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Mitigating stock price crash risk through accounting conservatism: A French market perspective with competitive contexts

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Abstract---This research explores the relationship between accounting conservatism and stock price crash risk, with a particular focus on the moderating role of product market competition. Using a sample of 311 non-financial French companies listed on the Paris Stock Exchange within the CAC All Shares index from 2009 to 2020, we employ panel data regression models to examine this dynamic. The study finds a significant negative relationship between accounting conservatism and stock price crash risk, indicating that more conservative accounting practices tend to mitigate the likelihood of extreme stock price drops. Furthermore, this negative association is amplified in environments characterized by high product market competition. This suggests that when firms face intense competition, the protective effect of conservatism on stock price stability becomes more pronounced. By extending existing research, which primarily focuses on the American market, this study provides new insights within the context of France—a civil law country with different legal and regulatory frameworks. The findings have practical implications for managers, encouraging them to adopt conservative accounting practices and enhance transparency to reduce stock price crash risk. Investors can also leverage these insights to make more informed decisions, considering the influence of accounting policies and market competition on stock volatility.

Keywords---accounting conservatism, stock price crash risk, product market competition.

1- Introduction

Following the financial crisis, there has been a heightened focus among policymakers, practitioners, and investors on the risk of falling stock prices. This

concept, also known as the conditional asymmetry of return distributions, characterizes the uneven distribution of risk in the stock market (Kim *et al.*, 2016). Research suggests that this risk is rooted in the practice of managers withholding and accumulating negative news over extended periods. When this accumulation of negative news reaches a critical point, it is suddenly disclosed, resulting in substantial price declines (Jin and Myers, 2006; Hutton *et al.*, 2009). The motivation behind this asymmetric disclosure behavior stems from various factors, including formal compensation agreements and career-related concerns (Ball, 2009; Kothari *et al.*, 2009).

To limit these incentives, mechanisms such as conservative accounting practices can be used. Accounting conservatism results in greater caution in recognizing good news compared to bad news (Basu, 1997). This asymmetric auditability requirement of conservative accounting policies limits managers' incentives to hide bad news and accelerate the recognition of good news in financial statements (Kothari *et al.*, 2009). Furthermore, accounting conservatism disciplines managers' voluntary disclosures by limiting their incentives to disclose unverifiable favorable information (Lafond and Watts, 2008; Ball *et al.*, 2012). Hence, for conservative companies, voluntary erroneous disclosures are likely to be discovered earlier, this leads to a reduction in stock price crash risk and a reduction in the probability of the formation of stock market bubbles (Kim and Zhang, 2015). Furthermore, accounting conservatism prevents the accumulation of poor performance of unprofitable projects and forces managers to abandon them (Ball, 2001; Bleck and Liu, 2007). Thus, accounting conservatism is considered a control mechanism for managers that limits their opportunistic behaviors to hide and delay the disclosure of bad news and reduces stock price crash risk.

Existing literature has shown that there is a negative relationship between conservatism and stock price crash risk. Kim and Zhang, (2015) found that conditional conservatism is associated with a lower likelihood of stock price crash risk of U.S. firms. Furthermore, they found that this relationship is more pronounced for firms with higher information asymmetry. Consistent with this idea, and Wang *et al.* (2021) showed that accounting conservatism reduces the risk of stock price falls in the Chinese context. Overall, their results were consistent with the idea that conservatism limited the incentive and ability of managers to overestimate performance and hide bad news from investors, which in turn reduces stock price crash risk.

The objective of this study is to examine the effect of accounting conservatism on stock price crash risk. We also highlight an external governance mechanism capable of moderating the relationship between accounting conservatism and stock price crash risk. We have chosen to focus on product market competition as a major characteristic that influences the decision of managers. Indeed, this mechanism is capable of exerting pressure on managers and limiting the accumulation of bad news and suboptimal decision-making. Competitive market pressures can reduce stock price crash risk for several reasons. First, information revealed by competitors could convey information about the company. Therefore, it is more difficult to hide negative information because there are additional sources that investors can rely on to infer information. This reduces the likelihood

of stock price crash risk. In addition, product market competition reduces agency costs by forcing managers to exert more effort and manage the company more efficiently (Kim *et al.*, 2011). Additionally, a firm may act in a cautious manner in the face of increased threats from competing firms (Hobreg *et al.*, 2014; Dhaliwal *et al.*, 2014). Taking a prudent approach provides companies with financial flexibility, allowing them to better weather adverse situations and proactively respond to competitive threats as they arise. Dhaliwal *et al.* (2014) show that firms facing high levels of competitive pressure become more conservative in their financial reporting to avoid information leaks to competitors. These companies are therefore less likely to experience sharp declines in stock prices. From this perspective we expect that the negative effect of accounting conservatism on stock price crash risk will be more pronounced in highly competitive markets.

Based on a sample of 311 French companies from 2009 to 2020, we adopt generalized least squares (GLS) and Logit estimates for panel data. We find a negative relationship between accounting conservatism and stock price crash risk. This confirms our hypothesis which states that accounting conservatism reduces stock price crash risk. This result suggests that accounting conservatism reduces opportunistic behavior and managers' incentives to withhold or delay the disclosure of bad news, leading to lower levels of stock price crash risk. Likewise, the results show that the effect of conservatism on stock price crash is amplified in highly competitive markets. This means that companies subject to strong competitive pressures become more conservative. Thus, competitiveness in the markets inhibits the decisions of managers in their opportunistic behavior and reduces stock price crash risk. In addition, the effect of accounting conservatism on stock price crash risk is more pronounced for companies with a high level of information asymmetry and those with a strong governance system. While this effect is attenuated during the Covid-19 epidemic.

This article contributes to the literature in several ways. First of all, our study complements and extends previous research on the economic consequences of accounting conservatism, in particular reduces earnings management (Caskey and Laux, 2017; Lara *et al.*, 2020), improves the quality of information (Hu *et al.*, 2014), resolves information asymmetry problems (Garcia Lara *et al.*, 2014) and improves investment efficiency (Garcia Lara *et al.*, 2016).

