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Corporate Reputation and Bankruptcy Risk

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Abstract

In view of the influence of corporate reputation on investors' choices and risk concerns, the purpose of this study was to explore the relationship between corporate reputation and bankruptcy risk in public firms. The investigation is a contribution to the burgeoning literature on corporate reputation associated with accounting, despite reputation being classified as an intangible asset capable of generating competitive advantage. Our sample included 4,578 observations (441 firms) covering the period 2005-2016. The overall score on the World's Most Admired Companies ranking was used as a proxy for reputation. Bankruptcy risk was quantified by Altman Z-scores (Zang, 2012) and accounting information for each year in the period was retrieved from the database Compustat Global. Our results reveal that corporate reputation has a negative influence on bankruptcy risk, reiterating the importance of risk management. When firms attract and strive to secure the favor of stakeholders, they increase risk for the same reason. However, this effect is counterbalanced by good reputation. Thus, corporate reputation is a valuable strategic resource with which managers can boost confidence among investors, increase the firm's credit worthiness and perpetuate the organization on the market. Furthermore, these results expand the literature on corporate reputation and risk of bankruptcy, and show signs that companies with high reputation have lower risk of bankruptcy and tend to honor their debts.

Introduction

Relentless competition, market globalization, and an ever-increasing supply of products and services induce firms to strive to gain an edge over their peers (Castro & López, 2006; Gotsi & Wilson, 2001). To do so, firms employ strategic resources, such as assets, skills, organizational processes, attributes, and information. Based on the Resource-Based View, these resources must be valuable, rare, inimitable, and non-substitutable to generate a competitive advantage (Barney, 1991).

Corporate reputation is an important and valuable strategic resource which can provide a competitive advantage and help attain and sustain superior financial performance (Inglis, Morley, & Sammut, 2006; Melo & Garrido-Morgado, 2012; Roberts & Dowling, 2002). It may be seen as an aggregation of stakeholder perceptions about the firm, developed over time, representing an important intangible asset (Barnett, Jermier, & Lafferty, 2006; Roberts & Dowling, 2002).

According to Feldman, Bahamonde, and Bellido (2014), corporate credibility — one of the benefits of a high reputation — attracts more and more investors as the firm's market value increases and risk decreases. Understanding the relationship between corporate reputation and risk is of utmost importance in view of the role reputation plays in strategic management (Henkel, 2009), with repercussions on performance and risk (Delgado-García, Quevedo-Puente, & Díez-Esteban, 2013).

Investment in reputation helps reduce information asymmetry between managers, the market, and investors by providing stakeholders with information not contained in financial reports (Li, 2010) and thereby increasing confidence in company actions, policies, and strategies. As pointed out by Delgado-García, Quevedo-Puente and Díez-Esteban (2013), because corporate reputation serves as an information signal of potential future firm behavior, its influence on corporate risk may be stronger in firms about which stakeholders have less complete information.

Risk may be seen as the interpretation of the level of uncertainty associated with a given event for which a return is expected (Eiser et al., 2012). Several types of risk are described in the literature: fluctuations in economic variables (stock prices, exchange rates, interest rates, commodity prices), risk of loss due to inadequate systems and controls, management failure and fraud, risk of non-compliance and/or default on contracts, and risk of failing legal support (Eiser et al., 2012; Linsley & Shrives, 2006; Rodríguez-Moreno & Peña, 2013). In Hull (2015), corporate risks are segregated into four groups: market risk, operational risk, credit risk, and legal risk. The present study focuses on credit risk, which estimates the likelihood of bankruptcy.

Credit risk is the risk of default on payment or debtor's non-compliance, potentially leading to bankruptcy. In other words, credit risk indicates a firm's propensity to fail, mostly due to inefficient resource management, based on accounting reports indicating corporate insolvency

(Altman, 1968). In this context, reputation can ensure market prominence, attract new talent and customers, and provide better bargaining power with suppliers (Feldman, Bahamonde, & Bellido, 2014), giving firms a competitive advantage and making them less likely to fail (Casado, Yanez, & Peláez, 2017). Firms with good reputation tend to be longevous, less susceptible to bankruptcy, and more resilient in times of crisis (Fombrun, Gardberg, & Barnett, 2000).

In view of the influence of corporate reputation on investors' choices and risk concerns (Cole, 2012), in this study we explore the relationship between corporate reputation and bankruptcy risk.

Our sample included 441 firms listed at least once on the Fortune ranking of the World's Most Admired Companies (WMAC) in the period 2005-2016. We used the overall score on the WMAC ranking as a proxy for reputation and quantified bankruptcy risk in Altman Z-scores (Zang, 2012). Accounting information for each year in the period was retrieved from the database Compustat Global.

Our study provides subsidies for informed decision making about future investments, whether conservative or hazardous, based on an understanding of the relationship between corporate reputation and bankruptcy risk. The results show that firms with high reputation have lower risk, suggesting that credibility associated with corporate reputation has a favorable influence on investor decision making. Thus, reputation may be considered complementary to accounting reports for the sake of investment analysis.

