

Being famous matters: Evidence from cash flow volatility

ABSTRACT

Corporate reputation is a paramount driver of value creation and competitive advantage in the 21st century. Motivated by the importance of cash flows and the under-researched nature of their volatility in the corporate finance literature, we investigate the impact of corporate reputation on cash flow volatility. We developed unique hand-collected data from the Fortune world's most admired companies for a sample of U.S. companies from 2014 through 2020. The findings show that there is a negative relationship between corporate reputation and cash flow volatility. Our additional analyses demonstrate that the negative relationship between corporation reputation and cash flow volatility is stronger for firms with a higher company beta, higher earnings, and lower short-term liquidity. Our findings imply that improving corporate reputation can decrease the risk levels associated with operating performance.

Keywords: Corporate reputation, Cash flow volatility, Operating performance, Fortune's corporate reputation score

JEL classification: G40, G12, G17, M30, G32, G35

1- Introduction

The possession of valuable intangible assets (e.g., patents, R&D activities, brands, and human capital) is crucial to creating value and gaining sustainable competitive advantage in the 21st century (Beladi, Deng, & Hu, 2021). Recently, business leaders have become aware of this fact. This results in the proportion of intangible assets having grown from 38% in 1982 to 85% in 1988 of the total market capitalization of S&P 500 companies (Eustace, 2021). There is consensus in the literature concerning the vitality of corporate reputation as a valuable, scarce, unique, and difficult-to-imitate intangible asset driving value creation that helps companies gain a prestigious position in the marketplace and gain sustainable competitive advantage (Roberts & Dowling, 2002; Fasaei, Tempelaar, & Jansen, 2018). The uniqueness of corporate reputation stems from the long time it takes to build and the short time it takes to destroy (Delgado-García, Quevedo-Puente, & Díez-Esteban, 2013).

Corporate reputation is not the corporate image; it is the stakeholders' perception of corporate identity, image, prestige, goodwill, esteem, and standing (Pham & Tran, 2020). Different theories describe how corporate reputation influences firm behavior. First, expectancy violation theory stipulates that high expectations characterize all stakeholders of reputable firms. Sometimes, top management avoids some strategic choices because it knows that failing to meet the stakeholder's expectations may result in losing all the financial and non-financial benefits of being reputable (Rhee & Haunschild, 2006; Oliveira, Kakabadse, & Khan, 2022). Second, legitimacy theory stipulates that firms intentionally spread good information and their social responsibility activities to enhance their reputation among current and potential stakeholders and to handle the risk of the legitimacy of corporate behavior (O'Donovan, 2002; Gómez-Carrasco, Guillamón-Saorín, & Osma, 2021). Third, reputation risk management theory stipulates that firms should set strategies and take action to manage their reputation risk, which helps companies avoid any deterioration in their reputation. This deterioration may hinder the company from building healthy relationships with stakeholders (Eckert, 2017). Finally, signaling theory stipulates that the market actions of the firm and its competitors build its reputation. As a result, the market actions of the firm can be seen as signals that carry information to outside stakeholders about the past, current, and future behavior of the firm. These signals help outside stakeholders evaluate the firm relative to competitors (Connelly, Certo, Ireland, & Reutzel, 2011; Basdeo, Smith, Grimm, Rindova, & Derfus, 2006; Trinh, Cao, Li, & Elnahass, 2023).

Previous studies addressed the relationship between corporate reputation and firm performance. For instance, a good reputation is more likely to be associated with higher and persistent profitability (Roberts & Dowling, 2002), competitive advantage (Barney, 1991), a lower future cost of equity (Pfister, Schwaiger, & Morath, 2020), a higher positive stock price through positive abnormal returns (Tischer & Hildebrandt, 2014), and higher net profits (Miller, Eden, & Li, 2020). No research to date examines the impact of corporate reputation on cash flow volatility.

Unlike prior studies that investigated the relationship between corporate reputation and financial performance, we adopt a different approach by highlighting the relationship between corporate reputation and operating performance. This view first weighs the importance of cash flow as a preferable gauge for business performance because it realistically reflects the financial situation of the firms and their ability to meet their obligations, as well as because it is free from biases stemming from accounting methods. Second, investors use cash flow information to make informed investment decisions (Gruca & Rego, 2005). Understanding cash flow volatility can help investors assess a company's financial stability and its ability to generate consistent returns. Lenders use cash flow information to assess credit risk and make lending decisions. High levels of cash flow volatility can indicate a higher level of credit risk and may result in higher interest rates or difficulty securing financing. Hence, cash flow volatility can have a significant impact on a company's financial stability and its ability to meet its obligations. Third, cash flow volatility can also be an indicator of overall business operating performance. Companies with high levels of cash flow volatility may struggle to cover their expenses, pay dividends, and make investments in growth opportunities (Bates, Kahle, & Stulz, 2009). Finally, and more importantly, understanding cash flow volatility can also help companies plan for the future and make informed decisions about their business operations. By anticipating and managing cash flow volatility, companies can ensure that they have the resources they need to grow and succeed (Fama & French, 2004). Overall, cash flow volatility is an important area of study as it provides valuable insights into a company's financial stability, investment potential, credit risk, business performance, and future planning.

This study aims to investigate the relationship between corporate reputation and cash flow volatility. We focused on U.S. firms because of the recent consecutive collapse of U.S.-listed firms, which represents a combination of poor financial performance and bad corporate reputation.

¹ We developed a unique dataset that is based on a hand-collection of reputation measures for U.S.

¹ Examples are Enron, WorldCom, Tyco International, Lehman Brothers, and others.

companies on the list of the world's most admired companies from 2014 through 2020. The focus on U.S. companies stems from both theoretical and practical reasons. In theory, corporate reputation research not only began and evolved in the United States (Jones, Jones, & Little, 2000), but U.S. companies also dominate the list of participants in the survey, with 477 companies vs. 188 in the rest of the world (Fortune, 2021). In practice, the U.S. economy is by far the largest in the world, with more than 20% of the global production, and more than a fifth of the world's most admired companies are U.S. (Focus Economics, May 31, 2022). Additionally, studying the U.S. companies on the list of most admired companies provides us with best practices, benchmarking, industry trends, attracting investments, and inspiration. Lastly, the U.S. economy shows several collapses of giant corporations due to a combination of poor financial performance and a bad reputation (e.g., Enron, Andersen, WorldCom, Tyco, and Lehman Brothers) (Fernando, May, & Megginson, 2012; Pillmore, 2003).

The data collection is informed by Fortune Magazine's list of the world's most admired companies. Companies on the list of the world's most admired companies are typically market leaders and recognized for their strong reputations, quality products, and excellent customer service. Studying U.S. companies on the list of the world's most admired companies is also important, as it provides valuable insights into best practices, industry trends, and successful strategies and can help companies improve their own performance and achieve greater success. Accordingly, we employed the Fortune reputation score to develop our measures for corporate reputation, and this score is preferred over other measures of reputation score because it reflects the collective impression of business society as the surveys are distributed and collected from top executives, managers, and analysts. The sample comprises 262 U.S. companies and was selected from Fortune Magazine's list of the world's most admired companies from 2014 through 2020. The year 2014 is relied on as the first year for our sample because the corporate reputation score for the world's most admired companies, prepared and published by Fortune Magazine, was not available before 2014.

The findings indicate that corporate reputation is significantly and negatively related to cash flow volatility. These findings are robust to alternative measures of cash flow volatility, different estimators, and endogeneity. Our additional analyses demonstrate that the negative relationship between corporation reputation and cash flow volatility is stronger for firms with a higher company beta, higher earnings, and lower short-term liquidity. Therefore, managers can

significantly decrease risk and uncertainty in operating performance by having a rigorous strategy to manage corporate reputation.

