions consume large amounts of resources, such as paper and energy, and are often considered as having a significant environmental impact for its waste (CASTELO BRANCO; LIMA RODRIGUES, 2006; HOPWOOD; UNERMAN; FRIES, 2010). Therefore, policies to reduce energy consumption, less use of natural resources, and recycling activities are core aspects for its social responsibility image.

Two strands regarding voluntary disclosure of socio-environmental information are worth of mention. On the one hand, it is emphasized that sustainability reports it's a public interest demand and brings sustainable development mentality among the main agents of change. Moreover, these reports promote more transparency in the critical and relevant environmental, social and economic impacts, providing information used by the market to undertake holistical decisions (HOPWOOD; UNERMAN; FRIES, 2010). On the other hand, the second strand claims that voluntary disclosure of socio-environmental information brings considerable benefits in terms of corporate reputation and competitiveness, involving the reduction of information asymmetry and risk regarding the investors (ROVER *et al.*, 2012; CARDOSO; DE LUCA; GALLON, 2014; HOMERO JUNIOR, 2017).

Information provision and associated management practices, enables organizations and their stakeholders to identify, understand, evaluate, incorporate and report economic, socio-environmental issues, with the same level of importance and in an integrated way, and thus, contribute for the economy and society sustainable development (HOPWOOD; UNERMAN; FRIES, 2010). As a caveat, it is currently dialogued that the use of these reports as a form of *greenwashing,* or reputation manipulation, since some information is not audited.

Recently researches as De Jong, Harkink and Barth (2018) highlight *greenwashing* effects of socio-environmental disclosure and initiatives. The consumer perception survey shows that, *greenwashing* contributes to the organization perceived environmental performance, but the benefit appears to be short-term and doesn't seem to be important influencing consumer buying. On the other hand, *greenwashing* threatens consumer's

perception about the organization's communication integrity. This is a potentially serious threat both to specific organizations and to the entire SER initiatives system (ALVES, 2009; ELVING; VAN VUUREN, 2011). In summary, it does not seem to contribute to consumers' buying interests, so it can be a futile and myopic strategy.

Tarna (1999) studied environmental reports from 12 banks and insurance companies and found the reports groups target: shareholders, customers and employees. All reports included information about material and energy flows generated by corporate operations, – energy, paper, water, waste, emissions – and ecologic products – environmental risks management related to financial products and specific environmental products, such as green investment, products, or ethical and project financing and environmentally friendly investments.

The research developed by Cornett, Erhemjamts and Tehranian (2016) involving US commercial banks has shown that after the 2008 financial crisis the biggest banks, target of major criticism due to a lack of social awareness, tried to improve their CSR activities. Despite the "too big to fail" status of these banks, the crisis demanded banks and stakeholders improve their CSR policies.

The recent literature states that companies seek raise profits with CSR's maximization (FATEMI; FOOLADI; WEELER, 2009; BÉNABOU; TIROLE, 2010; GILLAN *et al*., 2010; GARCIA-CASTRO; ARIÑO; CANELA, 2010; SERVAES; TAMAYO, 2013; FATEMI; FOOLADI, 2013; DIMSON; KARAKAS; LI, 2015). Besides, commitment to CSR means higher profitability, lower capital cost, higher competitiveness and better reputation (EL GHOUL *et al*., 2011; GOSS; ROBERTS, 2011; JO; HARJOTO, 2011). Hence, this paper aims to measure the relationship between CSR behavior and corporate financial performance in the Brazilian banking context from 2010 to 2017.

3 METHODOLOGICAL PROCEDURES

3.1 Research Design and Sample

This is a quantitative research developed through canonical correlation technique and data panel, we analyzed information from banks published annual reports (which are part of the sample). Besides, we expose the banks socio-environmental performance under two perspectives: first, analyzing the relationship between environmental and financial performances; then, complementarily, the behavioral pattern of these investments in a crisis

context, with steady profits and bank increasing liquidity, even under an economic recession in Brazil.

The sample consists of six of the ten largest Brazilian banks: Itaú-Unibanco, Bradesco, Banco do Brasil, Caixa Econômica Federal, Santander and Citibank, which portray 87% of all bank deposits - 2016 - and owned 90% of branches in Brazil (BACEN, 2016). Besides, the first three mentioned banks were ranked among the forty-three biggest financial institutions worldwide by Forbes Magazine[2]. The sampling process is non-probabilistic, since it starts from a naturally restricted universe, respecting the information availability and accessibility necessary for the present work. It brings some inference limitations, but does not invalidate the results, since we do not intent to make generalizations for small banks.