The present investigation is a contribution to the burgeoning literature on corporate reputation associated with accounting, despite reputation being classified as an intangible asset capable of generating competitive advantage. The study also contributes to the literature on bankruptcy risk by providing empirical evidence for how bankruptcy risk may be affected not only by corporate reputation, but also by macroeconomic factors, regulatory quality, and the rule of law in each country.

Theoretical Framework

The topic of corporate reputation has been explored by scholars of many different fields, including economics, strategy, marketing, organization theory, accounting, and sociology (Fombrun & Van Riel, 1997). However, the concept has still not been defined in universally accepted terms (Chun, 2005).

Barnett, Jermier and Lafferty (2006) identified three major clusters of meaning in the concept of corporate reputation: awareness, assessment, and asset. As for the first, reputation may be defined as an aggregation of perceptions of the organization among stakeholders and other observers, without making judgments. As for the second, reputation is the result of a judgment, estimate, evaluation, or gauge. Being judgmental in nature, it is akin to an opinion or belief and includes the attractiveness of the firm and the regard in which it is held. The third cluster refers to reputation as an intangible asset of real value. The authors point out that despite some overlap, the clusters are relatively distinct. Awareness does not imply an assessment, and

assessment does not imply transformation into an asset. In the present study, reputation is considered an intangible asset.

Berens and Van Riel (2004) classified studies on reputation into three categories: social expectations, corporate personality, and trust. The first category includes studies associating reputation with social expectations regarding organizational behavior. The second category covers reputation as a set of personality traits attributed to companies. The third category includes studies associating reputation with trust, that is, the perception of honesty and trust in the firm. The present study may be classified in the third category.

In other words, corporate reputation may be seen as a strategic (thus intangible) asset with enough business value to confer a competitive advantage on the organization and attain superior performance, as long as the market trusts the firm's strategies (Fombrun & Van Riel, 1997). From the perspective of Recourse-Based View (RBV), in order to attain and sustain this level of performance, strategic assets must be valuable, rare, inimitable, and non-substitutable (Barney, 1991).

Other benefits of a good reputation associated with superior performance include willingness on part of consumers to pay more for the company's products and services, greater attractiveness for potential partners, and lower risk in the eyes of investors (Walker, 2010). Feldman et al. (2014) also point out that organizational credibility tends to attract more investors by increasing market value and reducing risk.

According to Fombrun and Shanley (1990), investors prefer firms with high performance and low risk due to their propitious trajectory and perspectives. Optimistic projections motivate investors to acquire stock, and this in turn increases the firm's market value and shows the firm is capable of fulfilling its economic and social goals (Cole, 2012).

Thus, corporate reputation serves as an indication of potential future behaviors and plays a role in risk assessment. Indeed, the negative impact of bankruptcy risk is greater when stakeholders are not given access to complete company information (Delgado-García et al., 2013). Cole (2012) reiterates that investors' choices may depend on whether the company's reputation is high enough to allay their concerns about risks.

Herremans, Akathaporn, and McInnes (1993) investigated corporate reputation as a measure of social responsibility in relation to financial performance in the period 1982-1987. The Fortune 500 ranking, which takes social responsibility into account, was used as a proxy for reputation. Operating margin, net margin, return on assets (ROA), and return on equity (ROE) were used as performance indicators. In addition, the authors evaluated total risk and systematic risk. A strong correlation was found between good reputation (with emphasis on social responsibility) and high returns, and between good reputation and low total risk.

Hammond and Slocum (1996) published a similar study involving 149 firms from the Fortune (1993) ranking of America's Most Admired Companies for the years 1981 and 1986. They

expressed reputation as attributes of social responsibility according to Fortune criteria and used market-based risk and return variables and accounting measures of return as performance indicators. The results for 1981 indicated that firms with low risk (expressed as β coefficient) and high ROE enjoyed the highest reputation, associated with an image of high social responsibility.

To interpret these studies, the concept of risk and the types of risk employed in the analysis must be understood. According to Gupta (2014), no universally accepted definition exists. However, Hull (2015) sees risk as the interpretation of the level of uncertainty associated with an event and classifies it into market risk, operational risk, credit risk, and legal risk. Our study analyzes bankruptcy risk as a type of credit risk. Like all risks, bankruptcy risk affects corporate reputation, hence perpetuation on the market – a major goal of all firms. Continuity is also one of the principles of accounting. Thus, it is important to understand how reputation relates to this type of risk.

Credit risk may be said to arise when individuals or firms acquire goods or services in return for a promise of future payment (Gupta, 2014). Thus, credit risk is the probability that one of the parties will default on or delay payment, potentially triggering a process of bankruptcy. The Altman Z-score, one of the metrics used to quantify credit/bankruptcy risk, was developed in 1981 by Edward Altman and James La Fleur as a model of discriminant analysis employing traditional financial indicators (Gupta, 2014): the working capital/total assets ratio, the retained earnings/total assets ratio, the earnings before interest and taxes/total assets ratio, the market value of equity/book value of total liabilities ratio, and the sales/total assets ratio (Hull, 2015).

