Environmental, social and governance performance and its relationship to credit risk: a study in Latin America

Mestre/MSc. Fernanda Massarotto Dandaro ORCID iD, Doutor/Ph.D. Fabiano Guasti Lima ORCID iD

Universidade de São Paulo, Faculdade de Economia Administração e Contabilidade de Ribeirão Preto, Ribeirão Preto, São Paulo, Brazil

Mestre/MSc. Fernanda Massarotto Dandaro

0000-0002-5877-3861

Programa de Pós-Graduação/Course
Doutorado em Controladoria e Contabilidade

Doutor/Ph.D. Fabiano Guasti Lima

0000-0003-4776-3673

Programa de Pós-Graduação/Course

Resumo/Abstract

Previous studies suggest that the environmental, social and governance performance of companies helps to build a stronger image and reputation, thus providing better financial performance. However, the adoption of environmental, social and governance (ESG) practices as a tool for financial risk management is still little explored, especially in undeveloped economies. This research seeks to fill this gap by investigating whether the adoption of ESG practices reduces credit risk in publicly traded companies in Latin America. The results, obtained through an ordered logistic regression, considering the rating of the companies as a dependent variable and the indices of the ESG dimensions, obtained by the Refinitiv base, as explanatory variables, provide evidence that ESG practices are not being considered for the assignment of credit risk ratings from Moodys and Fitch agencies. Thus, ESG practices are not helping to reduce credit risk, especially when we consider Argentine and Peruvian companies. The results are robust, even when considering the capital structure, profitability, leverage, size, and asset turnover. Thus, the article contributes by showing that even with the advances of credit rating agencies in adopting ESG indicators, it is still not possible to observe an impact on credit risk reduction, as evidenced by the literature.

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ABSTRACT
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Keywords: credit risk, rating, ESG, Latin America, ESG performance.

1. INTRODUCTION

Previous studies show that different stakeholders (shareholders, government regulators, consumers, employees, and the community) are increasingly interested in the environmental, social and governance (ESG) performance of companies (Dixon-Fowler et al. 2013; Dobler et al. al. 2014; Endrikat et al. 2014). Part of this interest is driven by the positive relationship between ESG performance and financial performance.

Researchers also argue that ESG performance contributes to competitive advantage (Chan, 2005), to increase the efficiency of the use of natural resources (Klassen & Whybark, 1999), lower systematic market risk (Bansal & Clelland, 2004), stakeholder management (Buysse & Verbeke, 2003) and improvement in innovation capacity (Nidumolu, Prahalad & Rangaswami, 2009).

Among the benefits of adopting ESG practices, the reduction of financial risk stands out (see meta-analysis carried out in Orlitzky & Benjamin, 2001). However, studies approaching companies in undeveloped economies and its relationship with financial risk show divergent results (see, for example, Oliveira et al., 2015).

Therefore, this study proposes to investigate if the adoption of ESG practices reduces the financial risk in Latin American publicly traded companies. For this, the credit risk classification (rating) presented by Fitch and Moody's companies was chosen as the dependent variable. For the independent variables, we chose the performance of the ESG dimensions presented by the Refinitiv database.

We selected as control variables, according to previous studies, the capital structure, the profitability, the asset turnover, the leverage, and the company size. The regression method chosen was the robust ordered logistic regression.

The results show that ESG performance and credit risk are positively related, considering a significance level of 1%. This result suggests that the adoption of ESG practices is not able to reduce credit risk, a result that diverges from those presented for developed economies (Hsu & Chen, 2015; Lin et al., 2017; Albuquerque et al., 2018). It is considered that even with the advances of credit rating companies in incorporating indicators on ESG performance, the rating still does not reflect the impact of such actions.

This article is organized as follows: in section 2 the theoretical framework and previous studies on the subject are discussed, in section 3 the methodology is described, encompassing data collection and sample composition, dependent, independent and control variables, and the proposed model to test the hypothesis. Section 4 presents and discusses the results, with descriptive statistics and regression results. Finally, in section 5, the conclusions and final considerations of this study.