Despite the economic importance of the stock market, which allows companies to raise the capital they need to finance their investments, little research has been conducted on the role that accounting conservatism plays on the stability of stock markets. Then our analysis extends the study by Kim and Zhang, (2015) which focuses on the relationship between accounting conservatism and stock price crash risk in the American context. Indeed, we confirm the negative relationship between conservatism and stock price crash risk in a legal environment different from the American context, namely in France. It is a civil law country where shareholder rights are weakly protected (La Porta, 1999). France also has a concentrated ownership structure. In this context, agency problems can arise between majority and minority shareholders, which can compromise the quality of financial information (Ball *et al.*, 2000). We contribute to the existing literature by arguing that accounting conservatism limits opportunistic behavior of managers and improves the quality of financial information. Furthermore, we combine the

effect of accounting conservatism and market competitiveness and we show that in highly competitive markets the relationship between accounting conservatism and stock price crash risk is more pronounced. This choice of product market competition can be justified by the fact that an external governance mechanism can be decisive in a context marked by a concentrated ownership structure.

The remainder of the article is structured as follows: Section 1 is devoted to the literature review and the development of hypotheses. Section 2 describes the sample and research design. In Section 3, we present and discuss our results. The last section concludes the paper.

2- Literature review and hypothesis development

2-1- Accounting conservatism and stock price crash risk

Accounting conservatism is defined by Basu (1997) as: “a tendency to require a higher degree of verification to recognize good news as gains than to recognize bad news as losses”. This asymmetric recognition of gains and losses leads to a situation where negative news is reflected in results more quickly than positive news, which should have internal and external consequences for the company. According to Watts (2003a), conservatism is a governance mechanism that limits managerial incentives and capabilities to overstate the accounting figures used in a contract.

Leaders can strategically withhold or delay the disclosure of bad news and accelerate the release of good news. This behavior arises from a variety of managerial incentives, such as income or stock-based compensation contracts, career and reputation concerns, and empire building (Core *et al.*, 2003, Ball, 2009). Kim *et al.* (2011) show that managers can take advantage of information asymmetry by using their information advantage to engage in opportunistic behavior and hide bad news. This practice allows them to manipulate available information in order to favor their own interests to the detriment of investors. Kothari *et al.* (2009) suggest that managers tend to delay the dissemination of bad news to external investors. This creates a stock price crash risk (McNichols, 1988). Indeed, the asymmetrical disclosure behavior of managers leads to the accumulation of negative information within the company. When the accumulated bad news reaches a certain threshold or when the managerial incentive to hide bad news collapses, the large amount of negative information will suddenly and immediately be released to the market, causing the stock price to fall sharply (Hutton *et al.*, 2009). Furthermore, hiding bad news allows firms with aggressive accounting to keep bad projects longer, compared to firms with conservative accounting (Ahmed and Duellman, 2011). When accumulated poor performance eventually surfaces, this leads to falls in stock prices (Bleck and Liu, 2007; Benmelech *et al.*, 2010).

Previous research suggests that accounting conservatism prevents the accumulation of bad news to external investors, and reduces the likelihood that a large amount of negative information will be released to the market at the same time (Lafond and Watts, 2008). As a result, bad news arrives more quickly in the financial market. Konsenidis *et al.* (2014) studied the effect of accounting conservatism on stock price crash risk in the American context. They showed that

there is a negative relationship between conditional conservatism and the risk of falling prices. In the same context, Kim and Zhang, (2015) revealed that conditional conservatism can reduce stock price crash risk of American companies by limiting the ability of managers to hide bad news from investors. Waqas and Siddiqui, (2021) found that conservative accounting policies can effectively prevent the crash of stock prices in Pakistan. Therefore, companies that adopt prudent conservative measures have less risk of falling stock prices due to a lower probability of bad news accumulation.

On the other hand, by their nature, conservative accounting reports provide verifiable and "hard" information that can be used as a benchmark for assessing the credibility of competing alternative sources of unverifiable and "soft" information, such as forecasts. management and other voluntary disclosures of nonfinancial information (LaFond and Watts, 2008). The availability of this concrete information can discipline voluntary disclosures by managers (Ball, 2001; Ball *et al.*, 2012). Moreover, any reluctance in disclosing bad news or exaggeration in disclosing good news will be discovered earlier in conservative firms than in nonconservative firms (Kim and Zhang, 2015). For the latter, misleading voluntary disclosures are unlikely to be discovered until the manager has moved on, and therefore is more likely to mislead external investors through voluntary disclosures. For conservative companies, intentionally misleading disclosures are likely to be discovered sooner. Thus, conservatism limits the incentives and ability of managers to delay the release of bad news and accelerate the release of good news in voluntary disclosures. This reduces stock price crash risk, as well as the likelihood of inflating stock market bubbles (Kim and Zhang, 2015).

Conservatism can also reduce the risk of crash via its impact on actual decision-making. Recognizing losses more quickly than gains can be an early warning mechanism that allows shareholders and boards of directors to quickly identify unprofitable projects and force managers to abandon them (Ball and Shivakumar, 2005). This prevents the accumulation of poor project performance and reduces the likelihood of asset prices falling (Ball, 2001; Bleck and Liu, 2007). Indeed, recent research (Kim *et al.*, 2016; Chang *et al.*, 2017; Deng *et al.*, 2020) shows that overinvestment in negative net present value (NPV) projects leads to the accumulation of bad performance, which, once materialized, leads to a crash in stock prices.

In summary, accounting conservatism reduces agency problems and information asymmetry between managers and investors, by limiting managerial incentives to hide and accumulate bad news and poor performance, which in turn, leads to reducing stock price crash risk. Therefore, we expect that:

H1: Accounting conservatism reduces stock price crash risk.

2-2- The moderating role of product market competition

Previous studies suggest that product market competition can alleviate the problems of discretionary decisions of managers, by acting as a monitoring device (Giroud and Mueller, 2010). Competitive pressure reduces agency costs and this reduces stock price crash risk (Kim *et al.*, 2011). Threats from competitors force managers to exert more effort and manage company more efficiency (Shmidt,

1997). This results in a reduction in agency costs, an improvement in the company's productivity and therefore a reduced possibility of price crash. Additionally, in highly competitive markets competitor disclosures can be a source from which investors can infer negative information about their companies, making it more difficult for managers to hide bad news. Nalebuff and Stiglitz, (1983) and Holonstron, (1982) show that companies in highly competitive sectors provide more information than companies in monopolistic sectors. Li, (2010) also suggests that market competition improves disclosure quality by reducing earnings optimism. Dhaliwal *et al.* (2014) and Hoberg *et al.* (2014) also assume that companies facing high levels of pressure tend to adopt a more conservative approach. Companies that adopt conservative policies are likely to better cope with adverse situations and respond aggressively to competitive threats. As a result, these companies are less likely to experience significant declines in their stock prices.