The higher the Altman Z-score, the better the firm's financial health and the less likely a scenario of bankruptcy. With Altman Z-scores over 3, firms may be expected to honor their debts and remain in business (Gupta, 2014; Hull, 2015). A score between 3 and 2.7 should alert investors to possible difficulties, while scores between 2.7 and 1.8 indicate a palpable risk of insolvency. Firms with scores below 1.8 are very likely to go bankrupt (Gupta, 2014; Hull, 2015).

The few studies correlating corporate reputation and risk have mostly focused on market risk (Casado et al., 2017), while bankruptcy risk has almost exclusively been explored from the theoretical perspective. In fact, most authors use risk as a control variable.

Fombrun and Shanley (1990) believe firms compete for reputation in a market characterized by incomplete information. The authors investigated the impact of corporate reputation in a sample of 292 British firms from the 1985 Fortune list. Reputation (dependent variable) was quantified using an index derived from the Fortune ranking. The independent variables included size, financial performance, risk level, institutional ownership, media exposure, differentiation, and diversification. The authors found the variables "financial performance" (return on capital invested and market-to-book ratio), "institutional ownership," and "size" to have a positive effect on corporate reputation, while the variable "risk" (based on accounting) had a negative effect.

Brammer, Millington and Pavelin (2009) investigated the relationship between corporate reputation and the presence of women on the board of directors in a sample of 199 British firms. Reputation was quantified based on the ranking of the Most Admired Companies in Great Britain published in the 2002 edition of Management Today. The control variables included the β coefficient as a measure of market risk. Based on the β coefficient, market risk had a negative effect on corporate reputation.

Financial performance depends not only on high returns but also on low risk. By reducing risk, good corporate reputation is therefore likely to improve performance. According to Delgado-García et al. (2013), little has been published on the relationship between risk and corporate reputation, despite the importance of the subject to strategic management (Henkel, 2009).

Delgado-García et al. (2013) evaluated the impact of corporate reputation on systematic risk, non-systematic risk, and total risk in a sample of 96 Spanish public firms covering the period 2001-2007. The authors expressed systematic risk in CAPM-generated β coefficients, calculated total risk derived from the model as variance of returns, represented non-systematic risk by the standard deviation of the error term of the model, and used the participation and score of the company on the Merco ranking as a proxy for reputation. When a dummy variable was used for reputation, non-systematic risk and total risk were negatively correlated with reputation, while systematic risk was positively impacted by reputation. When reputation was quantified by scores on the Merco ranking, the authors observed a negative correlation between non-systematic risk and reputation. No significant correlations were found for systematic risk or total risk.

Corporate reputation can be measured with several different methods (Gotsi & Wilson, 2001). According to Wartick (2002), most approaches to the measurement of corporate reputation are focused on stakeholder perception and are used to compare firms, especially with regard to financial performance. Indeed, as pointed out by Chun (2005), such approaches are often criticized for being excessively concerned with financial performance.

Moreover, the Reputation Institute (http://www.reputationinstitute.com), a major international reference for the measurement of corporate reputation conducting research on all continents, has developed a methodology (RepTrak) which captures stakeholders' perceptions about organizations by measuring the level of trust, esteem, admiration, and respect in each one of seven key dimensions (leadership, performance, products, innovation, workplace, governance, and citizenship).

In this study, we used the most widely known corporate reputation metric: the Fortune ranking of the World's Most Admired Companies (Fombrun, 2007).

Based on these considerations and on the literature (Brammer, Millington, & Pavelin, 2009; Casado et al., 2017; Delgado-García et al., 2013; Fombrun & Shanley, 1990; Hammond & Slocum, 1996; Krueger & Wrolstad, 2016), we formulated the following hypothesis:

H_1: Corporate reputation is negatively correlated with bankruptcy risk.

The hypothesis is based on the assumption that corporate reputation is correlated with bankruptcy risk. Good reputation generates benefits, such as attracting and retaining talents, attracting investors, outperforming the competition, capturing more resources, and boosting trust. Thus, reputation tends to legitimize the firm on the market and confer longevity, making bankruptcy an unlikely event (Casado et al., 2017; Flanagan & O'Shaughnessy, 2005; Musteen, Datta, & Kemmerer, 2010).

Methodology

The sample population consisted of firms listed at least once on the Fortune ranking of the World's Most Admired Companies (WMAC) in the period 2005-2016. The ranking is built with the scores of the 500 largest firms in the world and the 1,000 largest US firms based on revenue and a rating by executives, directors, and financial analysts using nine criteria, ranging from market value and product and management quality to social responsibility and ability to attract talents: innovation, personnel management, use of corporate assets, social responsibility, management quality, financial robustness, long-term investment value, product and service quality, and global competitiveness.

The desired information was available for only 441 firms (4,578 observations). Table 1 shows the observations of company bankruptcy risk, represented by ALTM, according to country.

Table 1

Sample by country

COUNTRY	ALTM		
	Frequency	Percent	Cumulative
CANADA	40	0.87	0.87
GERMANY	8	0.17	1.05
FINLAND	1	0.02	1.07
IRELAND	62	1.35	2.42
JAPAN	6	0.13	2.56
SINGAPORE	9	0.20	2.75
SPAIN	2	0.04	2.80
SWEDEN	1	0.02	2.82
SWITZERLAND	6	0.13	2.95
UNITED KINGDOM	30	0.66	3.60
UNITED STATES	4.413	96.40	100
Total	4.578	100	

Note. ALTM = bankruptcy risk.