This study offers several contributions to the growing body of literature related to corporate reputation and financial performance. Firm performance has been studied extensively, but the literature on corporate reputation is relatively new. To the best of our knowledge, this study is the first to establish theoretical and empirical linkages between corporate reputation and cash flow volatility. We utilized unique and hand-collected data on corporate reputation in an important context like the U.S., which is marked as the leading economy in the world. Second, what drives cash flow volatility? Prior research draws some attention to the impact of cash flow volatility on capital structure decisions (Harris & Roark, 2019; Keefe & Yaghoubi, 2016), investment decisions (Minton & Schrand, 1999), investor sentiment (Iyer & Harper, 2017), trade credit (Harris, Roark, & Li, 2019), price volatility (Ikromov & Yavas, 2012), bid-ask spread and probability of informed trading (Ayaraman, 2008), dividends policy (Bradley, Capozza, & Seguin, 1998), CEO bonus (Das, Hong, & Kim, 2013), corporate bond yield spread (Douglas, Huang, & Vetzal, 2016), and on idiosyncratic volatility (Pae, Bae, & Lee, 2018). Very little is known about what drives firm risk associated with operating performance, such as cash flow volatility. This paper is trying to bridge this gap. Third, in contrast to previous studies that focused on the relationship between corporate reputation and financial performance (Roberts & Dowling, 2002; Brammer, Brooks, & Pavelin, 2004; Lee & Roh, 2012; Rose & Thomsen, 2004), this paper addresses a major research gap in the literature by being one of a handful that linked corporate performance to the risk side of firm performance and by being the first to highlight the risk of operating performance. Fourth, the evidence introduced in this paper is the first concerning the use of corporate reputation to mitigate operating risk.

This study provides important insights and key implications for market participants, policymakers, and other stakeholders. The findings of this paper suggest that reputation is an important intangible asset with positive impacts not only on the financial performance that is well-documented in the prior literature but also on the operating performance. A strong corporate reputation can help mitigate cash flow volatility by improving customer loyalty, employee morale, investor confidence, and brand image. On the other hand, a negative reputation can have the opposite effect, increasing cash flow volatility by reducing customer loyalty, employee morale, investor confidence, and damaging the brand image, all of which can contribute to decreased

financial stability and unpredictable cash flows (Tischer & Hildebrandt, 2014; Gangi, Daniele, & Varrone, 2020; Delgado-García, Quevedo-Puente, & Díez-Esteban, 2013). Therefore, managers should pay more attention to enhancing and investing in corporate reputation if they are willing to mitigate cash flow volatility. Investors are more likely to continue investing in companies with a strong reputation, even during times of economic uncertainty, which can help stabilize cash flows. Moreover, the reduction in cash flow volatility may contribute to attracting investors who are more risk-averse to invest in the company, which improves the overall performance in the stock market and facilitates firms' access to external finance. Finally, managers should set up plans, policies, and strategies to measure and manage all dimensions of corporate reputation in order to gain the internal and external benefits of it.

The paper proceeds as follows: Section 2 reviews the related prior literature. Section 3 presents the research hypothesis. Section 4 describes the data and methodology. Section 5 exhibits the empirical results. Section 6 contains the concluding remarks, implications, and research limitations.

2- Background and Literature Review

2.1- The country setting

There are two features that distinguish the U.S. setting: it shows several collapses of giant companies caused by bad reputations that led to poor financial performance, and it shows some leading companies in the most admired firms providing us with best practices, benchmarking, industry trends, attracting investments, and inspiration. To begin with, there have been several U.S.-listed firms that have collapsed due to a combination of poor financial performance and a bad corporate reputation. Enron was once one of the largest energy trading companies in the world. However, the company was plagued by financial scandals and a corporate culture that encouraged unethical behavior. The company's reputation was further damaged by the revelation of accounting fraud, which ultimately led to its collapse (Healy & Palepu, 2003). Moreover, Andersen was one of the largest accounting businesses. It involved Enron's earning management malpractices. After investigation, accusations, and revelations of several improper accounting and auditing practices, the majority of clients transferred to other accounting consultants because the company lost its reputation and trust, which led to the quick collapse of the company (Unerman & O'Dwyer, 2004). Finally, WorldCom was a telecommunications company that was at the center of a massive

accounting scandal. The company was accused of inflating its earnings and hiding losses, which led to a significant decline in its stock price and a loss of investor confidence (Unerman & O'Dwyer, 2004).

We utilized unique and hand-collected data on corporate reputation in an important context, like the U.S. companies on the list of the world's most admired companies, which is important for several reasons. First, companies that are the most admired in the world have typically achieved success through a combination of effective strategies, innovative practices, and strong leadership. By studying these companies, others can learn about their best practices and implement similar strategies to improve their performance (Doorley & Garcia, 2015). Moreover, the list of the world's most admired companies provides a benchmark for companies to measure themselves against. By comparing their practices and performance to those of the most admired companies, companies can identify areas where they can improve and strive to achieve similar levels of success (Raithel & Schwaiger, 2015). Furthermore, the list of the world's most admired companies provides valuable insights into industry trends and changing customer preferences. By understanding what makes these companies successful, companies can stay ahead of the curve and adapt to changing market conditions (Love, Lim, & Bednar, 2017). In addition, companies that are considered to be the most admired in the world are often more attractive to investors, as they are perceived to have a lower level of risk and a higher level of stability. By studying these companies, other companies can learn how to attract investment and improve their financial performance (Bigus, Hua, & Raithel, 2023). Finally, the list of the world's most admired companies can serve as a source of inspiration for companies that are looking to improve their own performance. By seeing what is possible and what other companies have achieved, companies can be motivated to work harder and strive for greater success (Pham & Tran, 2020).

2.2- Corporate reputation and firm Performance

Cash flow volatility has not received much attention from the finance and accounting literature. For example, cash flow volatility is linked with capital structure decisions (Harris & Roark, 2019; Keefe & Yaghoubi, 2016), investment decisions (Minton & Schrand, 1999), investor sentiment (Iyer & Harper, 2017), trade credit (Harris, Roark, & Li, 2019), international diversification (Krapl, 2015), CEO power and the probability of paying dividends (Sheikh, 2022), price volatility (Ikromov & Yavas, 2012), crash risk (Wang, Lee, & Wu, 2023), bid-ask spread and probability of

informed trading (Ayaraman, 2008), dividends policy (Bradley, Capozza, & Seguin, 1998), corporate social responsibility (Sun & Ding, 2020), CEO bonus (Das, Hong, & Kim, 2013), corporate bond yield spread (Douglas, Huang, & Vetzal, 2016) and on idiosyncratic volatility (Pae, Bae, & Lee, 2018).

Although there has been renewed interest in corporate reputation in the literature of strategic management and organization theory, finance researchers have not paid it competent attention. Only a few papers address corporate reputation and its relationship with financial phenomena in general and firm performance in particular. The literature on corporate reputation and firm performance follows two different streams: the impact of corporate reputation on the return side of firm performance and on the risk side of firm performance.

First, we notice that the empirical evidence of the impact of corporate reputation on firm performance is inconclusive. While some studies document the positive impact of corporate reputation on firm performance (Brammer, Brooks, & Pavelin, 2004; Roberts & Dowling, 2002; Lee & Roh, 2012; Pfister, Schwaiger, & Morath, 2020; Pham & Tran, 2020), others fail to prove this impact (Rose & Thomsen, 2004). This evidence indicates that firms with high reputation scores tend to have higher stock returns (Brammer, Brooks, & Pavelin, 2004; Pfarrer, Pollock, & Rindova, 2010), higher profitability (Roberts & Dowling, 2002; Pham & Tran, 2020; Gangi, Daniele, & Varrone, 2020), lower debt (Lee & Roh, 2012), and a lower cost of capital (Pfister, Schwaiger, & Morath, 2020).