2. THEORETICAL FRAMEWORK

Environmental, social and governance practices evokes terms such as corporate social performance (Carroll, 1979; Wartick & Cochran, 1985; Wood, 1991; Wang & Berens, 2015; Grewatsch & Kleindienst, 2017; and Arminen et al., 2018), responsiveness corporate social (Ackerman 1973; Ackerman & Bauer, 1976; Sethi, 1975; Waddock & Graves, 1997; Margolis & Walsh, 2001; Ciliberti et al., 2008), and corporate citizenship (Wood & Logsdon, 2001; Sison, 2009). But it should not be confused with such concepts.

From the 1980s onwards, the emergence of new concepts such as Sustainable Development (Bansal, 2002) and Eco-development encouraged discussions on socio-environmental performance and business activity. Studies searching for a relationship between ESG performance and financial performance has grown. But the research about the company's engagement in environmentally and socially responsible behavior still have several gaps to be explored.

A company cannot be said to be socially responsible if it only meets the minimum requirements determined by law (Davis, 1973). There are social obligations that lead the company to go beyond legal requirements. Megginson, Mosley and Peitri Jr (1998) state that when companies assume social responsibility, they develop several programs aimed at employees, customers, the environment, and the community. In other words, the ESG practices that companies adopt are not only for their shareholders, but for the various actors that are related to the company, as stated in the Stakeholder Theory.

The presentation and further development of the Stakeholder Theory (Freeman, 1984; Jones, 1995) provided the theoretical foundation that ESG practices can assist the company in building solid relationships with its related parties – among them, employees, consumers, local communities and, government agents – and thus ensure the maintenance of long-term financial performance.

When analyzing only the short term, the commitment to social and environmental problems can result in lower profit, however in the long term, the engagement with ESG practices can become a favorable condition to maintain and improve profitability, ensuring the survival of the company (Alberton, 2003).

Klassen and McLaughlin (1996) state that, within a context of maximizing returns in the long term, process optimization, cost reduction and improvement of the institutional image are arguments favorable to the adoption of ESG practices by organizations. Such practices can translate into more loyal consumers, increased sales, more motivated employees, more committed suppliers, better access to the capital market, and new business and innovation opportunities (Reis, 2002).

Salama, Anderson, and Toms (2011) examine the relationship between ESG performance and company risk in the UK context. Using environmental and community liability ratings for all UK companies rated between 1994 and 2006, the authors show that company's ESG performance is negatively related to its systematic financial risk. However, there are research that diverge from this result. Oliveira et al. (2015), for example, show that ESG performance contributes positively to financial performance. The authors also point out that environmental performance can increase financial risk.

In this scenario, the aim of this study is to investigate whether the adoption of ESG practices reduces financial risk in Latin American publicly traded companies, in order to contribute to the understanding of such a relationship in non-developed countries.

Thus, we propose the following research hypothesis:

H₀: the adoption of ESG practices reduces credit risk in Latin American publicly traded companies.

3. METHODOLOGY

3.1 Sample and data

We collected the data used in this research from the Refinitiv database. The sample is composed of publicly traded companies from seven Latin American countries (Argentina, Brazil, Chile, Colombia, Cayman Islands, Mexico, and Peru). We consider a period of 10 years, from 2011 to 2020.

The universe of Latin American publicly traded companies available on the Refinitiv database corresponds to a total of 1,652 companies. Many companies still do not disclose ESG information, so by excluding all companies that did not provide information during the period analyzed, we obtained a final sample of 342 companies.

3.2 Variables

The proxy chosen for financial risk was the credit risk rating, also known as rating. Credit risk can be understood as the risk of economic loss due to non-compliance with the contractual obligation by the contracting party (Lima, 2015). Therefore, the rating measures the company's ability to honor or not its financial commitments, considering several factors such as, for example, the companies' revenue and fixed assets, the business profile, cash flow and financial policy (Lima, 2015).

Despite other variables present in the literature for financial risk, Rego et al. (2009) suggests that the credit rating represents a company's ability to meet debt holders' expectations and, therefore, it becomes a preferred measure of a company's financial risk.