Concerning to reputation, these banks are listed on B3 sustainability indexes, for instance ICO2 and ISE which represents a positive correlation between voluntary disclosure and a better reputation, except for Caixa Econômica Federal and Citibank (CARDOSO; DE LUCA; GALLON, 2014). Besides, only the six banks listed on our sample provide GEE emission inventory by GHG Protocol, regardless negative externalities involved.

The main objective is to assess the relationship between socio-environmental performance and financial performance in Brazilian banks context, over the chosen period (LIANG; ZEGER, 1986).

3.2 Period and chosen variables

The analysis was carried out from 2010 to 2017. Altogether six variables were chosen. The dependent variable represents sustainability initiatives voluntarily published by banks, henceforth it will be called SER. This variable is a proxy of voluntary disclosure captured and encompasses the social and environmental dimensions of each bank considering initiatives publicized on the internet (ELKINGTON, 1999).

In order to collect socio-environmental initiatives data, a content analysis was made, including financial and non-financial reports: annual, administration documents and sustainability from websites of the respective banks. We hand-collect all SER data advertised by banks, on issues involving social and environmental aspects: internal[3], external[4] and socio-

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[2] The Forbes global ranking is based on revenue, market value, assets and profit. According to its websites, these banks run their business with sustainable development policies and regulations and publish information related to financial, environmental, social aspects.

[3] Benefits related to employees eg. Nutrition, training, profit-sharing, medical care.

[4] Back to the external community eg. sponsorships in education, culture, health, sport

environmental initiatives[5]. However, SER data are limited to each bank voluntary way of disclosure, whereas there is no regulated publishing pattern.

This study presents an exploratory approach using the canonical correlation technique for dependent variable identification. Furthermore, we build two control variables, namely: banks liquidity and annual stock prices, which represents the investors view in a 8 years period that includes a Brazilian crisis (BRAMMER; BROOKS; PAVELIN, 2006).

The model is specified with five financial indicators as independent variables, namely: Total Assets, Net Income, Return on Equity-ROE, which have been considered by some authors, (CORNETT; ERHEMJAMTS; TEHRANIAN, 2016). Financial data was gathered from Economática® database. All variables considered in this paper are described on Table 1.

Table 1 – Variables Description

Variable	Description	Source	Unit
$SER_{i,t}$	Dependent variable, represented by socio environmental report of bank i, at year t.	Annual reports	R$
$SER_{i,t+1}$	Dependent variable, represented by socio environmental report of bank i, at year $t+1$.	Annual reports	R$
$TA_{i,t}$	Independent variable, represented by total assets of bank i, at year t	Economatica*	R$ 1.000
$NI_{i,t}$	Independent variable, represented by net income of bank i, at year t	Economatica*	R$ 1.000
$ROE_{i,t}$	Independent variable, represented by the return on equity (ratio between net operating income and average equity) of bank i, at year t	Economatic*	%
$LQ_{i,t}$	Independent variable, represented by the quotient between availabilities and deposits of bank i, at year t	Economatica*	R$ 1.000
$STOCK_{i,t}$	Independent variable, represented by the annual stock return price of bank i, at year t	Economatica*	%

Source: Research data
Note: *available at https://economatica.com/.

3.3 Statistical procedures

The analysis was conducted in three stages: firstly, canonical analysis, assessing SER variable at current period ($SER_{i,t}$), and in the next one $SER_{i,t+1}$. The objective of this multivariate technic is to identify one appropriated dependent variable for panel estimation

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[5] Initiatives in programs related to the environment and its natural resources

(MARTINS; MONTE, 2015). Hence, the highest correlation between SER dependent variables and canonical loadings determine which one fits the better. Secondly, after identifying the dependent variable, we estimate a static panel model in order to analyze how each independent variables influences the dependent variable of socio-environmental performance. Finally, we evaluate the effects of the Brazilian banks' financial performance on SER performance.

3.3.1 Canonical Correlation Analysis

Canonical correlation analysis is a method for mesuring the relationship between two multivariate sets of variables, all measured for the same company (HAIR, 2006). In this study, two groups of variables are measured: the relationship between SER and financial performance variables.