Second, empirical evidence of corporate reputation on the risk side of firm performance is scarce. Only a handful of papers linked corporate reputation to firm risk. For example, Delgado-García, Quevedo-Puente, & Díez-Esteban (2013) examine the impact of corporate reputation on firm risk using a sample of 157 Spanish companies. Using a panel regression model, the findings indicate that more reputable companies are more likely to experience lower levels of unsystematic and total risk but higher systematic risk. Fasaai, Tempelaar, & Jansen (2018) find evidence that firms with a high reputation are more likely to make less risky investments. Gangi, Daniele, & Varrone (2020) demonstrate that corporate reputation tends to have a positive impact on Z-score as a proxy for the risk of financial distress. Finally, Kamiya, Kang, Kim, Mildonis, & Stulz (2021) link corporate reputation with cybersecurity risk and document that when a firm is subject to a cyberattack, this worsens the firm's reputation, increases the reputation risk, and, in turn, drops stockholder wealth.

From the previous research, we notice that the key focus of the literature is on issues belonging to the strategic management and organization theory disciplines, while finance issues have been absent. We also observe that a wide range of research gaps exist, such as: 1) No research to date has examined the usefulness of corporate reputation in explaining the cross-section variation in stock returns. 2) No research to date examines capital structure practices and theories, dividend policies, initial public offerings, valuation, and other issues in corporate finance. 3) No research to date examines corporate governance theories and practices in reputable companies compared to notorious ones. 4) To date, no research has compared disclosure systems, analysts' coverage, and financial reporting at reputable and infamous companies. This section indicates that bridging the research gap between corporate reputation and cash flow volatility is required for theoretical and practical purposes.

3- Hypothesis development and theoretical framework

Based on our study setting, Fortune Magazine identified the world's most admired companies based on nine attributes: innovation, people management, use of corporate assets, social responsibility, quality of management, financial soundness, long-term investment value, quality of products and services, and global competitiveness. Reputation plays several roles in reducing risk and uncertainty in operating performance, as measured by cash flow volatility. First, prior literature treats corporate reputation as the most important and most valuable intangible asset of the firm (Hall, 1992). Fombrun & van Riel (1997) and Myers & Majluf (1984) argue that reputation not only carries information and signals to inside and outside stakeholders (e.g., employees, customers, investors, suppliers, regulators, and banks) about past and present behavior and performance but also builds high expectations about future behavior and performance. Given the unique characteristics of corporate reputation, which takes a long time to build and only a few moments to destroy, firms, on the other hand, will also exert enormous efforts to meet these expectations to avoid any harm to their reputations, which may lead to squandering all the financial and non-financial benefits of having a good reputation (Rhee & Haunschild, 2006). To meet these expectations, firms will diversify their market share, recruit skilled employees, set up effective R&D activities, build good long-term relationships with all external parties, such as banks and governmental agencies, set efficient marketing strategies, adopt superb risk management practices, and sometimes invest in political connections. This stabilizes the firms' business lines and business operations, protects the firms against competitive threats, and minimizes interruptions in business

operations. This eventually stabilizes earnings and reduces risk and uncertainty in operating performance. This is consistent with the conclusion reached by Srivastava, Shervani, and Fahey (1998) that cash flow volatility is determined by firms' knowledge, assets, strategies, and abilities.

Second, firms can improve financial metrics such as shareholder value, lowering the future cost of equity, and profitability by enhancing their reputation (Pfister, Schwaiger, & Morath, 2020; Raithel & Schwaiger, 2015; Roberts & Dowling, 2002). These financial metrics help the firm meet its obligations, have easy and not costly access to the capital markets, and reduce the probability of distress on one side (Beatty & Ritter, 1986). They also help firms leverage their capabilities to survive, sustain, and grow, benefit from economies of scale and scope, and reduce risk and uncertainty in operating performance.

Finally, corporate reputation improves customer satisfaction and improves the effectiveness of marketing strategy (Kotha, Rajgopal, & Rindova, 2001), as well as reducing the resistance of customers to paying a higher price for the products (Eberl & Schwaiger, 2005). Also, a good reputation facilitates building long-term relationships with suppliers and reduces contractual costs (Williamson, 1998). These factors buffer firm activities and operations against an uncertain and unstable external environment and competitive threats, leading to more stable cash flow and reducing cash flow risk.

Based on the above, we conjecture that a company's reputation can have a significant impact on its operating performance and risk. A negative reputation can lead to decreased sales and revenue, increased costs, decreased employee morale, decreased investment, and regulatory sanctions. Companies that prioritize their reputation and seek to maintain a positive reputation are more likely to be successful in the long term, as they are better able to meet the needs and expectations of their stakeholders and achieve their goals. With a particular focus on cash flow volatility, a company with a strong reputation is likely to have more stable cash flows, as customers and investors are more likely to have confidence in the company and be willing to continue doing business with it. On the other hand, cash flow volatility can have a negative impact on a company's reputation, as it may be seen as an indicator of financial instability or mismanagement. Therefore, our main study's hypothesis can be stated in the alternative form as follows:

H: *Ceteris paribus, corporate reputation has a significant and negative association with cash flow volatility.*

4- Data and methodology

4.1- Data

The study's sample consists of 262 U.S. companies and was selected from Fortune Magazine's world's most admired companies from 2014 through 2020. The year 2014 is relied on as the first year for our sample because the corporate reputation score for the world's most admired companies, prepared and published by Fortune Magazine, was not available before 2014. According to Fortune Magazine, a score from 1 to 10 is assigned to a company relative to its competitors based on a poll distributed to 3800 executives, directors, and analysts and contains eight attributes, namely, innovation, people management, use of corporate assets, social responsibility, quality of management, financial soundness, long-term investment value, and quality of products and services affiliated with 1500 firms worldwide ranked by revenues. In 2013, global competitiveness was added as the ninth attribute. The survey specifies the reputation score for each firm based on the nine features mentioned above (Fortune, 2021).² This reputation score is extensively utilized in prior literature because it represents high reliability. This reliability stems from the fact that respondents only rank firms that they are familiar with (Roberts & Dowling, 2002; Pfarrer, Pollock, & Rindova, 2010; Musteen, Datta, & Kemmerer, 2010).

We collected annual data because the corporate reputation score is prepared and published annually. All data, including operating cash flow, earnings before interest and tax (EBIT), total assets, market capitalization, firm age, leverage, SIC code, current assets, current liabilities, and company beta, are collected from DataStream except the corporate reputation score. The corporate reputation score is hand-collected from the Fortune Magazine website (<https://fortune.com/worlds-most-admired-companies/2021/>). This is because the list of Fortune's most admired companies changes each year, the list of sample companies changes from one year to another, and the reputation score is not available for all companies in all years.

The sample comprises a total of 262 firms with 1304 firm-year observations from 2014 through 2020. All data are winsorized at 2% and 98% levels to relieve the negative effect of outliers. This sample covers a wide range of different industries, such as mining (10-14), construction (15-17), manufacturing (20-39), transportation and public utilities (40-49), wholesale trade (50-51), retail trade (52-59), finance, insurance, and real estate (60-67), and services (70-89).

² More details on the methodology of data collection employed can be seen on the Fortune Magazine website.