As the rating can be made available by different credit rating companies, it was necessary to establish rating degrees to standardize the data. The chosen equivalence of ratings, presented by Lima et al. (2018), is a scale from 0 to 7, where 0 represents the best rating (AAA or Aaa) and 7 the worst, as shown in Chart 1.

Moody's	Fitch	Credit risk level	Existence of investment grade
Aaa	AAA	0	
Aa1, Aa2, Aa3	AA+, AA, AA-	1	Yes
A1, A2, A3	A+, A, A-	2	
Baa1, Baa2, Baa3	BBB+, BBB, BBB-	3	
Ba1, Ba2, Ba3	BB+, BB, BB-	4	
B1, B2, B3	B+, B, B-	5	No
Caa1, Caa2, Caa3	CCC+, CCC, CCC-	6	
Ca, C	CC, C, D	7	

Chart 1 - The equivalence of ratings
Source: adapted from Lima et al. (2018).

For ESG practices, many studies have used indices calculated by organizations specialized in corporate policies. Some studies use information contained in annual reports and other documents, and many studies use the stock exchange sustainability index to measure ESG performance.

In this study, the independent variables adopted to measure ESG performance were the performance indices of the ESG dimensions of the Refinitiv base. which has been shown to be a good proxy for CSR performance in previous studies (Ioannou & Serafeim 2012; Chen et al. 2015; Desender & Epure 2014; Eccles et al. 2014, Diebecker & Sommer, 2017). Indices are calculated from more than 750 data points aggregated across 250 indicators (Refinitiv, 2021). A specially trained research team collects data that is publicly available, objective and auditable (Chen et al. 2015), such as stock records, sustainability reports and news sources (Ioannou & Serafeim 2012).

Finally, control variables that incorporate into the model other effects that can influence the financial risk of companies were necessary. These variables were chosen according to previous studies on financial risk, as shown in Chart 2.

Variável	Fórmula	Descrição	Sinal esperado	Fonte
Capital structure	CS = total debt/ total equity	Represents how much third-party capital represents from the company's equity.	+	Altman (2005); Benlemlih and Girerd-Potin (2017); Hsu and Chen (2015).
Profitability	Profit = EBITDA/total assets	Represents the profitability of the company's current and non-current assets.	-	Hsu and Chen (2015)
Asset turnover	AT = net income before taxes /total assets	Represents the efficiency with which the company uses its current and non-current assets to generate revenue.	-	Altman (2005); Hsu and Chen (2015).
Leverage	Lev = retained earnings (loss)/ total asset	Represents how much of the total assets is financed by retained earnings.	+	Altman (2005); Hsu and Chen (2015).
Size	Size = ln market value	Represents the size of the company, considering its market value.	-	Utz (2018); Benlemlih and Girerd-Potin (2017); Hsu and Chen (2015)

Chart 2 – Control variables
Source: the authors.

3.3 Models

To test hypothesis H0 – the adoption of ESG practices reduces credit risk in Latin American publicly traded companies – the following models were used:

$$Rat_{i,t} = \beta_1 ESG_{i,t} + \beta_2 CS_{i,t} + \beta_3 Profit_{i,t} + \beta_4 AT_{i,t} + \beta_5 Lev_{i,t} + \beta_6 Size_{i,t}$$

$$Rat_{i,t} = \beta_1 ENV_{i,t} + \beta_2 SOC_{i,t} + \beta_3 GOV_{i,t} + \beta_4 CS_{i,t} + \beta_5 Profit_{i,t} + \beta_6 AT_{i,t} + \beta_7 Lev_{i,t} + \beta_8 Size_{i,t}$$

In model 1, coefficient β_1 expresses the relationship between credit risk and the proxy for ESG performance, β_2 expresses the relationship between the variable capital structure and rating, β_3 the coefficient for the relationship between credit risk and profitability, β_4 the ratio between risk and asset turnover, β_5 the ratio between leverage and rating and β_6 the ratio for the size and credit risk ratio. Where i are companies from 1 to 342, and t are the years from 2011 to 2020.