It should be noted, however, that when a company operates in an intense competitive environment, it is under increased pressure to produce favorable financial results in order to maintain its competitiveness in the market. In such circumstances, managers may be tempted to implement less conservative accounting practices in order to present more optimistic financial performance. Healy *et al.* (2014) highlighted the possibility of underestimating potential losses, while Francis, (2002) highlighted the tendency to overestimate assets. Additionally, Watts, (2003) suggests the possibility of more aggressive revenue management in an intense competitive environment. Managers may have incentives to recognize revenue more quickly or defer expenses in order to present more favorable results. This practice can be seen as a form of earnings manipulation to meet investor expectations and maintain market confidence.

These behaviors can have significant consequences, as they can distort the perception of the company's actual financial performance. Investors, based on this misleading information, may make incorrect investment decisions, which may lead to distortions in financial markets.

In summary, in an intense competitive environment, pressures on managers to achieve favorable financial results may lead to less conservative accounting practices. However, some companies adopting more conservative accounting policies are better prepared to deal with adverse situations and are less exposed to stock price crash risk. As a result, conservative companies that face high levels of competitive market pressure avoid bad stockpiling and this reduces the risk of prices crash. The preceding discussion then leads to the following hypothesis:

H2: Product market competition amplifies the negative effect of accounting conservatism on stock price crash risk.

3- Methodology

This part focuses on specifying our study sample, presenting the measurement of our variables, the specification of the empirical models and the estimation method of each model. In this section, we study the relationship between accounting conservatism and stock price crash risk and how market competition moderates this relationship.

3.1. Sample and data collection

The sample includes all non-financial French companies listed on the Paris stock exchange belonging to the CAC All Shares index, for which the data necessary for the study are available in the Worldscope, Datastream and Thomson One Banker databases. The choice of France is justified by the fact that this country belongs to the civil law legal system, which means a strong presence of agency problems between shareholders and managers in the French framework (Charlier and Lambert, 2013).

Data from French firms are collected over a period spanning 2009 to 2020. After eliminating 18 financial companies, our sample is made up of 507 listed firms. However, this number is reduced to 311 firms after eliminating 188 companies that record missing data. To be able to analyze the effect of accounting conservatism on stock price crash risk, our final sample is composed of 311 French firms over a 12-year period from 2009 to 2020, i.e. 3732 firm-year observations.

3.2. Measurements of variables:

3.2.1 Dependent variable

We use two measures of stock price crash risk following Chen *et al.* (2001), Hutton *et al.* (2009), Kim and Zhang, (2015).

We first estimate firm-specific weekly returns using the following expanded index model regression:

$$r_{ij} = \alpha_i + \beta_{1i} r_{m(j-2)} + \beta_{2i} r_{m(j-1)} + \beta_{3i} r_{mj} + \beta_{4i} r_{m(j+1)} + \beta_{5i} r_{m(j+2)} + \beta_{6i} r_{sj-2)} + \beta_{7i} r_{sj-1)} + \beta_{8i} r_{sj} + \beta_{9i} r_{sj+1)} + \beta_{10i} r_{sj+2)} + \epsilon_{ij}$$

Where r_{ij} is the return of stock i in week j , r_{mj} is the return of the stock index in week j and r_{sj} is the return of the sector index in week j .

We define the firm-specific weekly return for firm i in week j as the natural logarithm of one plus the residual from the regression above (equation 1) ($W_{ij} = \ln(1 + \epsilon_{ij})$). The first measure of crash risk, CRASH, is a binary variable that equals 1 if a company experiences one or more weekly company-specific returns falling at least 3.2 standard deviations below its average value at the price. of a given year, and 0 otherwise. According to Hutton *et al.* (2009), the threshold of 3.2 standard deviations is chosen to generate 0.1% of the distribution.

The second measure of stock price crash risk is the downward volatility measure, DUVOL, of crash risk. For each firm i in fiscal year t , the firm-specific weekly returns are divided into two groups. The first corresponds to weeks of decline corresponding to returns below the annual average, while the second corresponds to weeks of increase linked to returns above the annual average. The standard deviation of firm-specific returns is calculated differently for each of these two distinct groups. DUVOL is the natural logarithm of the ratio of the standard deviation of down weeks to the standard deviation of up weeks:

$$DUVOL_{jt} = \log \left\{ \frac{(n_d - 1) \sum_{down} w_{jt}^2}{(n_u - 1) \sum_{up} w_{jt}^2} \right\}$$

A higher DUVOL value indicates a higher accident risk.

3.2.2. Independent variable

To measure accounting conservatism at the level of each company-year, two models will be used, namely the Givoly and Hayn, (2000) model and the Khan and Watts, (2009) model. Our first measure, non-operational accruals (NOA), has been widely used in previous literature (Zhang, 2008; Xu *et al.*, 2012; Houcine, 2013...). We measure NOA as the difference between total accruals (TAC) and operational accruals (OAC):

$$NOA_{i,t} = TAC_{i,t} - OAC_{i,t}$$

For ease of interpretation, we divide NOA over the total assets t-1 then multiply it by -1. Thus, more positive values indicate greater conservatism.

The second measure of conservatism is CSCORE, is estimated by the Khan and Watts (2009) model which is a modification of the Basu, (1997) model used to calculate an annual firm-specific measure of conservatism (see also Ahmed and Duellman, 2012; Kim and Zhang, 2013 Garcia *et al.*, 2016). In algebraic form, the model is as follows:

$$X_{it} = \beta_1 + \beta_2 D_{it} + R_{it} (\mu_1 + \mu_2 Size_{it} + \mu_3 MTB_{it} + \mu_4 Lev_{it}) + D_{it} R_{it} (\lambda_1 + \lambda_2 Size_{it} + \lambda_3 MTB_{it} + \lambda_4 Lev_{it}) + (\delta_1 Size_{it} + \delta_2 MTB_{it} + \delta_3 Lev_{it} + \delta_4 D_{it} Size_{it} + \delta_5 D_{it} MTB_{it} + \delta_6 D_{it} Lev_{it}) + \varepsilon_{it}$$

With:

X_{it} : net income for company i in year t normalized by the market capitalization at the beginning of the year;

R_{it} : stock market return for company i during year t;

DR_{it} : binary variable equal to 1 if $R_{it} < 0$ and to 0 otherwise;

Lev_{it} : the ratio of long-term debt to the sum of long-term debt and the market value of company i's equity at the end of year t;

MTB_{it} : This ratio is obtained by dividing the market capitalization of a company by its net book value.