The sample does not include any companies from the agriculture (01-09) and public administration (91-99) sectors.³

4.2- Econometric framework

This study employs panel regression analyses. Because we have eight industrial dummies, we first exclude the fixed effects estimator because it does not work in the presence of time-invariant variables (Oaxaca & Geisler, 2003). Moreover, the random effects model is not favorable in the case of small samples (Clarke, Crawford, Steele, & Vignoles, 2010). Furthermore, since the list of most admired companies changes from one year to another, the reputation score is not available for all companies in all years. This does not help constitute good and sufficient panel data and hinders us from benefiting from the superiority of panel regression models over the OLS technique. Given the relatively small sample size and the few time periods for each individual that characterize our dataset, the OLS estimator with robust standard errors, or White-Huber standard errors, is preferred over other estimators. The robust standard errors are estimated to account for potential heteroscedasticity.

$$CFV_{i,t} = \beta_0 + \beta_1 SCORE_{i,t} + \beta_2 CONTROLS_{i,t} + \varepsilon_{i,t} \quad (1)$$

where $CFV_{i,t}$ is cash flow volatility and is our dependent variable. It is measured with the coefficient of variation and computed as the standard deviation of operating cash flow over the previous 10 years divided by the absolute mean of operating cash flow over the previous 10 years. The coefficient of variation is an appealing measure because it removes the size effect. $SCORE_{i,t}$ is the reputation score developed by Fortune Magazine for the world's most admired companies. With regard to control variables, a set of control variables is used. First, we controlled for firm size, proxied by market capitalization, because large firms may experience a lower level of cash flow risk or risk associated with operating performance (Baumann-Pauly, Wickert, Spence, & Scherer, 2013). Second, firm age is controlled for because older companies in an industry usually have better knowledge and experience in dealing with company operations and managing cash flow risk (Anderson & Reeb, 2003). Firm age is measured as the log of the number of years since the company went public. Third, we control for company leverage, measured by total debt to total

³ The figures between brackets are the two-digit SIC code.

capital, because borrowing and liquidity levels impact companies' cash flows (Aivaziana, Ge, & Qiu, 2005). Fourth, liquidity is measured as the current ratio and computed as current assets divided by current liabilities. Fifth, asset growth, measured as the annual growth rate of total assets, is also controlled for because asset growth may increase or reduce the ability of companies to generate cash flow (Titman, Wei, & Xie, 2013). Finally, eight dummy variables are added to the panel regression model to control for industry effects and account for industry heterogeneities. Moreover, industrial features may play a role in imposing a unique style of earnings. Table 1 provides detailed definitions for the variables.

[Insert Table 1 here]

5- Empirical results

5.1- Descriptive statistics

In Table 2, we present summary statistics, including the mean, standard deviation, minimum, maximum, and number of observations for all variables from 2014 through 2020. The table shows that the mean of the coefficient of variation of cash flow, CFV, is 0.4303 with a standard deviation of 0.4073. The reputation score, which is the independent variable in this paper, has a mean of 4.7574, while the standard deviation is 3.0823.

[Insert Tables 2]

To enhance the informativeness of our data description, we report two figures for the reputation score and cash flow volatility from both cross-sectional and time-series perspectives. Figure 1 showcases a scatter plot illustrating the cross-sectional averages of reputation score and cash flow volatility within our dataset. This plot reveals a generally weak negative correlation between these cross-sectional averages, suggesting that an increase in reputation score tends to correspond with a decrease in cash flow volatility. Similarly, Figure 2 presents a scatter plot portraying the time series averages of reputation score and cash flow volatility for our sample data. In this representation, we also observe a negative association between the time series averages of reputation score and cash flow volatility. However, it appears that this association is more pronounced compared to the cross-sectional perspective.

[Insert Figure 1 here]

[Insert Figure 2 here]

Table 3 presents the summary statistics of the dependent and independent variables per industry. The table shows the highest industry in coefficient of variation of cash flows, CFV, is the construction industry, with an average of 0.8765, while the services industry is the second highest, with an average of 0.5024. With regard to the reputation score, wholesale and services are the two highest industries, with averages of 5.6428 and 5.5058, respectively. On the other hand, mining and transportation and public utilities are the two lowest industries, with averages of 3.1846 and 4.0610, respectively.

[Insert Tables 3 here]

Table 4 presents the correlation matrices for the coefficient of variation of cash flows, CFV. From the table, the correlation coefficients range from -0.0212 to 0.3168. The highest coefficient is between reputation score and firm size, while the lowest coefficient is between size and liquidity. More importantly, we notice that all correlation coefficients are quite small. As a result, we do not expect any problems with collinearity.

[Insert Tables 4 here]

5.2- Baseline regression analysis

Table 5 presents the panel regression results for our base model to test our main study hypothesis for the predicted negative association between cash flow volatility and reputation score. Our main findings suggest that there is a negative and significant relationship between both measures of cash flow volatility, CFV, and reputation score, with coefficients of -0.0090 ($t = -2.64$). This finding indicates that an increase in reputation scores results in a decrease in cash flow volatility. Moreover, this finding supports our hypothesis that predicts this negative relationship. In other words, improving corporate reputation can play a significant role in decreasing the risk associated with operating performance. This finding is economically meaningful because one standard deviation increase in corporate reputation leads to a 6% ($3.0823 * 0.009 / 0.4303$) decrease in cash flow volatility relative to the mean. This implies that corporate reputation conveys critical and

valuable information to all stakeholders about the firm's past, present, and future performance and plays a crucial role in reducing information asymmetry and firm opacity, improving firm visibility, and, in turn, reducing uncertainty about the operating performance. The findings are also consistent with our predictions stemming from the resource dependence theory, stakeholders theory, and signaling theory, as well as the Delgado-García, Quevedo-Puente, & Díez-Esteban (2013) study, which documents that corporate reputation can help reduce unsystematic and total risk.

[Insert Tables 5 here]

5.3- Additional analyses

Besides the main regression described above, we run a number of additional analyses to provide support for the main results, check the sensitivity of our estimates, and offer additional insights.

The first additional analysis is conducted by clustering the full sample into two subsamples based on mean beta.⁴ Then, we ran the panel regression model (1) for each subsample separately. Fortunately, the panel regression results of both subsamples support the main results. Table 6 shows that the first subsample, above mean beta, supports the negative relationship between corporate reputation and cash flow volatility with a coefficient of -0.0132.⁵ The second subsample, below mean beta, also supports the main results.⁶ The second additional analysis in Table 7 is conducted by separating the whole sample into two subsamples based on mean operating income (EBIT). Then, we ran the panel regression model for each subsample separately. Once again, this robustness check provides additional support for the main regression. The above-mean EBIT subsample produces a corporate reputation coefficient of -0.0107, while the coefficient of below-mean EBIT is -0.0078.⁷ Finally, Table 8 reports that the corporate reputation coefficients for the above-mean net working capital and below-mean net working capital subsamples are -0.0079 and -0.0213, respectively, confirming the negative and significant relationship between corporate reputation and cash flow volatility.

⁴ Company beta is a measure of market risk that shows the relationship between the volatility of the stock and the volatility of the market. The beta value is determined by the CAPM for the past two years of weekly data using the S&P 500.

⁵ The second coefficient is significant at 5% because it is associated with $t = -2.31$.

⁶ The coefficient is significant at 10%.

⁷ Both coefficients are significant at 5% and 10%, respectively.

All of the research findings suggest that corporate reputation as valuable assets can significantly reduce risks in operating performance by attracting and retaining high-profile stakeholders, achieving some sort of stability in the firm's business operations, and, consequently, operating revenues. Second, in order to avoid a rapid deterioration in reputation, firms will make extra efforts to communicate with internal and external stakeholders and build strong long-term relationships with them, buffering firms against any turbulence in a highly uncertain external environment and protecting firms against competitive threats. This upholds operating stability and reduces risks in operating performance and cash flow volatility accordingly.