Canonical correlation analysis will describe the relationship between the first set of variables ($SER_{i,t}$ and $SER_{i,t+1}$) and the second set of variables (TA $_{i,t}$, NI $_{i,t}$, ROE $_{i,t}$, LQ $_{i,t}$ and STOCK $_{i,t,}$). The canonical correlation model is described by Equation 1.

$$SER_{i,t} + SER_{i,t+1} = TA_{i,t} + NI_{i,t} + ROE_{i,t} + LQ_{i,t} + STOCK_{i,t} \tag{1}$$

Where:

$SER_{i,t}$ is the socio-environmental performance of bank *i*, at year *t*;

$SER_{i,t+1}$ = socio-environmental performance of bank *i*, at year *t +1*;

TA $_{i,t}$ = total assets of bank *i*, at year *t;* $NI_{i,t}$ = net income of bank *i*, at year *t;*

$ROE_{i,t}$ = return on equity of bank *i*, at year *t;*

$LQ_{i,t}$ = quotient between availabilities and deposits of bank *i*, at year *t;*

$STOCK_{i,t}$ = annual stock return price of bank i, at year t.

3.3.2 Panel Regression

The econometric model estimated is an unbalanced data panel, with 6 banks, from 2010 to 2017, as follows:

$$SER_{i,t+1} = \alpha_o + TA_{i,t} + NI_{i,t} + ROE_{i,t} + LQ_{i,t} + STOCK_{i,t} + u_{i,t} \tag{2}$$

Where,

$i = 1$ to n is the bank index and $t = 1$ to T is the time index

$SER_{i,t}$ = socio environmental report of bank i, at year t.

$SER_{i,t+1}$ = socio environmental report of bank i, at year $t +1$.

$TA_{i,t}$ = total assets of bank i, at year t

$NI_{i,t}$ = net income of bank i, at year t

$ROE_{i,t}$ = return on equity of bank i, at year t

$LQ_{i,t}$ = quotient between availabilities and deposits of bank i, at year t

$STOCK_{i,t}$ = annual stock return price of bank i, at year t

u_{it} a random disturbance term of mean 0.

The variables expected behavior, according to the literature, is disposed on Table 2.

Table 2 – Variables expected behavior

Independent Variables	Expected Relationship
$TA_{i,t}$	+
$NI_{i,t}$	+
$ROE_{i,t}$	+/-
$LQ_{i,t}$	+/-
$STOCK_{i,t}$	+/-

Source: Research data.

4 RESULTS AND DATA ANALYSIS

4.1 Canonical correlation results

The identification of the SER dependent variable that best fits the econometric model was performed as follows: initially, we verified the canonical function that best maximizes the correlation between the two sets of variables; secondly, through canonical weights and structural correlation (loads) it was verified which of the dependent variables most contributes to the canonical variable.

We obtained two canonical functions, whose significance tests joint are shown in Table 3. As can be seen, the p-value of all the statistics shown on Table 3 are less than 1%, therefore we can reject the idea that canonical functions are not significant. The results indicates that at least one of the functions is significant at the 1% level, thus expressing the relation between the sets of variables.

Table 3 - Results of multivariate significance tests

Test	Statistic	*p*-value
Wilks' Lambda	0,1795832	0,000
Pillai's trace	0,6949668	0,001
Lawley-Hotelling trace	3,8487217	0,000
Roy's largest root	0,7850213	0,000

Source: Research data.

Variables canonical loadings are presented on Table 4. The canonical loadings are similar to the standardized coefficients of a multiple regression, that is, they indicate how much a variable contributes for the canonical variable shaping. As can be seen, between the dependent variables, the one that presented the greatest influence on the formation of the canonical variable was $SER_{i,t+1}$.

Since the objective of using canonical correlation was restricted to the identification of the most adequate dependent variable to the set of variables, the SER_{t+1} was chosen as the dependent variable in the analysis that will be presented in the sequence.

Table 4 - Loadings between original variables and canonical variables.

Dependent Variables	Function 1	Independent Variables	Function 1
SER_t	0,837	TA_t	-0,096
SER_{t+1}	0,937	NI_t	-0,185
		ROE_t	-0,047
		LQ_t	0,303
		$STOCK_t$	-0,502

Source: Research data.

4.2 Panel data results

The results of the proposed econometric model were obtained using the computational platform R. It was decided to work with the routine ppgls () since the random modeling was the best according to the Hausman statistical test (p-value =0,1581). Table 5 shows the summary of the results obtained.

Table 5 - Sensitivity of SER to financial performance variables

Variables	Estimate	Std. Error	*p*-value
Intercept	-76,296	12,193	0,0000
TA_t	5,594	1,271	0,0000
NI_t	-2,144	2,038	0,2929
ROE_t	4,139	1,189	0,0005
LQ_t	8,469	2,526	0,0008
$STOCK_t$	-0,113	0,168	0,5013

Source: Research data.

The estimation model shows neither heteroskedasticity nor autocorrelation (Table 6).