$Size_{it}$: the logarithm of total assets of company i at the end of year t.

In this approach, the coefficients λ_j are estimated for each year. The level of conservatism for each company-year, Conservatism (C_Score in Khan and Watts, 2009) is then calculated using the following formula:

$$C_score = \lambda_1 + \lambda_2 Size_{it} + \lambda_3 MTB_{it} + \lambda_4 Lev_{it}$$

3.2.3. Product market competition

We measure product market competition using the Herfindahl Hirschman Index (HHI), following Kim *et al.*, (2011b). A high HHI indicates low product market competitiveness. The HHI is calculated as follows:

$$HHI_{jt} = \sum_{i=1}^N S_{ijt}^2$$

Where S_{ijt} is the market share of company n in sector j in year t.

From the HHI, we construct a binary variable (HHI-bin) which takes the value 1 if the value of the HHI of company n is greater than the median of year t, and 0 otherwise.

3.2.4. Control variables

Consistent with previous studies (Chen *et al.*, 2001; Hutton *et al.*, 2009; Kim *et al.*, 2011b; Kim and Zhang, 2015) we include the determinants of stock price crash as control variables. Namely, Market-to-Book Ratio (MTB_t), the size of the company ($Size_t$), debt (Lev_t), Return on assets (ROA_t), $CRASH_t$, Standard deviation

(SIGMA_t), corporate opacity (OPACITY_t), detrended turnover (DTURN_t) and returns (RET_t).

3.3. Specification of the econometric model

We use panel data regression equations to test the hypotheses. The dependent variable SPCR, measured at year *t*, by two measures of fall risk: CRASH and DUVOL. Following previous research, all independent variables are measured in year *t*-1. The independent variable of accounting conservatism is estimated by two proxies: NOA and C score. We use GCM regressions on panel data when using the continuous dependent variable DUVOL and correct the problems of heteroskedasticity and autocorrelation of the residuals. When the dependent variable is CRASH, a binary variable, we apply Logit regression on the panel data with an option that corrects for heteroskedasticity and autocorrelation of the residuals. Our research model to test the effect of accounting conservatism on the risk of falling prices is stated as follows:

$$SPCR_{it} = \beta_0 + \beta_1 Conservatism_{it-1} + \beta_2 MTB_{t-1} + \beta_3 Size_{t-1} + \beta_4 Lev_{t-1} + \beta_5 ROA_{t-1} + \beta_6 CRASH_{t-1} + \beta_7 SIGMA_{t-1} + \beta_8 OPACITY_{t-1} + \beta_9 DTURN_{t-1} + \beta_{10} RET_{t-1} + \sum Year \text{ fixed effect} + \varepsilon_{it} \quad (1)$$

In order to determine the effect of product market competition on the relationship between accounting conservatism and stock price crash risk, we estimate the following research model:

$$SPCR_{it} = \beta_0 + \beta_1 Conservatism_{it-1} + \beta_2 HHI-binit_{t-1} + \beta_3 Conservatism_{it-1} * HHI-binit_{t-1} + \beta_4 MTB_{t-1} + \beta_5 Size_{t-1} + \beta_6 Lev_{t-1} + \beta_7 ROA_{t-1} + \beta_8 CRASH_{t-1} + \beta_9 SIGMA_{t-1} + \beta_{10} OPACITY_{t-1} + \beta_{11} DTURN_{t-1} + \beta_{12} RET_{t-1} + \sum Year \text{ fixed effect} + \varepsilon_{it} \quad (2)$$

Avec: *i* = 1,..., 311 et *t* = 1,..., 12. β_0 : constant et ε_{it} : error term.

3.4. Univariate analysis

3.4.1. Descriptive statistics

Table 1 presents the descriptive statistics of the variables retained for our analysis. The DUVOL variable has an average value of -0.112. This recorded average is lower than that reported by Zhang and Nam, (2016) 0.044 in the Chinese context and that of Kim *et al.* (2016) 0.027 in the American context. In addition, over the entire study period, 26.4% of French companies experienced at least one stock market crash each year. This proportion is higher than that found by Kim *et al.* (2016) 17.2%.

[Table 1 insert table]

3.4.2. Correlation matrix

Table 2 presents the Pearson correlation matrix. It shows that the correlation between the two measures of accounting conservatism and the other variables is relatively weak, lower than the critical value of 0.8 reported by Gujarati (2004). Additionally, the values of the variance inflation factor (VIF) for each variable vary between 1.01 and 1.94 well below the critical value of 10 (Neter, 1989). Therefore, multi collinearity is not a serious problem in our multivariate analyses. Also, the

two variables NOA and Cscore which measure accounting conservatism are negatively and significantly correlated at the 1% threshold with the variables DUVOL and CRASH, which is intuitively consistent with our first hypothesis.

[Table 2 insert table]

4- Results and discussion

4.1 Accounting conservatism and stock price crash risk

Table 3 presents the empirical results of the regressions analyzing the effect of accounting conservatism on stock price crash risk. The first two columns of Table 3 present the results of the Logit model regressions with CRASH as the dependent variable. As indicated, the coefficients of the two measures of accounting conservatism NOA and Cscore are negative and statistically significant at the 1% level. These results show that accounting conservatism negatively affects stock price crash risk measured by CRASH. These results are also valid for the second measure of stock price crash risk (DUVOL). This means that there is a negative relationship between accounting conservatism and stock price crash risk on the French market. Our first hypothesis (H1) is then confirmed. These results corroborate with those of Kousenidis *et al.* (2014), Kim and Zhang, (2015) in the American context and Wang *et al.* (2021) in the Chinese context who assume that accounting conservatism reduces stock price crash risk. This implies that accounting conservatism plays a crucial role in limiting managers' incentives to engage in opportunistic behavior and delay the disclosure of bad news. When a company adopts conservative accounting policies, it applies stricter criteria for recognizing gains and losses, resulting in conservative recognition of economic events. This approach helps reduce managers' incentives to manipulate financial results by hiding bad news. Indeed, managers are less inclined to delay or withhold the disclosure of negative information, because it will be quickly and faithfully reflected in the financial statements. Therefore, accounting conservatism helps reduce the likelihood of bad news being stored within the firm, thereby limiting the risk of stock prices falling.