[Insert Tables 6, 7, & 8]

We extend our analyses and cluster our sample into two subsamples based on median cash flow volatility to capture the even effect of corporate reputation on cash flow volatility. Then, we ran the panel regression model (1) for each subsample separately. Table 9 reports the results for both above and below median cash flow volatility subsamples. The first column of the table reports the results of the above median cash flow volatility subsample. This result is consistent with the baseline regression results, as it demonstrates a negative and significant relationship between corporate reputation and cash flow volatility at the 1% significance level with a coefficient of -0.0155 ($t = -2.79$). The second column of Table 9 reports the results below the median cash flow volatility subsample. Surprisingly, this result is inconsistent with the baseline regression results as it shows a positive and significant relationship between corporate reputation and cash flow volatility at the 5% significance level with a coefficient of 0.0019 ($t = 2.33$). This indicates that an increase in corporate reputation will result in an increase in cash flow volatility. This scenario might occur when exceptionally low cash flow volatility reflects a firm's strong inclination toward safer investment strategies. Considering the delicate nature of reputation, which requires substantial time to establish but can be tarnished swiftly, firms may choose to augment their investments in riskier endeavors like research and development (R&D) and other innovative initiatives as a means of safeguarding their reputation. This inclination, especially prevalent during economic downturns, leads to an uptick in overall firm risk and subsequently elevates cash flow volatility. Another plausible explanation for the positive correlation between corporate reputation and cash flow volatility lies in the fact that as firms gain prominence and reputation, they become

more visible targets for public scrutiny. Consequently, they become more susceptible to dissatisfaction and criticism from disgruntled stakeholders. This heightened scrutiny can have a destabilizing effect on cash flow volatility, thereby contributing to the observed relationship.

[Insert Tables 9]

5.4 Robustness checks and endogeneity concerns

We first run a robustness check using two different measures of cash flow volatility. In table 10, the third robustness test is presented and conducted by using two different measures of cash flow volatility, CFV_{MV} and CFV_{SD} . CFV_{MV} is the cash flow volatility and is computed as the historical standard deviation of operating cash flow scaled by firm value over the previous 10 years divided by the absolute mean of operating cash flow scaled by firm value over the previous 10 years, while CFV_{SD} is the cash flow volatility and is computed as the standard deviation of operating cash flow over the previous 10 years. The coefficients of the two new measures also provide negative and significant relationships between corporate reputation and cash flow volatility, with coefficients of -0.0177 ($t = -2.00$) and -37.8596 ($t = -2.60$), respectively.

[Insert Table 10 here]

Secondly, we run a robustness check using two different estimators, Between Effects and Newey-West, to check the robustness of the results to different estimators. It is known that the between estimator employs only cross-sectional variation in the data and relies on the OLS for regression of the individual averages of y on the individual averages of x and a constant, while the Newey-West estimator controls for autocorrelation and heteroscedasticity. Table 11 reports the results of both estimators. We notice that both estimators produce consistent results with the baseline regression results concerning the negative and significant relationship between corporate reputation and cash flow volatility, with coefficients of -0.0260 ($t = -2.15$) and -0.0088 ($t = -2.11$) for the between effect and the Newey-West estimators, respectively. Therefore, they support our baseline regression results.

[Insert Table 11 here]

This finding is in line with Delgado-García, Quevedo-Puente, & Díez-Esteban (2013), who found a negative relationship between corporate reputation and total risk. They, however, measure total risk by the standard deviation of total stock returns. In our opinion, the relationship between corporate reputation and cash flow volatility cannot be doubted as endogenous, and, in turn, heterogeneity in firm characteristics cannot drive both corporate reputation and cash flow volatility for several reasons. First, the negative relationship between corporate reputation and cash flow volatility is robust to firm-level characteristics such as company beta, EBIT, and net working capital (see Tables 6, 7, and 8). Second, reverse causality means cash flow volatility may impact corporate reputation. In our opinion, this should not also be a matter of concern because corporate reputation, as proxied by the Fortune Magazine reputation score, is not under the control of firms and because behaviors that may harm corporate reputations cannot be prevented, especially in the age of social media and information technology (Besiou, Hunter, & Wassenhove, 2013).

Nevertheless, we run 2SLS to address the endogeneity concerns. Following the literature review (Habib & Hasan, 2017; El Ghouli, Guedhami, Kwok, & Mishra, 2011), we use the industry (4-digit SIC code) average of corporate reputation as an instrumental variable. The intuition behind our choice of this instrumental variable is that corporate reputation is not only determined by its own behavior but also by the behaviors of its rivals (Comyns & Franklin-Johnson, 2018). As a result, industry reputation is expected to impact corporate reputation, the endogenous variable in this paper. At the same time, we do not expect it to have an impact on corporate cash flow volatility. Table 12 supports our choice of instrumental variable (i.e., industry average of corporate reputation) because the chosen instrument is strongly and significantly related to the endogenous variable (i.e., corporate reputation) with regard to the cash flow volatility in columns (1) with a coefficient of 2.4675 ($t = 20.15$). Moreover, the first-stage regressions in column (1) suggest the chosen instrumental variable is valid because the under-identification test of the Kleibergen-Paap rk LM statistic is significant at 1% (P-value < 1%). Additionally, the weak instrument test of the Cragg-Donald Wald F statistic supports the validity of our instrumental variable with statistics of 405.91, which is considerably larger than Stock-Yogo's (2005) critical value of 16.38.

In the same vein, columns (2) in Table 12, 2SLS results, confirm the negative relationship between corporate reputation and cash flow volatility with coefficients of -0.0168 ($t = -2.27$). This relationship remains significant and negative even after controlling for endogeneity, indicating that this relationship is not induced by endogeneity.

[Insert Tables 12 here]

Finally, simultaneity occurs when at least one of the explanatory variables is specified simultaneously with the dependent variable. We run the one-year lagged values of all explanatory variables to address the simultaneous bias as a potential source of endogeneity. Table 13 reports the concerned results. The results indicate that the coefficient of reputation remains negative and significant (-0.0084 with a t -value of -2.49) at the 5% significance level, which mitigates any concern about simultaneity bias.

[Insert Tables 13 here]

6- Concluding remarks, Implications and research limitations

Motivated by the growing interest in intangible assets as a key driver of value creation and gaining sustainable advantage. This paper bridges a research gap by investigating the impact of corporate reputation on operating performance measured by cash flow volatility, because the previously published studies paid great attention only to the impact of corporate reputation on firm financial performance. A sample of U.S. companies selected from Fortune magazine's list of the world's most admired companies is employed. The data covers a period of seven years from 2014 through 2020 and is analyzed by a panel regression model. The finding indicates that there is a significantly negative relationship between corporate reputation and cash flow volatility. This finding is robust to different measures and different estimators, and endogeneity issues. This means an improvement in corporate reputation results in a significant decline in risk and uncertainties associated with operating performance. We do not argue that corporate reputation will totally

remove the volatility of cash flows. Rather, corporate reputation should be considered by firms when managing cash flow volatility.

These findings have several useful practical implications. First, the focal managerial implication of this paper is that managers should consider not only the benefits of corporate reputation on firm performance (Lee & Roh, 2012), but also its ability to minimize uncertainty in operating performance. This comprehension of the role of corporate reputation on both sides of performance leads managers to allocate the necessary resources to build a sustainable strategy to manage corporate reputation, particularly given that the fluctuations in operating performance may disrupt firms' strategic investment and ruin the financial performance (e.g., revenues and profits). Rational management of corporate reputation contributes to value creation and gaining a sustainable competitive advantage. Risk managers, on the other hand, should consider corporate reputation as a tool for managing operating risk. Moreover, corporate reputation has two unique characteristics: its contribution to value creation and the inconsistency between sluggish construction and rapid demolition. Therefore, corporate management must set a sound strategy to manage and enhance its reputation. This way, companies will be able to gain all the benefits of having a good reputation and avoid deteriorations in reputations. Besides, reputable companies are more able not only to attract prime stakeholders (e.g., employees, customers, investors, suppliers, regulators, and banks), but also to retain them. As a result, they can manage and reduce all kinds of uncertainty in operating performance. Furthermore, the rapid deterioration of corporate reputation imposes management on building and maintaining good relationships with stakeholders and best satisfying their wants and needs, even during economic downturns, in order to avoid any harm to its reputation. The findings of this research indicate that this will eventually lead to a significant decline in the uncertainties and risks associated with operating performance. Finally, managers should encourage participation, promotion, and communication of social responsibility activities to leverage corporate reputation. Finally, managers should keep an eye on corporate reputation and use it as an early warning tool for future financial hardship.