Table 6 - Statistical tests results of heteroskedasticity and autocorrelation

Variables	Estimate	Degrees of freedom	*p*-value
Breusch-Pagan test for heteroskedasticity	2,7706	5	0,7353
Breuch-Godfrey/Wooldridge test for serial correlation in idiosyncratic errors	0,2035	1	0,6519
Breusch-Pagan LM test for cross sectional dependence	15,672	10	0,1094
Pesaran CD test for cross sectional dependence	0,0122	Not pertinent	0,9903

Source: Research data.

The model presented a R^2 of 0.81, which can be considered high. Table 5 shows that, two out of five independent variables were not statistically significant (NI and STOCK). Therefore, nothing can be inferred about its influence on socioenvironmental investments (SER). The remaining variables were statistically significant at 1% level.

Regarding the variable TA, it can be observed that a 1% increase on it for a given bank causes a 5.6% increase in its socio-environmental investments, which means that such investments are considerably positive and sensitive to bank size. The ROE variable also behaved similarly to TA and is positively related to SER.

The LQ variable, when raised by 1%, generates the highest increase of all, 8.47% growth in SER. Showing that the greater the growth of bank liquidity, the greater the impact on social and environmental investments, even in the midst of Brazilian crisis. This result confirms several international findings which have investigated the same subject. Finally, the variables behavior (from Table 2) was as expected.

5 FINAL CONSIDERATIONS

This paper aimed to analyze the impact of banks financial performance on social and environmental initiatives (SER), from 2010 to 2017, which comprise the Brazilian crisis. To achieve this objective, we resort methodological procedures such as content analysis, multivariate technique of canonical correlation and panel data.

The growing evolution of SER practices and disclosures fostered researches on these initiatives and its relationship with companies' financial performance. Several recent researches has provided mixed results about these effects (Jiao, 2010). Most of the literature focuses on measuring financial performance based on market. Just a few studies examine the capital market perceptions about such initiatives (EL GHOUL *et al*., 2011).

Our results show that under Brazilian crisis, SER was higher. Cornett, Erhemjamts and Tehranian (2016) found the same about banks concerns on reputation impact due to 2008

financial crisis, period in which banks increased SER. Moreover, our results for Brazil include a control variable named Liquidity, and it is positive correlated to SER. This result means that major Brazilian banks, are concerned with their clients, shareholders and stakeholders' long-term trust, reputation and image, adopting social and environmental responsibility initiatives. In addition, it seems that when banks reach their financial success goals, thereafter they meet socio-environmental targets.

Socio-environmental initiatives disclosure is currently under discussion regarding reputation manipulation, which can promote short term success. However, De Jong, Harkink and Barth (2018) argue that this myopic attitude does not seem to fit for big banks.

Our findings show that corporate SER and financial performances are positively correlated, despite the crisis. Our results acknowledge the three dimensions interdependence: social, environmental and financial, in accordance with Weber (2017) study about the Chinese banks.

Regardless the results suggest no inference at the moment between SER and shares return or net income, we cannot infer that SER are not important through investors' eyes.

The main purpose for big banks socio-environmental investment in Brazil today lays on the fact that they need recognition and self-legitimacy over society. The pointed out facts raise to discussion the role of banks in society. Furthermore, the vicious institutional structure given by lack of disclosure regulation, foster Brazilian big banks to prevent costumers indignation against the massive amount of profits they make with nothing in return.

In this sense, one answer for the main question of the present research would be that banks try to avoid risks of structural change, which would enlarge competition and drop profits through taxation. Thereby, they must show their social responsibility and advertise it, even though the accuracy and control of the reported numbers are dubious.

Jiao (2010) points out that the positive effect of SER on corporate performance is consistent with the view that SER represents an intangible asset investment, such as reputation and human capital, which contribute to increasing companies' competitiveness. SER's initiatives represent the growing banks concern with their reputation and competitiveness, answering to public pressure for social and environmental responsibility, and also to comply with legal requirements and specific regulations.

The results of the present study add scientific knowledge, since they jointly address issues of voluntary disclosure, social and environmental investments, corporate reputation,

bank liquidity and crisis environment. The association of these variables brings important information to subsidize the actions of the Brazilian banks about socio-environmental responsibility, revealing a positive relation between variables and ratify the search for legitimization in a crisis context.

The sample size, the scarce number of indicators of financial performance and pattern lack of socio-environmental disclosure are the research limitations. However, for the analyzed banks it was possible to get some evidence about the relationship between socio-environmental and financial performance in Brazil. In addition, we know that socio-environmental actions and initiatives inside the annual reports are incomplete, only the information with greater relevance and materiality are included (HOPWOOD; UNERMAN; FRIES, 2010). Therefore, a future research field can be an analysis of shareholders and customers' perception about corporate social responsibility, and how these initiatives can reduce information asymmetry.

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