Regarding the control variables, the results illustrated in Table 3 show that there is a positive and significant relationship at the 1% level between the Market to book ratio and stock price crash risk. This ratio represents the company's growth opportunity, hence improving growth is often accompanied by uncertain risks, which increases the possibility of stock price crash risk. Our results are similar to those found by Chen *et al.* (2001) and Kim and Zhang, (2015). Additionally, company size has a positive and significant effect on stock price crash risk, because larger companies are more likely to attract investors' attention when disclosing hidden bad news. This aligns with the result found by Chen *et al.* (2001), Hutton *et al.* (2009) and Kim and Zhang, (2015). We also find that stock price crash risk is positively and significantly related with volatility of firm-specific returns (SIGMA), turnover rate (DTURN), and past CRASH.

Our results are consistent with those found by Chen *et al.* (2001), Kim *et al.* (2011) and Wang *et al.* (2020). Consistent with our expectations, a company's performance measured by the ratio (ROA) negatively affects crash risk. Finally, the coefficient of (OPACITY) is statistically significantly positive. Indeed, opacity

allows managers to accumulate bad news, which then leads to a crash in stock prices (Benmelech *et al.*, 2010).

[Table 3 insert table]

4.2 The moderating role of product market competition

We examine the moderating effect of product market competition on the relationship between accounting conservatism and stock price crash risk. The results in Table 4 reveal that the coefficient of HHI-bin measuring the effect of market competition on stock price crash risk is negative and statistically significant at the 1% level. This result suggests that pressure from competitors limits stock price crash risk. We confirm the results of Andreou *et al.* (2016) and Kim *et al.* (2011) who state that increased market competition encourages managers to make better investment decisions, ignore losing projects, and avoid poor performance. Furthermore, they suggest that companies facing high levels of pressure are forced to improve their information environment as their competitors do. In such a rich information environment and under product market pressures, managers are less likely to accumulate bad news, reducing stock price crash risk. Regarding the moderating effect of product market competition on the relationship between accounting conservatism and downfall risk, we find a result that supports hypothesis H2. The coefficients of our interaction variables (NOA*HHI-bin and Cscore*HHI-bin) show negative and statistically significant effects. These results mean that in the presence of strong competition in the market, the effect of conservatism on the risk of price falls is more pronounced. These results suggest that firms are more conservative in product markets with high competition. Indeed, as market competition increases, it becomes increasingly beneficial for companies to record losses in their financial statements, thereby strengthening their competitive position against their competitors and potential entrants. This avoids the accumulation of bad news and reduces the risk of price crashes.

[Table 4 insert table]

4.3. Additional analysis

4.3.1 The effect of Covid-19 on the relationship between accounting conservatism and stock price crash risk

Table 5 analyze the effect of Covid-19 on the relationship between accounting conservatism and stock price crash risk. These results show that the coefficient of Covid-19 is positive and statistically significant. This implies that during the Covid-19 epidemic stock price crash risk has increased.

The results in Table 5 reveal a positive and significant coefficient of the interaction variable between accounting conservatism and Covid-19. This result suggests that the negative effect of conservatism on stock price crash risk is attenuated during the Covid-19 epidemic. These results suggest that the pandemic led to an imbalance in stock markets, yields decreased and stock price crash risk increased.

[Table 5 insert table]

4.3.2. The effect of information asymmetry on the relationship between accounting conservatism and stock price crash risk

We examine the effect of information asymmetry on the relationship between accounting conservatism and stock price crash risk. To do this, we divide our sample into two subgroups according to the level of information asymmetry measured by the range of prices displayed (Ask-Bid) / lower $[(\text{Ask}+\text{Bid})/2]$ (information asymmetry low) or higher (High Information Asymmetry) than average. We assume that the relationship between conditional conservatism and stock price crash risk is more pronounced for firms with high information asymmetry than for firms with low information asymmetry.

Table 6 presents the results of the sub-sample analysis for companies with high and low information asymmetry for the two stock price crash risk measures (Panel A and Panel B). The results show that the coefficients of accounting conservatism are negative and significant for companies with high information asymmetry. However, the effect of accounting conservatism on stock price crash risk is insignificant for companies with a low level of information asymmetry. Our results are consistent with those of Kim and Zhang, (2015). This suggests that the relationship between accounting conservatism and stock price crash risk is more pronounced for companies with high information asymmetry. Indeed, conservatism slows down managerial incentives to hide negative private information. In the extreme case of no information asymmetry, managers have no incentive for strategic disclosure, and thus conservatism plays no role in controlling managerial disclosure behavior. On the other hand, if the amount of private information a manager can potentially hide is more costly, such as in firms with more investment in R&D, the disciplinary role of conservatism is likely to be more important. Also, according to LaFond and Watts, (2008) accounting conservatism appears as a reaction to the existence of information asymmetries. It serves to reduce existing asymmetries between different parts of the business by resolving agency conflicts and allowing other sources of information to flourish. Thus, we argue that in an environment of high information asymmetry, conservatism plays a more important role in countering managerial incentives to accumulate bad news and has a stronger impact on stock price crash risk. Table 6 shows the results of the Chow comparison test and confirms the statistically significant difference at the 1% level for companies with a high level of information asymmetry.

[Table 6 insert table]

4.3.3. The effect of corporate governance on the relationship between accounting conservatism and stock price crash risk

Table 7 presents the subsample analyzes for strongly and weakly governed firms for the two measures of stock price crash risk (Panel A and B). The results show that the effect of accounting conservatism on stock price crash risk is negative and significant for companies with a high governance score. However, this effect is not significant for companies with a low governance score. This suggests that the negative relationship between accounting conservatism and stock price crash risk is more pronounced for companies with a strong governance system given that it is a control and monitoring system. These results underline the importance of corporate governance as a disciplinary control device capable of enriching the company's information environment. It is then likely to limit the behavior of

accumulation of bad news by the manager and to protect the stability of the financial market. The Chow comparison test confirms the statistically significant difference at the 1% level for strongly governed companies.

[Table 7 insert table]

4.4. Robustness analysis

Robustness analysis is carried out to test the sensitivity of the results to change in the measurement of variables and/or estimation methods.

4.4.1. Alternative measure of stock price crash risk

We use an alternative measure of stock price crash risk, such as negative skewness of firm-specific returns (NCSKEW). Specifically, NCSKEW is the negative skewness of the third weekly moment of firm-specific returns for each sample year divided by the standard deviation of the firm-specific weekly returns raised to the third power.

$$NCSKEW = - [n (n-1)^{3/2} \sum w_{jt}^3] / [(n-1) (n-2) (\sum w_{jt}^2)^{3/2}]$$

The results in Table 8 remain qualitatively unchanged and show that accounting conservatism has a negative effect on stock price crash risk.