Note that, although the study was based on a global ranking, the sample consisted mostly of US firms. International firms were defined as firms traded on US stock markets (NYSE, NASDAQ, etc.). This fact arises due to the criteria of the World's Most Admired Companies (WMAC) ranking, in which it recovers 25% for American companies.

In order to evaluate the relationship between corporate reputation and bankruptcy risk (the main objective of the study), we submitted our findings to panel data multiple linear regressions with fixed effects and robust errors:

$$ALTM_{it} = \beta_0 + \beta_1 REP_{it-1} + \beta_2 ROA_{it} + \beta_3 LEV_{it} + \beta_4 INT_{it} + \beta_5 EPS_{it} + \beta_6 SIZE_{it} + \quad (1)$$
$$\beta_7 IFRS_{it}\, \beta_8 AUD_{it} + \beta_9 CRIS_{it}\, \beta_{10} GDP_{it} + \beta_{11} RL_{it} + \beta_{12} RQ_{it} + \varepsilon_{it}$$

Although the Z-score model was developed in the 1960s and is only one among many bankruptcy prediction models, it is still widely used in both research and operations as primary or ancillary tool for the analysis and prediction of financial distress and bankruptcy (Altman, Iwanicz-Drozdowska, Laitinen, & Suvas, 2017). Tinoco and Wilson (2013) used the Z-score as a reference against which to measure the performance of a model developed for UK firms, and the Altman Z-score achieved 81% accuracy in the identification of firms in financial difficulties. Moreover, when the model proposed by Altman (1968) was used by Chava and Jarrow (2004) to detect bankruptcy in a large sample of insolvent US firms between 1991 and 1999, 63.2% of the actual bankruptcies were correctly predicted.

Based on the literature, corporate reputation was expected to be negatively associated with bankruptcy risk. In other words, the greater the corporate reputation (higher REP value), the smaller the bankruptcy risk (higher ALTM value).

Table 2 shows the dependent, independent, and control variables used in the study.

Table 2

Measurement and description of dependent, independent, and control variables

Variable		Metric	Operationalization
Dependent	ALTM	Bankruptcy risk	*0.3*(NI/TA) + (S/TA) + 1.4*(RE/TA) + 1.2*(WC/TA) + 0.6*(MV/TL)* NI = net income; TA = total assets; S = sales; RE = retained earnings; WC = working capital; MV = market value; TL = total liabilities
Independent	REP	Corporate reputation	Overall WMAC score
Controls	ROA	Return on assets	Net income/total assets
	LEV	Leverage	Total debt/total assets
	INT	Intangibility	Market value/shareholders' equity
	EPS	Earnings per share	Natural logarithm of earnings per share excluding extraordinary items
	SIZE	Company size	Natural logarithm of total assets
	IFRS	International Financial Reporting Standards	Dummy variable in which 1 represents years following the adoption of IFRS; 0 otherwise

Continues

Table 2 (continued)

Variable		Metric	Operationalization
	AUD	Audit quality	Dummy variable in which 1 represents firm audited by one of the Big Four; 0 otherwise
	CRIS	Financial crisis	Dummy variable in which 1 represents the year 2008; 0 otherwise
Controls	GDP	Gross Domestic Product	Annual variation in GDP
	RL	Rule of law	Rule of law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence
	RQ	Regulatory quality	Regulatory quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development

The choice of study variables was based on a review of the literature on corporate reputation and risk (Ahn & Choi, 2009; Borghesi, Houston, & Naranjo, 2014; Casado et al., 2017; Hasseldine, Salama, & Toms, 2005; Himme & Fischer, 2014; Musteen, Rhyne, & Zheng, 2013; Toms, 2002). This included the following control variables: return on assets (Henkel, 2009), leverage (Beaver, 1966; Jiraporn, Jiraporn, Boeprasert, & Chang, 2014), intangibility (Jiraporn et al., 2014), earnings per share (Horrigan, 1966), company size (Borghesi et al., 2014), IFRS (Chan, Hsu, & Lee, 2013), audity quality (Hammond & Slocum, 1996), financial crisis (Jones, Jones, & Little, 2000), annual variation in GDP (Butler & Fauver, 2006; Tinoco & Wilson, 2013), rule of law (Butler & Fauver, 2006), and regulatory quality (Butler & Fauver, 2006; Godlewski, 2006).

The sample consisted of firms appearing at least once on the WMAC ranking between 2005 and 2016. Based on the assumption that absence from the ranking is an indication of low reputation, we assigned the value 0 (zero) to the variable REP in the years in which a firm was not listed. However, to avoid sampling bias, we performed a second analysis considering only REP values ≠ 0.