This study offers important contributions to the literature because it is the first, to the best of our knowledge, to have linked corporate reputation with cash flow volatility, and strong empirical evidence is provided in this context. To back up the key findings, several measures of cash volatility and several robustness checks are performed. Our research opens new venues for future research. To ensure that the findings are not context-dependent, a replication of this research

with the use of non-U.S. data is highly recommended. Furthermore, since the previous literature examined the impact of corporate reputation on financial performance and this paper addresses operating performance, future researchers are encouraged to examine the impact of corporate reputation on corporate investment policies and investment efficiency.

This paper considers only one driver of cash flow volatility. Companies, nonetheless, may experience several drivers to manage the risk of cash flow. As a result, this paper does not provide a comprehensive picture of the drivers of cash flow volatility. At the same time, more research should be conducted to improve our understanding of the drivers of cash flow volatility. Although the sample includes the vast majority of Fortune's most admired companies, we still believe that the sample is not large enough.

Declaration of Competing Interest

None

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Tables of results

Table 1. A description of the variables

Variable	Definition
Cash Flow Volatility (CFV)	Is the coefficient of variation measured by the standard deviation of operating cash flow over the previous 10 years divided by the absolute mean of operating cash flow over the previous 10 years.
Score	Is the reputation score developed by Fortune Magazine for the world's most admired companies. This reputation score comprises nine attributes: innovation, people management, use of corporate assets, social responsibility, quality of management, financial soundness, long-term investment value, quality of products and services, and global competitiveness.
Firm age	Is the log of the number of years since the company went public or was publicly listed in the stock market.
Firm size	Is a log of annual market capitalization.
Leverage	Is the annual ratio of total debt to total capital.
Growth	Is the annual growth rate in total assets.
Liquidity	Is the current ratio and is measured by the ratio of current assets to current liabilities.
Industry dummies	Eight industry dummies are included in the panel regression model using the first two digits of SIC codes. This leads to all stocks being assigned to eight industries as follows: Mining (10-14), Construction (15-17), Manufacturing (20-39), Transportation and Public utilities (40-49), Wholesale trade (50-51), Retail trade (52-59), Finance, Insurance, and Real Estate (60-67), and Services (70-89). The sample does not include any companies from the Agriculture (01-09) and public administration (91-99) sectors. Therefore, eight dummies are included in the regression model.

Table 2. Descriptive statistics

This table presents the descriptive statistics of the empirical data, including the mean, standard deviation, minimum, maximum, and number of observations. CFV is the measure of cash flow volatility and is computed

Variable	Mean	Std. Dev.	Min	Max	Observations
CFV	0.4303	0.4073	0.0402	3.7595	1834
Score	4.7574	3.0823	0.000	8.2100	1834
Firm age	3.1572	0.7085	0.000	3.7377	1812
Firm size (log)	17.4311	1.0035	15.4938	19.4862	1833
Leverage	48.1451	24.0632	0.0000	114.8900	1832
Growth	6.4255	16.8567	-22.4175	109.6076	1834
Liquidity	1.6313	1.5232	0.0247	33.7143	1822

as the coefficient of variation measured by the standard deviation of operating cash flow over the previous 10 years divided by the absolute mean of operating cash flow over the previous 10 years. Score is the reputation score developed by Fortune Magazine for the world's most admired companies. Firm age is the log of the number of years since the company went public or was publicly listed on the stock market. Firm size is a log of annual market capitalization. Leverage is the annual ratio of total debt to total capital. Growth is the annual growth rate of total assets. Liquidity is the current ratio, measured by the ratio of current assets to current liabilities.

Table 3. Summary statistics for cash flow volatility and reputation score by industry

The table presents the CFV and score per industry. CFV is the measure of cash flow volatility and is computed

Variables		Mean	Std. Dev.	Min	Max	Obs
Mining	CFV	0.4011	0.0958	0.2167	0.6352	35
	Score	3.1846	3.3668	0.0000	8.0300	35
Construction	CFV	0.8765	0.41258	0.3680	1.6759	42
	Score	4.5500	2.7701	0.0000	6.8900	42
Manufacturing	CFV	0.3951	0.4524	0.0402	3.7595	700
	Score	4.7178	3.1654	0.0000	8.2100	700
Transportation	CFV	0.2891	0.1747	0.0402	0.9848	231
	Score	4.0610	3.1434	0.0000	7.9800	231
Whole	CFV	0.3291	0.1474	0.1187	0.7112	42
	Score	5.6428	2.4237	0.0000	7.7800	42
Retail	CFV	0.4285	0.6074	0.0785	3.7595	154
	Score	4.4947	3.0926	0.0000	8.2100	154
Finance	CFV	0.4982	0.2895	0.1094	1.5213	336
	Score	4.8636	3.0549	0.0000	8.2100	336
Services	CFV	0.5024	0.3873	0.0402	3.7595	294
	Score	5.5058	2.7368	0.0000	8.2100	294

as the coefficient of variation measured by the standard deviation of operating cash flow over the previous 10 years divided by the absolute mean of operating cash flow over the previous 10 years. Score is the reputation score developed by Fortune Magazine for the world's most admired companies. According to the classification made using the first two digits of SIC codes, all stocks are assigned to eight industries as follows: mining (10-14), construction (15-17), manufacturing (20-39), transportation and public utilities (40-49), wholesale trade (50-51), retail trade (52-59), finance, insurance, and real estate (60-67), and services (70-89). The sample does not include any companies from the agriculture (01-09) or public administration (91-99) sectors.

Table 4. Correlation matrix

This table presents the correlation coefficients of the panel regression model. CFV is the measure of cash flow volatility and is the dependent variable. It is computed as the coefficient of variation measured by the standard

Variable	CFV	Score	Size	Age	Growth	Leverage	Liquidity
CFV	1.0000						
Score	-0.0836	1.0000					
Size	-0.0814	0.3168	1.0000				
Age	-0.2400	0.0989	0.0926	1.0000			
Growth	0.0536	0.1193	0.0850	-0.0987	1.0000		
Leverage	0.0387	-0.0332	-0.0135	-0.0199	-0.0623	1.0000	
Liquidity	0.0859	-0.0238	-0.0212	-0.1330	0.0308	-0.1092	1.0000

deviation of operating cash flow over the previous 10 years divided by the absolute mean of operating cash flow over the previous 10 years. Score is the independent variable and is defined as the reputation score developed by Fortune Magazine for the world's most admired companies. The rest are the control variables, which include firm age, firm size, leverage, growth, and liquidity.

Table 5. the panel regression results

Variables	CFV
Intercept	0.8342 (5.36)
Score	-0.0090 (-2.64)*
Size	-0.0048 (-0.49)
Age	-0.1201 (-7.43)
Growth	0.0008 (1.78)
Leverage	0.0015 (3.77)
Liquidity	0.0185 (2.57)
Industry Dummies	Yes
R ² (%)	12.45
F-statistics	25.53
P-Value	(0.0000)
Observations	1798

* 1% significance level. ** 5% significance level.

The table presents the coefficients of the panel regression model. The dependent variable is the cash flow volatility (CFV), which is computed as the coefficient of variation. This coefficient of variation is measured by dividing the standard deviation of operating cash flow over the previous 10 years by the absolute mean of operating cash flow over the previous 10 years. Score is the independent variable and is defined as the reputation score developed by Fortune Magazine for the world's most admired companies. The rest are the control variables, which include firm age, firm size, leverage, growth, liquidity, and industry dummies. Figures in parentheses are *t*-statistics, and all standard errors are corrected for heteroscedasticity.