In model 2, the coefficient β_1 expresses the relationship between credit risk and the proxy for environmental performance, β_2 expresses the relationship between risk and the proxy for social performance, β_3 expresses the relationship between risk and proxy for corporate governance performance, β_4 expresses the relationship between the capital structure variable and the rating, β_5 the coefficient for the relationship between risk and profitability, β_6 the relationship between risk and asset turnover, β_7 the coefficient between leverage and the rating and β_8 the coefficient for the size and financial risk ratio. Where i are companies from 1 to 342, and t are the years from 2011 to 2020.

As the dependent variable (rating) is a gradation from 1 to 7, presented in an orderly manner, ordered logistic regression was used, which allows predicting values of a categorical variable. Briefly, logistic regression determines the probability associated with the occurrence of an event.

4. RESULTS

Table 1 presents descriptive statistics for the model's variables. The results show that, on average, between 2011 and 2021, companies present their risk ratings between level 2 and 3 (corresponding to grades A1, A2, A3 or A+, A, A-, and Baa1, Baa2, Baa3 or BBB+, BBB, BBB), which means that such companies are classified as investment grade.

Table 1 – Descriptive statistics

Variable	Mean	Standard deviation	Minimum	Maximum
Rating	2.64	1.60	0	7
ESG	43.9%	22.49	0.10%	93.49%
Environmental	36.41%	28.02	0%	96.04%
Social	45.49%	26.26	0.17%	96.88%
Governance	48.32%	23.74	0.06%	96.88%
Capital structure	1.24	5.18	-37.36	151.27
Profitability	0.09	0.68	-24.77	27.81
Asset turnover	0.03	0.57	-25.10	2.23
Leverage	0.06	0.12	-35.06	0.84
Size	14.23	1.79	7.28	18.86

Source: research data.

On the other hand, the ESG performance, as well as the performances of the separate dimensions (environmental, social and governance) of the companies in the sample, show huge variations. For example, in 2019 the Peruvian company Inversiones Centenario had 0% environmental performance, 38% social performance and 57% governance, demonstrating a lack of balance between the practices adopted by the company. Meanwhile, in the same period, the company Vale had 84% environmental performance, 91% social and 81% governance, indicating that the company seeks to maintain a balance in the adoption of ESG practices. In addition, performances also change over the years, in the same company, which contributes to the high standard deviation of the variables.

The companies, considering the average values presented, seem to have a capital composition formed by third-party capital, with low profitability and little efficiency when using their resources. It is noteworthy that little of the companies' assets are financed with retained earnings, which explains the high proportion of third-party capital.

It was expected that the indicators for the companies in the sample would not perform well, given that they are companies from developing and underdeveloped economies, that is, companies that operate in deficient financial markets.

Table 2 shows the correlation matrix for the variables used in the model.

Table 2 - Correlation matrix

	Rating	ESG	Env	Soc	Gov	CS	Profit	AT	Lev	Size
Rating	1									
ESG	0.05	1								
Environmental	0.03	0.86	1							
Social	0.01	0.92	0.78	1						
Governance	0.08	0.67	0.35	0.45	1					
Capital structure	0.01	0.07	0.08	0.04	0.08	1				
Profitability	-0.10	0.06	0.10	0.05	0.06	-0.06	1			
Asset turnover	-0.21	0.03	0.04	0.05	0.00	-0.07	0.71	1		
Leverage	-0.30	0.06	-0.01	-0.05	0.09	-0.11	0.34	0.54	1	
Size	-0.20	0.39	0.36	0.38	0.20	0.04	0.22	0.31	0.24	1

Source: research data.

The models proposed by this study try to capture whether the adoption of ESG practices, that is, verifying whether a good ESG performance, helps to reduce the credit risk of Latin American companies. The first model investigates ESG performance calculated as an index that encompasses environmental, social and governance practices in a balanced way, while model 2 brings separate indicators for environmental, social and governance performance, in order to analyze which or which dimensions have a greater relationship with credit risk in the companies analyzed. Table 3 shows the results of the robust ordered logistic regression for model 1.