[Table 8 insert table]

4.4.2. GMM estimation

The Generalized Method of Moments (GMM) approach helps address endogeneity, simultaneity, reverse causality, and omitted variable bias in panel data estimation by using lagged variables as instruments. It involves two key tests: the Sargan over-identification test for instrument validity and the Arellano and Bond autocorrelation tests to check for the absence of first- and second-order autocorrelation in the error terms. The results of the GMM estimations reported in Table 9 show that the effect of accounting conservatism on stock price crash risk remains negatively significant.

[Table 9 insert table]

4.4.3. Change Analysis

To address endogeneity issues, we use regression analysis of variations, which controls for unobservable time-varying factors, allowing for a more accurate assessment of how changes in accounting conservatism affect stock price crash risk and investment inefficiency.

The results in Table 10 show that accounting conservatism has a negative and significant effect on stock price crash risk, these results are similar to those found in the main analysis.

[Table 10 insert table]

5- Conclusion

In order to study the effect of accounting conservatism on stock price crash risk, we conducted an empirical study on a sample composed of 311 French companies

during the years 2009 to 2020. The results showed that accounting conservatism reduces stock price crash risk. Indeed, accounting conservatism is likely to reduce information asymmetry by limiting managers' incentives and the ability to withhold or delay the disclosure of bad news, thereby reducing negative information being stored and consequently decreasing stock price crash risk. This result confirms our hypothesis which states that accounting conservatism has a negative effect on stock price crash risk. After using an alternative measure of stock price crash risk and testing for endogeneity problems, the results remain unchanged.

Furthermore, we tested the moderating role of product market competition on the relationship between accounting conservatism and stock price crash risk. We found that market competition is considered an external governance mechanism that amplifies the negative effect of accounting conservatism on stock price crash risk. Thus, competition in the markets is a measure to exert pressure on managers, to reduce agency problems and to strengthen the alignment of the interests of managers and shareholders which will lead to a reduction in stock price crash risk.

Our study presents several practical and managerial implications. Indeed, accounting conservatism is considered to be a disciplinary mechanism which limits the opportunistic incentives of managers. Hence, managers can take a differentiated path, to improve pricing capacity, increase information disclosure and find highly competitive companies to cooperate to stabilize the market and reduce the risk of a stock market crash. When a firm is conservative, information asymmetry is reduced, limiting the ability to withhold disclosure of bad news. Then, our results can be useful to investors in their investment decisions, on the one hand by shedding light on this type of risk, and on the other hand, by allowing them to identify the profile of companies at risk of stock crashes. Finally, standard-setting bodies must consider accounting conservatism in their regulations to protect the interests of shareholders and strengthen confidence in the financial market.

Future research could focus on the moderating role of governance mechanisms such as board size, family firms on the relationship between accounting conservatism and stock price crash risk.

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Appendix

Table 1. Descriptive statistics

Variable	Ticket	Measure
Dependent variable		
Stock price crash risk	CRASH	a binary variable that takes the value of 1 if the company experiences one or more stock crashes, and 0 otherwise.
	DUVOL	the asymmetric volatility of negative versus positive returns
	NCSKEW	negative skewness of company-specific weekly returns
Independent variable		
Accounting conservatism	Cscore	measured by the Khan and Watts (2009) model
	NOA	the difference between total accruals and operational accruals.
Moderating variable		
Product market competition	HHI-bin	a dummy variable that takes the value 1 if the HHI value is less than the sector median, and 0 otherwise.
Control variables		
Market to book ratio	MKTB	the ratio of market value to book value
Debt	LEV	the ratio of total debt to total assets
Corporate opacity	Opacity	the absolute value of discretionary accruals estimated by the Jones (1991) model
Returns	RET	the average of weekly company-specific returns during the financial year
Detrended turnover	DTURN	the difference between the average monthly turnover of shares over the period of the current financial year and the average monthly turnover of shares over the period of the previous financial year.
Standard deviation	SIGMA	standard deviation of the company's specific weekly returns over a financial year
Return on assets	ROA	the ratio between net income and total assets
Size	SIZE	the natural logarithm of total assets
Additional analysis variables		
Covid 19	Covid19	binary variable in which the value of 1 represents the Covid-19 period, which is 2020 while a value of 0 represents a year that is not affected by Covid-19.
Information asymmetry	AI	the displayed price ranges.
Corporate governance score	CGS	extracted from the DataStream database

Tableau 2 Correlation matrix

Variables	Mean	sd	Min	Max	Q25	Q75
DUVOL	-0.112	0.243	-1.437	2.584	-0.193	-0.014
Cscore	0.061	0.121	-0.266	0.125	0.064	0.125
NOA	-0.092	0.224	-10.161	1.909	-0.126	-0.032
SIGMA	0.056	0.123	-0.347	0.126	0.045	0.125
MTB	8.053	1.124	0	11.091	7.257	8.732
Size	19,98	2,487	14.615	27.499	18.146	21.699
Lev	0.230	0.242	0	0.927	0.097	0.322
ROA	0.054	0.456	-1.606	15.849	0.019	0.069
OPACITY	0.053	0.072	0.001	0.872	0.012	0.068
DTURN	0.010	0.033	-0.004	0.590	0	0.002
RET	0.145	0.665	-1.032	21.932	-0.070	0.262
Variables binaires	Proportion		SD	Conf-interval		
CRASH	0	0.735	0.007	0.721	0.749	
	1	0.264		0.250	0.278	
HHI-bin	0	0.406	0.469	0.389	0.421	
	1	0.594		0.578	0.610	

See the Appendix for variables definition. Standard errors in parentheses *** p < 0.01. ** p < 0.05. *p < 0.1.