Table 6. Additional analysis based on mean company beta subsamples

Variables	Coefficients	
	Above mean	Below mean
Intercept	0.3933 (1.50)	1.2158 (6.63)
Score	-0.0132 (-2.31)**	-0.0060 (-1.75)***
Size (log)	0.0102 (0.57)	-0.0075 (-0.73)
Age (log)	-0.0846 (-3.90)	-0.1518 (-5.11)
Growth	0.0010 (1.17)	0.0008 (1.59)
Leverage	0.0029 (3.33)	0.0006 (1.60)
Liquidity	0.0188 (2.34)	0.0163 (1.70)
Industry dummies	Yes	Yes
R ² (%)	12.92	17.87
F-statistics	13.21	19.61
P-Value	(0.0000)	(0.0000)
Observations	848	950

* 1% significance level. ** 5% significance level. *** 10 % significance level.

The table presents the coefficients of the panel regression model. The sample is divided into two subsamples based on the mean company beta. The dependent variable is the cash flow volatility (CFV), which is computed as the coefficient of variation. This coefficient of variation is measured by dividing the standard deviation of operating cash flow over the previous 10 years by the absolute mean of operating cash flow over the previous 10 years. Score is the independent variable and is defined as the reputation score developed by Fortune Magazine for the world's most admired companies. The rest are the control variables, which include firm age, firm size, leverage, growth, liquidity, and industry dummies. Figures in parentheses are *t*-statistics, and all standard errors are corrected for heteroscedasticity.

Table 7. Additional analysis based on mean EBIT subsamples

Variables	Coefficients	
	Above mean	Below mean
Intercept	0.9490 (4.73)	-0.0834 (-0.24)
Score	-0.0107 (-2.50)**	-0.0078 (-1.93)***
Size (log)	-0.0074 (-0.54)	0.0472 (2.18)
Age (log)	-0.1277 (-8.37)	-0.1217 (-5.86)
Growth	0.0010 (1.61)	0.0004 (0.70)
Leverage	0.0007 (1.77)	0.0021 (3.81)
Liquidity	0.0090 (1.59)	0.0285 (3.49)
Industry dummies	Yes	Yes
R ² (%)	24.97	11.76
F-statistics	16.09	17.54
P-Value	(0.0000)	(0.0000)
Observations	545	1259

* 1% significance level. ** 5% significance level. *** 10% significance level.

The table presents the coefficients of the panel regression model. The sample is divided into two subsamples based on mean earnings before interest and taxes (EBIT). The dependent variable is the cash flow volatility (CFV), which is computed as the coefficient of variation. This coefficient of variation is measured by dividing the standard deviation of operating cash flow over the previous 10 years by the absolute mean of operating cash flow over the previous 10 years. Score is the independent variable and is defined as the reputation score developed by Fortune Magazine for the world's most admired companies. The rest are the control variables, which include firm age, firm size, leverage, growth, liquidity, and industry dummies. Figures in parentheses are *t*-statistics, and all standard errors are corrected for heteroscedasticity.

Table 8. Additional analysis based on mean net working capital subsamples

Variables	Coefficients	
	Above mean	Below mean
Intercept	0.9679 (5.65)	-0.2140 (-0.64)
Score	-0.0079 (-2.12)**	-0.0213 (-2.87)*
Size (log)	-0.0086 (-0.79)	0.0427 (2.26)
Age (log)	-0.1384 (-7.35)	-0.0411 (-1.45)
Growth	0.0006 (1.43)	0.0010 (0.76)
Leverage	0.0012 (2.87)	0.0034 (5.42)
Liquidity	0.0173 (2.36)	-0.0440 (-0.70)
Industry dummies	Yes	Yes
R ² (%)	12.61	22.99
F-statistics	22.31	8.73
P-Value	(0.0000)	(0.0000)
Observations	1546	252

* 1% significance level. ** 5% significance level.

The table presents the coefficients of the panel regression model. The sample is divided into two subsamples based on the mean net working capital. The dependent variable is the cash flow volatility (CFV), which is computed as the coefficient of variation. This coefficient of variation is measured by dividing the standard deviation of operating cash flow over the previous 10 years by the absolute mean of operating cash flow over the previous 10 years. Score is the independent variable and is defined as the reputation score developed by Fortune Magazine for the world's most admired companies. The rest are the control variables, which include firm age, firm size, leverage, growth, liquidity, and industry dummies. Figures in parentheses are *t*-statistics, and all standard errors are corrected for heteroscedasticity.

Table 9. Additional analysis based on median cash flow volatility subsamples

Variables	Coefficients	
	Above median	Below median
Intercept	0.0458 (0.17)	0.6244 (12.56)
Score	-0.0155 (-2.79)*	0.0019 (2.33)**
Size (log)	0.0317 (1.86)	-0.0187 (-7.12)
Age (log)	-0.0873 (-3.46)	-0.0130 (-3.69)
Growth	0.0012 (1.72)	0.0002 (1.68)
Leverage	0.0035 (4.52)	-0.0001 (-1.16)
Liquidity	0.0450 (3.48)	0.0034 (1.65)
Industry dummies	Yes	Yes
R ² (%)	9.39	13.78
F-statistics	10.75	11.80
P-Value	(0.0000)	(0.0000)
Observations	903	895

* 1% significance level. ** 5% significance level.

The table presents the coefficients of the panel regression model. The sample is divided into two subsamples based on median cash flow volatility. The dependent variable is the cash flow volatility (CFV), which is computed as the coefficient of variation. This coefficient of variation is measured by dividing the standard deviation of operating cash flow over the previous 10 years by the absolute mean of operating cash flow over the previous 10 years. Score is the independent variable and is defined as the reputation score developed by Fortune Magazine for the world's most admired companies. The rest are the control variables, which include firm age, firm size, leverage, growth, liquidity, and industry dummies. Figures in parentheses are *t*-statistics, and all standard errors are corrected for heteroscedasticity.

Table 10. Robustness checks based on alternative measures

Variables	Coefficients	
	CFV _{MV}	CFV _{SD}
Intercept	0.5610 (1.45)	-18915.72 (-17.58)
Score	-0.0177 (-2.00)**	-37.8596 (-2.60)*
Size (log)	-0.0179 (-0.75)	1222.849 (20.42)
Age (log)	0.0248 (1.15)	-82.5689 (-1.66)
Growth	0.0011 (1.02)	-7.66210 (-4.10)
Leverage	0.0034 (3.19)	10.3269 (5.13)
Liquidity	-0.0001 (-0.01)	41.2858 (1.40)
Industry dummies	Yes	Yes
R ² (%)	4.55	37.70
F-statistics	13.76	46.92
P-Value	(0.0000)	(0.0000)
Observations	1797	1798

* 1% significance level. ** 5% significance level.

The table presents the coefficients of the panel regression model. We used two different measures of cash flow volatility as dependent variables for the purpose of robustness checks: CFV_{MV} and CFV_{SD}. CFV_{MV} is the cash flow volatility and is computed as the historical standard deviation of operating cash flow scaled by firm value over the previous 10 years divided by the absolute mean of operating cash flow scaled by firm value over the previous 10 years, while CFV_{SD} is the cash flow volatility and is computed as the standard deviation of operating cash flow over the previous 10 years. Score is the independent variable and is defined as a reputation score developed by Fortune Magazine for the world's most admired companies. The rest are the control variables, which include firm age, firm size, leverage, growth, liquidity, and industry dummies. Figures in parentheses are *t*-statistics, and all standard errors are corrected for heteroscedasticity.

Table 11. Robustness checks based on alternative estimators

Variables	Coefficients	
	Between effect	Newey-west estimator
Intercept	1.1498 (2.54)	0.8615 (4.44)
Score	-0.0260 (-2.15)**	-0.0088 (-2.11)**
Size (log)	-0.0024 (-0.09)	-0.0057 (-0.46)
Age (log)	-0.1050 (-2.94)	-0.1338 (-5.66)
Growth	0.0082 (2.32)	0.0014 (2.35)
Leverage	0.0026 (2.41)	0.0016 (3.07)
Liquidity	0.0448 (1.99)	0.0365 (3.42)
Industry dummies	Yes	Yes
R ² (%)	17.28	
F-statistics	3.95	14.95
P-Value	(0.0000)	(0.0000)
Observations	1798	1798

* 1% significance level. ** 5% significance level.