Our analysis starts with a descriptive statistic of ALTM and REP and a comparison between the groups with regard to these two variables using parametric tests (t tests) and non-parametric tests (Mann-Whitney). To determine whether inclusion in the Fortune ranking of the World's Most Admired Companies had an impact on ALTM, we segregated the sample into two groups: observations covering the years when the sampled firms were not listed in the ranking, and observations covering the years when the sampled firms were listed. To test the association between bankruptcy risk and reputation, we also segregated the sample into firms with high vs. low bankruptcy risk (ALTM ≤ 3 vs. >3). In addition, we analyzed the correlations between all the study variables and, testing the hypothesis, performed panel data regressions with fixed effects to evaluate the effect of the firm over time.

Analysis of Results and Discussion

Using Student's t test and the Mann-Whitney test, we initially verified whether the bankruptcy risk of the sampled firms during the study period (2005-2016) was significantly associated with inclusion in the Fortune ranking of the World's Most Admired Companies. Table 3 shows the results of the analysis.

Table 3

Group descriptives

	ALTM			Student's t	Mann-Whitney test
	Total	0	1	(p-value)	(p-value)
Mean	4.26	4.24	4.27		
Standard deviation	3.40	0.662	0.631		
Minimum	0.003	0.003	0.003		
Median	2.83	2.79	2.86	0.797	0.552
Maximum	6.80	6.80	6.56		
N	4578	2187	2391		

Note. Source: the authors. ALTM = Altman Z-score according to Zang (2012); 0 = observations of firms during years of absence from the Fortune ranking of the World's Most Admired Companies (WMAC); 1 = observations of firms during years of inclusion in the Fortune ranking of the World's Most Admired Companies (WMAC).

The results of Student's t test and the Mann-Whitney test (Table 3) show that, for the period covered by the study, the risk of bankruptcy was not significantly impacted by inclusion in the Fortune ranking of the World's Most Admired Companies. In other words, the higher corporate reputation presumably afforded by inclusion in the ranking did not significantly lower the bankruptcy risk.

Furthermore, the high mean Altman Z-score of the sampled firms (4.26) suggests that highly reputed firms are not at risk of bankruptcy (Gupta, 2014; Hull, 2015). The low overall bankruptcy risk in our sample may in part be justified by the large size of the firms listed in the Fortune ranking. In fact, a comparison of the two groups shows that the Altman Z-score was statistically similar whether the firm was listed in the ranking or not.

To determine whether firms with low bankruptcy risk differed from firms in financial distress with regard to reputation, we submitted the data to Student's t test and the Mann-Whitney test. The results are shown in Table 4.

Table 4

Group descriptives

	REP			Student's t (p-value)	Mann-Whitney test (p-value)
	Total	0	1		
Mean	3.30	3.23	3.42		
Standard Deviation	3.25	3.18	3.32		
Minimum	0	0	0	0.004	0.000
Median	4.69	4.44	4.98		
Maximum	8.80	8.40	8.80		
N	4578	2437	2141		

Note. Source: the authors. REP = lagged overall WMAC score; 0 = firms with Altman Z-score ≤ 3; 1 = firms with Altman Z-score > 3.

As illustrated in Table 4, firms at risk of financial difficulties and bankruptcy (Altman Z-score ≤ 3) were less well reputed than firms with low risk of bankruptcy due to their ability to pay debts. Thus, our findings suggest different levels of reputation in firms with low risk of bankruptcy vs. firms at high risk of insolvency.

The mean REP was low in the sample (Table 4), but, as explained in the previous section, REP was assigned the value 0 in years of absence from the Fortune ranking. In general, sampled firms with REP = 0 did not have their reputation quantified with WMAC criteria (innovation, personnel management, use of corporate assets, social responsibility, management quality, financial robustness, long-term investment value, product and service quality, and global competitiveness).

Before proceeding with the regression analysis, we submitted the variables to Pearson correlation analysis. Table 5 shows the coefficient of each correlation.

Table 5

Pearson correlations

	ALTM	REP	ROA	LEV	INT	EPS	SIZE	IFRS	AUD	CRIS	GDP	RL	RQ
ALTM	1												
REP	0.031 **	1											
ROA	0.511 ***	0.013	1										
LEV	-0.608 ***	-0.025 *	-0.216 ***	1									
INT	0.353 ***	0.023	0.255 ***	0.119 ***	1								
EPS	0.200 ***	0.008	0.138 ***	-0.118 ***	0.094 ***	1							

Continues

Table 5 (continued)

	ALTM	REP	ROA	LEV	INT	EPS	SIZE	IFRS	AUD	CRIS	GDP	RL	RQ
SIZE	-0.440 ***	0.002 *	-0.064 ***	0.378 ***	-0.259 ***	-0.236 ***	1						
IFRS	0.2646 ***	-0.0465 **	-0.0989 ***	0.1381 ***	-0.1444 ***	-0.3360 ***	0.3745 ***	1					
AUD	0.053 ***	0.005	0.219 ***	0.133 ***	0.015	0.057 ***	0.283 ***	-0.0589 ***	1				
CRIS	-0.041 ***	-0.001	0.007	-0.003	-0.098 ***	-0.003	-0.019	-0.0001 ***	0.001	1			
GDP	-0.063 ***	-0.006	0.042 ***	-0.008	0.110 ***	0.031 **	-0.036 **	-0.0408 ***	0.003	-0.318 ***	1		
RL	-0.023	0.017	0.027 *	-0.050 ***	0.060 ***	0.028 **	-0.117 ***	0.1494 ***	0.081 ***	0.111 ***	-0.010	1	
RQ	-0.011	0.006	0.036 ***	-0.043 ***	0.041 ***	-0.019	-0.076 ***	0.2697 ***	0.024 *	0.168 ***	0.085 ***	0.515 ***	1