	CRASH	DUVOL	Cscore	NOA	SIGMA	MTB	Size	Lev	ROA	OPACITY	DTURN
Crash	1.0000										
DUVOL	-0.156***	1.0000									
Cscore	-0.005**	-0.001***	1.0000								
NOA	-0.011***	-0.025**	0.019	1.0000							
SIGMA	0.036**	-0.049***	0.016	0.014	1.0000						
MTB	0.016*	0.009	0.045***	0.015	-0.007	1.0000					
Size	0.017	0.006	-0.001	0.059***	0.015	-0.203*	1.0000				
Lev	-0.011*	-0.016*	0.023	-0.493***	-0.058***	-0.035**	-0.006	1.0000			
ROA	-0.015	-0.012	0.007	0.121***	0.013	-0.201***	-0.111***	-0.048***	1.0000		
OPACITY	0.090***	-0.042***	-0.015	-0.126***	0.019	0.041**	0.033**	-0.019	0.030*	1.0000	
DTURN	0.009	0.018	0.065***	-0.095***	0.037**	0.025*	-0.009	0.016	-0.017	0.071***	1.0000
RET	-0.011	0.018	0.002	0.010	-0.003	0.038**	-0.011	-0.041**	0.002	-0.003	-0.011
VIF				1.43	1.01	1.05	2.36	1.35	2.50	1.04	1.02
Mean VIF	1.35										

See the Appendix for variables definition. Standard errors in parentheses *** p < 0.01. ** p < 0.05. *p < 0.1.

Table 3. Effect of accounting conservatism on stock price crash risk

Variables	CRASH_t <i>Regression logistique</i>		DUVOL_t <i>Regression Prais winsten</i>	
	(1)	(2)	(3)	(4)
NOA_{t-1}	-0.650*** (0.247)	- (-)	-0.076*** (0.017)	- (-)
Cscore_{t-1}	- (-)	-3.982*** (2.116)	- (-)	-0.507*** (0.118)
MTB_{t-1}	0.334*** (0.092)	0.300*** (0.092)	0.063*** (0.009)	0.0639*** (0.009)
SIZE_{t-1}	1.03e-05*** (9.16e-07)	9.84e-06*** (8.89e-07)	2.71e-06*** (1.04e-06)	1.95e-06** (9.82e-07)
Lev_{t-1}	-0.137 (0.205)	-0.017 (0.143)	-0.040*** (0.015)	-0.010 (0.012)
ROA_{t-1}	-0.794* (0.491)	-0.966** (0.464)	-0.140*** (0.053)	-0.098* (0.050)
CRASH_{t-1}	1.898*** (0.084)	1.888*** (0.084)	0.075*** (0.009)	0.075*** (0.009)
SIGMA_{t-1}	0.903*** (0.315)	4.848** (2.107)	0.086** (0.039)	0.582*** (0.110)
OPACITY_{t-1}	2.281*** (0.556)	2.102*** (0.553)	0.184*** (0.039)	0.177*** (0.039)
DTURN_{t-1}	1.346*** (0.471)	1.299*** (0.471)	0.075 (0.057)	0.083*** (0.030)
RET_{t-1}	1.199 (1.421)	1.169 (1.421)	0.243 (0.152)	0.251 (0.152)
Constant	-0.940*** (0.260)	-1.114*** (0.265)	-0.245*** (0.027)	-0.252*** (0.026)
N	3729	3729	3730	3730
Year effect	Oui	Oui	Oui	Oui
R²	0.147	0.146	0.051	0.051

See the Appendix for variables definition. Standard errors in parentheses *** p < 0.01. ** p < 0.05. *p < 0.1.

Table 4 Effect of conservatism on stock price crash risk: moderating role of product market competition

Variables	CRASH _t		DUVOL _t	
	<i>Regression logistique</i>		<i>Regression Prais winsten</i>	
	(1)	(2)	(3)	(4)
NOA_{t-1}	-0.627*** (0.242)	-	-0.351* (0.207)	-
NOA_{t-1}*HHI_{t-1}	-5.083** (2.547)	-	-0.046*** (0.016)	-
CONST_{t-1}	-	-3.569* (2.113)	-	-0.493*** (0.119)
CONST_{t-1}*HHI_{t-1}	-	-5.209** (2.545)	-	-9.377*** (3.059)
HHI_{t-1}	-2.280*** (0.778)	-2.524*** (0.607)	-2.965*** (0.695)	-2.412*** (0.731)
MKTB_{t-1}	0.283*** (0.095)	0.312*** (0.093)	0.055*** (0.010)	0.066*** (0.009)
SIZE_{t-1}	0.0435*** (0.011)	2.90e-05*** (9.06e-06)	0.007*** (0.009)	1.97e-06** (9.63e-07)
LEV_{t-1}	-0.167 (0.369)	-0.095 (0.163)	-0.038** (0.015)	-0.016 (0.012)
ROA_{t-1}	-0.535 (0.811)	-0.980** (0.460)	-0.005** (0.002)	-0.098** (0.049)
CRASH_{t-1}	1.858*** (0.084)	1.883*** (0.084)	0.067*** (0.009)	0.074*** (0.009)
SIGMA_{t-1}	0.940*** (0.321)	4.451** (2.103)	0.078** (0.039)	0.568*** (0.111)
OPACITY_{t-1}	2.095*** (0.545)	2.088*** (0.553)	0.069** (0.030)	0.088*** (0.030)
DTURN_{t-1}	1.224*** (0.475)	1.305*** (0.462)	0.171*** (0.038)	0.176*** (0.038)
RETURN_{t-1}	1.226 (1.421)	1.253 (1.428)	0.273 (0.150)	0.259* (0.149)
Constant	-1.920*** (0.392)	-1.084*** (0.272)	-0.079** (0.037)	-0.248*** (0.026)
N	3729	3729	3730	3730
Year effect	Oui	Oui	Oui	Oui
R²	0.154	0.149	0.074	0.058

See the Appendix for variables definition. Standard errors in parentheses *** p < 0.01. ** p < 0.05. *p < 0.1.