Table 3 – Logistic regression results – Model 1

Variable	Coefficient	P-value	Expected relation
ESG	0.01	0.000	-
Capital structure	-0.07	0.722	+
Profitability	2.00	0.064	-
Asset turnover	-2.23	0.063	-
Leverage	-2.26	0.000	+
Size	-0.22	0.000	-
Obs.		1,162	
Wald chi2		139.60	
Prob > chi2		0.000	
Pseudo R2		0.035	

Source: research data.

The results show that β_1 is positive, considering a significance level of 1%. This result suggests that the adoption of environmental practices is not capable of reducing credit risk, and, therefore, H_0 is rejected. Furthermore, the model is considered appropriate and meaningful.

Asset turnover, size and leverage control variables showed significant results at 1%, and asset turnover and profitability at 10%. However, the signals obtained for profitability and leverage are contrary to expectations. As this work did not seek to investigate such effects on credit risk, these results will not be discussed in greater depth.

Table 4 presents the results of the logistic regression for model 2. When considering indices for each ESG dimension, we can see that the environmental and governance dimensions are positively related to the rating, with a significance level of 5%.

These results suggest that by adopting environmental and governance practices, companies end up increasing their credit risk, having an impact contrary to that mentioned in the literature, in recent studies such as Hsu and Chen (2015); Lin et al. (2017) and Albuquerque et al. (2018), which highlights the importance of having more research on ESG practices in emerging and underdeveloped countries.

Table 4 - Logistic regression results – Model 2

Variáveis	Coeficiente	P-valor	Sinal esperado
Environmental	0.007	0,028	-
Social	-0.03	0,363	-
Governance	0.006	0,012	-
Capital structure	-0.01	0,618	+
Profitability	1.55	0,162	-
Asset turnover	-1.90	0,112	-
Leverage	-2.32	0,000	+
Size	-0.21	0,000	-
Obs.	1,161		
Wald chi2	143.13		
Prob > chi2	0.000		
Pseudo R2	0.036		

Fonte: dados da pesquisa.

Only the practices of the social dimension have a negative relationship with credit risk, but the result is not statistically significant. When we insert proxy variables for countries, only Argentina and Peru present statistically significant results, at 1% and 5%, respectively, in both models.

5. CONCLUSION AND FINAL REMARKS

Despite the growing body of research on the impact of ESG practices on companies' financial performance, with the premise that ESG performance can be financially rewarded, there are still several gaps to be investigated.

The present work sought to investigate whether the adoption of ESG practices reduces financial risk in capital companies in Latin America, developing a study in undeveloped economies. For this, we propose the following research hypothesis: the adoption of ESG practices reduces credit risk in Latin American companies.

The dependent variable chosen as a proxy for financial risk was the rating, carried out by credit risk rating companies Moody's and Fitch. The methodology used was the estimation of the model by robust ordered logit.

The results suggest that ESG performance is positively related to financial risk and, therefore, the adoption of environmental, social governance practices, such as reducing greenhouse gas emissions and investments in reuse of water resources, ecologically efficient buildings, employee training, gender equity policies, are not yet able to mitigate the risk in the sample companies. The results are robust, even when considering the capital structure, profitability, leverage, size and asset turnover.

When considering the environmental, social and governance dimensions separately, in model 2, we observe that environmental and governance practices contribute to the positive relationship of ESG and credit risk, while social practices could be able to reduce risk (but , the result is not statistically significant). It is noteworthy that the results are significant for Argentine and Peruvian companies, while the proxies for other countries were not statistically significant.

We conclude that despite the actions of rating companies Moody's and Fitch to integrate environmental, social, and corporate governance issues into their ratings, it is still not possible to verify the impact on credit risk for Latin American companies. This scenario highlights the importance of these companies reviewing their methodologies, so that ESG actions are increasingly encouraged in companies.

One of the limitations of the work can be considered as the non-inclusion of some variables that can explain the risk classification, such as the forecast of analysts. We chose not to use this variable due to the lack of data available in the database used.

For future research, it is suggested to employ other metrics for financial risk, to check for changes in the relationship with ESG performance. We also believe it is important to look for new measures for ESG performance that are easy for companies to understand, encouraging the adoption and monitoring of environmental, social and governance practices.

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