Note. Source: the authors. ALTM = Altman Z-score according to Zang (2012); REP = lagged overall WMAC score; ROA = net income before extraordinary items divided by total assets; LEV = total debts divided by total assets; INT = market value divided by shareholders' equity; EPS = natural logarithm of earnings per share; SIZE = natural logarithm of total assets; IFRS = dummy in which 1 represents years following the adoption of IFRS, 0 otherwise; AUD = dummy variable in which 1 represents firm audited by one of the Big Four, 0 otherwise; CRIS = dummy variable in which 1 represents year 2008, 0 otherwise; GDP = annual variation in GDP; RL = rule of law; RQ = regulatory quality.
*** = significant at 1%; ** = significant at 5%; * = significant at 10%.

As expected, ALTM and REP were positively correlated ($p<0.01$). Note that high ALTM values indicate low bankruptcy risk; thus, a positive association between ALTM and REP means that companies with good reputation are at low risk of bankruptcy. Up to this point in the analysis, the study hypothesis cannot be rejected, supporting the notion that, generally, firms with good reputation and which honor their debts acquire long-lasting legitimacy in the eyes of stakeholders and are unlikely to go bankrupt.

INT, EPS, and ROA were positively related to ALTM; thus, the greater these variables were, the smaller the bankruptcy risk. On the other hand, LEV and SIZE were negatively related to ALTM; thus, the greater the leverage and the size of the firm, the greater the bankruptcy risk. CRIS was also negatively correlated with ALTM, meaning that at the height of the financial crisis (2008) the sampled firms were at greater risk of bankruptcy. Moreover, variation in GDP was negatively correlated with ALTM. In other words, the greater the variation in GDP, the smaller the risk of bankruptcy; or, put simply, the higher the GDP, the stronger the financial health of local firms.

The observed effect of the control variables (ROA, LEV, INT, EPS, SIZE) on REP (Table 5) confirms the literature and the results of our descriptive analysis. It should be pointed out that the WMAC ranking includes only large firms (Fombrun, Gardberg, & Sever, 2000). The fact that our sample was limited to large firms may have had an impact on the variable REP (proxied by the overall WMAC score), especially since company size has been shown to be positively correlated with reputation (Fombrun & Shanley, 1990).

We submitted our findings to panel data multiple linear regression analysis with fixed effects and robust errors to evaluate the relationship between corporate reputation and bankruptcy risk. Table 6 shows the results of the model, with ALTM as dependent variable. Because ALTM is an inverse parameter (greater values indicate lower risk), a positive correlation with REP was expected.

Table 6

Results of the multiple linear regression analysis

Variable	Descriptives		Sample_1	Sample_2	Sample_3	VIF
	Mean	Std. dev.	Coeff.	Coeff.	Coeff.	
REP	3.30	3.2438	0.0035**	0.0006**	0.0037*	1.00
ROA	0.1079	0.0805	2.4134***	2.4401***	2.5664***	1.66
LEV	0.6218	0.2043	-1.4014***	-1.4015***	-1.4479***	1.53
INT	1.3542	0.6812	0.1961***	0.1906***	0.2348***	1.65
EPS	2.7297	2.8755	0.0095***	0.0346**	0.0024*	1.10
SIZE	23.4274	1.9831	-0.0679***	-0.0703***	-0.0587***	1.46
IFRS	0.3843	0.2789	0.0005	0.0119	0.0566	1.24
AUD	0.9815	0.1347	0.1426***	0.0995**	0.4975***	1.11
CRIS	0.0767	0.2661	0.0515***	0.0522***	0.0132	1.18
GDP	1.7724	1.6663	-0.0007	-0.0012	-0.0022	1.16
RL	1.6090	0.083	0.1429**	0.0961**	0.4349***	1.38
RQ	1.4502	0.1565	0.0956***	0.9258**	0.0148*	1.39
Constant	-	-	-0.9083***	-0.9257***	-0.6710**	-
F			1103.03***	882.62***	126.89	
Within			0.7505	0.7501	0.7603	
Between			0.8631	0.6533	0.7143	
Overall			0.7509	0.7497	0.7596	
N			4.578	4.413	165	

Note. Source: the authors. Sample_1 = total sample; Sample_2 = subsample of US firms only; Sample_3 = subsample of non-US firms. ALTM = Altman Z-score according to Zang (2012); REP = lagged overall WMAC score; ROA = net income before extraordinary items divided by total assets; LEV = total debts divided by total assets; INT = market value divided by shareholders' equity; EPS = natural logarithm of earnings per share; SIZE = natural logarithm of total assets; IFRS = dummy variable in which 1 represents years following the adoption of IFRS, 0 otherwise; AUD = dummy variable in which 1 represents firm audited by one of the Big Four, 0 otherwise; CRIS = dummy variable in which 1 represents the year 2008, 0 otherwise; GDP = annual variation in GDP; RL = rule of law; RQ = regulatory quality.
*** = significant at 1%; ** = significant at 5%; * = significant at 10%.