The table presents the coefficients of the panel regression model. We used two different estimators for the purpose of robustness checks: between effect and Newey-West. The dependent variable is the cash flow volatility (CFV), which is computed as the coefficient of variation. This coefficient of variation is measured by dividing the standard deviation of operating cash flow over the previous 10 years by the absolute mean of operating cash flow over the previous 10 years. Score is the independent variable and is defined as the reputation score developed by Fortune Magazine for the world's most admired companies. The rest are the control variables, which include firm age, firm size, leverage, growth, liquidity, and industry dummies. Figures in parentheses are *t*-statistics, and all standard errors are corrected for heteroscedasticity.

Table 12. 2SLS estimation on corporate reputation and cash flow volatility

Variables	Coefficients
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	1 st stage	2 nd stage
Intercept	-9.7371 (-8.54)	0.7526 (3.89)
Industry reputation (instrument) Score	2.4675 (20.15)	-0.0168 (-2.27)**
Control variables	Yes	Yes
Industry Dummies	Yes	Yes
Observations	1798	1798
<i><u>Under-identification test:</u></i>		
Kleibergen-Paap rk LM statistic P-Value	333.27 (0.0000)	
<i><u>Weak identification test:</u></i>		
Cragg-Donald Wald F statistic Stock-Yogo (2005) critical value (10% maximal IV size)	405.91 16.38	

** 5% significance level. 1% significance level otherwise

This table presents the 2SLS estimates. The first-stage regression outputs are reported in column (1) for the relationship between the endogenous variable (corporate reputation) and the instrumental variable. Following the literature, we use the industry (4-digit SIC code) average of corporate reputation as an instrumental variable. Column (2) reports the 2SLS regression for the relationship between cash flow volatility, measured as the coefficient of variation and measured by the standard deviation of operating cash flow over the previous 10 years divided by the absolute mean of operating cash flow over the previous 10 years. Score is the independent variable, and corporate reputation is measured as the reputation score developed by Fortune Magazine for the world's most admired companies after controlling for endogeneity. Figures in parentheses are *t*-statistics.

Table 13. Endogeneity: Using one-year lagged values of explanatory variables

Variables	CFV
Intercept	0.8720 (5.82)
Score	-0.0084 (-2.49)**
Size	-0.0125 (-1.33)
Age	-0.0951 (-6.12)
Growth	0.0012 (2.82)
Leverage	0.0015 (3.48)
Liquidity	0.0167 (2.34)
Industry Dummies	Yes
R ² (%)	10.90
F-statistics	23.66
P-Value	(0.0000)
Observations	1798

* 1% significance level. ** 5% significance level.

The table presents the coefficients of the panel regression model using one-year lagged values of the explanatory variables. The dependent variable is the cash flow volatility (CFV), which is computed as the coefficient of variation. This coefficient of variation is measured by dividing the standard deviation of operating cash flow over the previous 10 years by the absolute mean of operating cash flow over the previous 10 years. Score is the independent variable and is defined as the reputation score developed by Fortune Magazine for the world's most admired companies. The rest are the control variables, which include firm age, firm size, leverage, growth, liquidity, and industry dummies. Figures in parentheses are *t*-statistics, and all standard errors are corrected for heteroscedasticity.

Figures

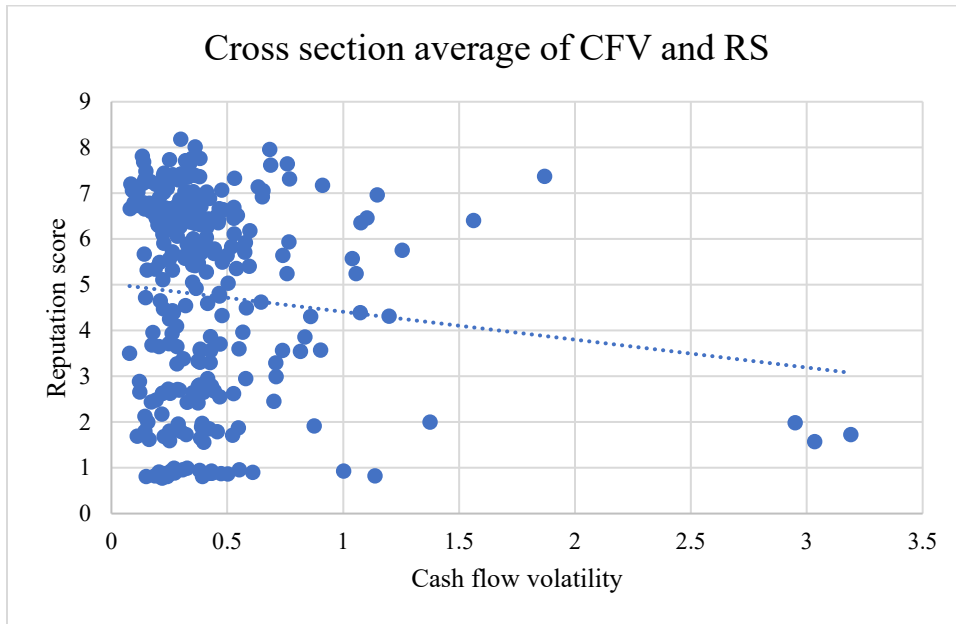


Figure 1. Scatter plot of the association between cross-section averages of cash flow volatility and reputation score

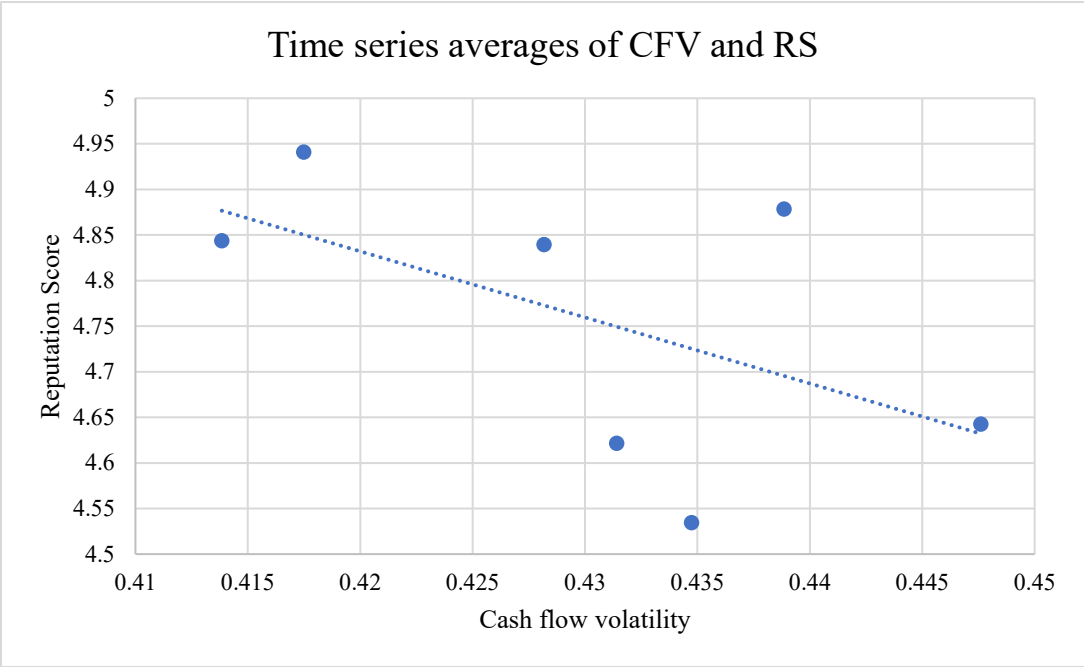


Figure 2. Scatter plot of the association between time series averages of cash flow volatility and reputation score