Initially, it should be noted that the statistical model was significant at 1% in the *F* test, indicating that the independent variable or one of the control variables influenced the dependent variable.

As shown in Table 6, reputation was significantly correlated with risk at the level of 1%. The positive correlation between REP and ALTM was expected: firms with good reputation tend to honor their debts and are less likely to become insolvent (Casado et al., 2017; Krueger & Wrolstad, 2016).

As a reflection of the quality of the firm's conduct in the eyes of the stakeholders, corporate reputation is a valuable asset that takes a long time to build. To preserve their reputation, firms strive to meet stakeholders' expectations, even when the market slows down, and this makes them more vulnerable to market fluctuations (Delgado-García et al., 2013). The finding by Delgado-García et al. (2013) of an inverse association between corporate reputation and non-systematic risk in a sample of Spanish firms, contrasting with the results of the present study, may be explained by considerable differences in context. In fact, many aspects of the relationship between risk and reputation remain to be clarified.

The WMAC ranking quantifies reputation on a scale from 0 to 10 (the higher, the more reputable). The mean REP value of the sample was low (Table 3) but, as explained in the Methodology section, REP was assigned the value 0 in the years a firm was absent from the ranking.

Despite the finding of negative operating performance in some of the sampled firms, the mean operating performance was positive, possibly due to good reputation, considering that our sample consisted of firms included in the Forbes ranking for one or more years during the study period (2005-2016). This finding is supported by the literature on corporate reputation, which shows good reputation to be associated with superior performance (Fombrun & Shanley, 1990; Roberts & Dowling, 2002).

On the average, LEV was ˜62% in our sample, indicating that over three fifths of the capital structure was represented by third-party capital. In addition, the finding of a strongly negative association ($p<0.01$) between LEV and ALTM shows that the smaller the indebtedness of a firm, the greater its ability to pay debts.

The level of intangibility (a proxy for market performance) was high in the sample, as shown by the fact that market value was equivalent to or greater than equity. As with ROA, this may be due to good reputation, as suggested by Fombrun and Van Riel (1997) and Van Riel and Fombrun (2007).

The variable earnings per share (EPS) may be used as an indicator of the attractiveness of an organization (Nassirzadeh, Saei, Salehi, & Varnosfaderani, 2013). Thus, the greater the EPS, the more attractive the firm. With an EPS value (without the natural logarithm) above 0, the sampled firms would be considered attractive, as suggested by the literature on reputation (Fombrun & Van Riel, 1997; Van Riel & Fombrun, 2007). As observed in Table 6, the variable EPS and the ALTM Z-score were positively and significantly ($p<0.01$) associated, indicating that the greater the attractiveness of the firm, the smaller the risk of bankruptcy.

As an indicator of a firm's attractiveness (Nassirzadeh et al., 2013), EPS is akin to the concept of corporate reputation. A firm which enjoys the trust of investors is likely to be more attractive and, consequently, more efficient at capturing resources, thereby reducing the risk of bankruptcy (Srivastava & Gnyawali, 2011).

Almost all the sampled firms (98.15%) were audited by one of the Big Four, and audit quality was positively associated with bankruptcy risk. Matching the results of Butler and Fauver (2006) and Godlewski (2006), in our study regulatory quality (RQ) and rule of law (RL) yielded positive and significant coefficients, suggesting that the government's ability to promote the development of the private sector and trust in the government's good-will and respect for property rights have a positive influence on corporate financial health, reducing the risk of insolvency.

Table 6 is an analysis of robustness using two subsamples, one consisting of US firms only (Sample_2) and one with non-US firms (Sample_3). The results remained unchanged.

In addition, we conducted an analysis on a subsample of firms with REP ≠ 0, the results of which are displayed in Table 7.

Table 7

Results of the multiple linear regression analysis

Variable	Descriptives		Sample_1	Sample_2	Sample_3	VIF
	Mean	Std. dev.	Coeff.	Coeff.	Coeff.	
REP_WOUT	6.3697	0.8677	0.0372***	0.0099**	0.0216*	1.04
ROA	0.1078	0.0722	2.1759***	2.7016***	2.9223***	1.88
LEV	0.6223	0.2002	-1.3903***	-1.4017***	-1.4968***	1.50
INT	1.3427	0.6492	0.2243***	0.1778***	0.2111***	1.81
EPS	2.7249	2.9266	0.0097***	0.0378**	0.0033*	1.10
SIZE	23.3912	1.9123	0.0690***	0.0686***	0.0587***	1.42
IFRS	0.1056	0.3024	0.0014	0.0447*	0.0873*	1.47
AUD	0.9819	1.1332	0.1318***	0.1211**	0.1841	1.12
CRIS	0.0785	0.2690	0.0638**	0.0716**	0.0088	1.18
GDP	1.7648	1.7239	0.0054	0.0004	0.0079	1.15
RL	1.6104	0.0786	0.1244	0.0565	0.3948	1.37
RQ	1.4510	0.1545	0.1647***	0.2151**	0.1491*	1.38
Constant	-	-	-1.2311***	-0.8163**	-0.6164*	
F			515.34***	495.07***	81.48***	
Within			0.7316	0.7607	0.8069	
Between			0.7932	0.8721	0.8485	
Overall			0.7318	0.7614	0.8075	
N			2.391	2.286	105	

Note. Source: the authors. Sample_1 = total sample; Sample_2 = subsample of US firms only; Sample_3 = subsample of non-US firms. ALTM = Altman Z-score according to Zang (2012); REP_WOUT = lagged overall WMAC score (REP ≠ 0); ROA = net income before extraordinary items divided by total assets; LEV = total debts divided by total assets; INT = market value divided by shareholders' equity; EPS = natural logarithm of earnings per share; SIZE = natural logarithm of total assets; IFRS = dummy variable in which 1 represents years following the adoption of IFRS, 0 otherwise; AUD = dummy variable in which 1 represents firm audited by one of the Big Four, 0 otherwise; CRIS = dummy variable in which 1 represents year 2008, 0 otherwise; GDP = annual variation in GDP; RL = rule of law; RQ = regulatory quality.
*** = significant at 1%; ** = significant at 5%; * = significant at 10%.

In the subsample of firms with REP ≠ 0, the mean REP value was 6.37. The association between REP and ALTM remained significant and positive, confirming that reputation is positively reflected in financial health. This is an indication that firms paying their debts have a better reputation on the market. Thus, the result was the same whether corporate reputation was represented by the variable REP (firms assigned the value 0 in the years of absence from the ranking) or the variable REP_WOUT (firms excluded from the analysis in the years of absence from the ranking). We also exclude non-US firms (not tabulated), and we note that the result has remained constant.

We conducted additional tests (Table 7) on the subsample of US firms (Sample_2) and the subsample of non-US firms (Sample_3). Again, the results remained unchanged.

In short, the study hypothesis (corporate reputation is negatively correlated with bankruptcy risk) could not be rejected, suggesting that corporate reputation may be used as an information signal by investors in the quest for a balance between risk and return in specific ventures.

Conclusion

The purpose of this study was to evaluate the relationship between corporate reputation and bankruptcy risk in public firms. To do so, we submitted data from 441 firms to multiple linear regression analysis with fixed effects and robust errors. We used bankruptcy risk (expressed as Altman Z-score) as dependent variable and corporate reputation (proxied by the overall WMAC score) was used as independent variable.

The multiple linear regression analysis showed that corporate reputation has a negative effect on bankruptcy risk. Hence H_1 could not be rejected, a finding supported by Casado, Yanez, and Peláez (2017), who also found reputation to be associated with lower bankruptcy risk, and by Gregory (1998) and Jones, Jones, and Little (2000), who concluded that corporate reputation helps protect the firm against market slowdowns, but not by Delgado-García et al. (2013), who found a positive association between corporate reputation and systematic risk, perhaps due to the differences between the two types of risk. Thus, based on our sample, firms with high reputation are indeed less prone to bankruptcy.

Good corporate reputation generates a number of benefits through competitive advantage, as posited by Resource-Based View. For example, it increases the firm's market value and its attractiveness to stakeholders and potential partners, especially investors, and makes it possible to raise prices. This is compatible with the adoption of good practices of corporate governance.

By evaluating the relationship between reputation and risk, our analysis is relevant in both the academic and the entrepreneurial setting. The importance of risk management should also be pointed out: when firms attract and strive to secure the favor of stakeholders, they increase risk for the same reason. However, as shown by our results, this effect is counterbalanced by good

reputation. In addition, our study shows that, in view of its negative association with bankruptcy risk, reputation is an essential strategic resource to attain longevity on the market and overcome crises. Academically speaking, our study expands current knowledge of corporate risk by directly probing the little-explored relationship between corporate risk and reputation, in that it presents evidence that the higher the company's reputation, the less likely to become insolvent; or, put simply, the higher the corporate reputation, the greater the likelihood that the company will honor its debts.

The limitation of the sample to firms on the WMAC ranking may have introduced a bias with regard to company size. In addition, the ranking features mainly US firms and so displays an uneven distribution of countries. Another potential limitation is the use of reputation as independent variable. Reputation is a poorly defined construct without a universally accepted metric. Unsurprisingly, the use of reputation rankings is still common practice, especially in archival research.

Our findings point to corporate reputation as a promising field of study. For example, future investigations might explore the relationship between reputational risk and corporate reputation or the relationship between business risk disclosure and corporate reputation, since well-reputed firms tend to disclose more information on risks, generating greater credibility in the eyes of stakeholders. Finally, we suggest evaluating the relationship between bankruptcy risk and corporate reputation in a comprehensive sample of firms from emerging markets.

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