Table 5. The effect of COVID-19 on the relationship between accounting conservatism and stock price crash risk

Variables	CRASH _t		DUVOL _t	
	(1)	(2)	(3)	(4)
NOA_{t-1}	-0.688*** (0.256)	- -	-0.047*** (0.016)	- -
NOA*Covid19	3.773*** (1.346)	- -	0.406* (0.212)	- -
CONS_{t-1}	- -	-3.666* (2.125)	- -	-0.503*** (0.118)
CONS*Covid19	- -	5.654** (2.539)	- -	0.396* (0.212)
Covid19_{t-1}	0.132* (0.123)	0.311*** (0.114)	0.135*** (0.044)	0.156*** (0.043)
MKTBT_{t-1}	-0.312*** (0.0930)	-0.297*** (0.0932)	0.062*** (0.009)	0.059*** (0.009)
SIZE_{t-1}	-2.73e-05*** (9.95e-06)	-2.89e-05*** (9.10e-06)	1.05e-07** (4.52e-08)	9.11e-08** (4.65e-08)
LEV_{t-1}	0.126 (0.204)	0.0734 (0.0156)	-0.038** (0.015)	-0.017 (0.011)
ROA_{t-1}	0.880* (0.506)	0.955** (0.462)	0.127 (0.0915)	0.128 (0.091)
CRASH_{t-1}	1.936*** (0.0861)	1.923*** (0.0858)	0.076*** (0.009)	0.075*** (0.009)
SIGMA_{t-1}	-0.894*** (0.315)	-4.543** (2.115)	0.087** (0.0393)	0.583*** (0.110)
OPACITY_{t-1}	2.297*** (0.557)	2.103*** (0.557)	-0.061 (0.056)	-0.045 (0.056)
DTURN_{t-1}	1.398*** (0.471)	1.319*** (0.467)	-0.195*** (0.039)	0.193*** (0.039)
RETURN_{t-1}	-1.201 (1.476)	-1.288 (1.433)	0.249 (0.153)	0.247 (0.153)
Constant	-1.123*** (0.271)	-1.157*** (0.274)	-0.252*** (0.026)	-0.241*** (0.027)
N	3729	3729	3730	3730
Year effect	Oui	Oui	Oui	Oui
R²	0.152	0.150	0.054	0.054

See the Appendix for variables definition. Standard errors in parentheses *** p < 0.01. ** p < 0.05. *p < 0.1.

Table 6 The effect of information asymmetry on the relationship between accounting conservatism and stock price crash risk

Variables	Panel A High information asymmetry				Panel B Low information asymmetry			
	CRASH _t		DUVOL _t		CRASH _t		DUVOL _t	
	1	2	3	4	5	6	7	8
NOA_{t-1}	-0.084*** (0.032)	-	-0.024** (0.010)	-	-0.646 (0.348)	-	-0.498 (0.373)	-
Cscore_{t-1}	-	-0.537*** (0.158)	-	-0.404** (0.172)	-	-5.383 (2.752)	-	-2.487 (3.293)
MKTB_{t-1}	-0.156 (0.145)	-0.124 (0.146)	0.063*** (0.014)	0.061*** (0.015)	-0.453*** (0.122)	0.421*** (0.122)	0.061*** (0.012)	0.057*** (0.012)
SIZE_{t-1}	3.63e-05*** (1.26e-05)	-3.95e-05*** (1.18e-05)	2.33e-10 (2.96e-08)	-1.48e-08 (2.92e-08)	0.0229 (0.021)	0.0233 (0.022)	-0.004** (0.002)	-0.004** (0.002)
LEV_{t-1}	0.022 (0.291)	-0.036 (0.265)	-0.085 (0.059)	-0.086 (0.059)	0.147 (0.293)	0.112 (0.292)	-0.017 (0.044)	-0.018 (0.044)
ROA_{t-1}	1.293** (0.645)	1.471** (0.601)	0.187 (0.157)	0.188 (0.157)	-0.0105 (0.800)	0.0253 (0.815)	0.111 (0.097)	0.110 (0.097)
CRASH_{t-1}	1.842*** (0.138)	1.841*** (0.138)	-0.039** (0.016)	-0.0391** (0.016)	1.931*** (0.107)	1.914*** (0.107)	-0.097*** (0.012)	-0.095*** (0.012)
SIGMA_{t-1}	-1.212** (0.481)	-3.665 (3.283)	0.171*** (0.061)	0.563*** (0.156)	-0.608 (0.420)	-5.935** (2.733)	0.023 (0.049)	0.557*** (0.150)
OPACITY_{t-1}	2.443** (0.971)	2.347** (0.958)	0.0334 (0.117)	0.0392 (0.117)	2.193*** (0.671)	1.995*** (0.671)	-0.145** (0.065)	-0.115* (0.064)
DTURN_{t-1}	1.518* (0.801)	1.522* (0.804)	-0.238*** (0.066)	-0.234*** (0.066)	1.285** (0.570)	1.203** (0.566)	-0.169*** (0.047)	-0.163*** (0.047)
RETURN_{t-1}	-3.206 (2.237)	-3.227 (2.229)	0.579** (0.255)	0.582** (0.255)	0.709 (1.878)	0.813 (1.894)	0.004 (0.179)	-0.007 (0.180)
Constant	-1.572*** (0.423)	-1.703*** (0.424)	-0.236*** (0.043)	-0.225*** (0.044)	-1.042* (0.546)	-1.190** (0.550)	-0.154*** (0.052)	-0.138*** (0.053)
N	1488	1488	1488	1488	2241	2241	2242	2242
Year effect	Oui	Oui	Oui	Oui	Oui	Oui	Oui	Oui
R²	0.143	0.142	0.048	0.048	0.153	0.153	0.063	0.062

See the Appendix for variables definition. Standard errors in parentheses *** p < 0.01. ** p < 0.05. *p < 0.1.

Table 7 the effect of corporate governance on the relationship between accounting conservatism and stock price crash risk

Variables	PanelA High Governance Score				PanelB Low Governance Score			
	CRASH _t		DUVOL _t		CRASH _t		DUVOL _t	
	1	2	3	4	5	6	7	8
NOA_{t-1}	-0.884** (0.370)	-	-0.080*** (0.028)	-	-0.233 (0.158)	-	-0.032 (0.013)	-
Cscore_{t-1}	-	-8.653*** (3.342)	-	-0.924*** (0.182)	-	-1.904 (0.955)	-	-0.081 (0.038)
MKTb_{t-1}	0.305** (0.137)	0.261* (0.139)	0.041*** (0.012)	0.036*** (0.012)	0.317** (0.126)	0.328*** (0.126)	0.079*** (0.014)	0.082*** (0.014)
SIZE_{t-1}	0.042 (0.025)	0.0452* (0.0261)	0.002 (0.002)	0.002 (0.002)	3.56e-05* (1.20e-05)	2.95e-05* (1.16e-05)	2.13e-08 (2.80e-08)	1.94e-09 (2.59e-08)
LEV_{t-1}	-0.020 (0.374)	-0.039 (0.371)	-0.004 (0.046)	-0.009 (0.046)	-0.030 (0.210)	-0.039 (0.203)	-0.088 (0.054)	-0.088 (0.054)
ROA_{t-1}	-1.187 (0.866)	-1.379 (0.849)	-0.022 (0.124)	-0.025 (0.124)	-1.251** (0.609)	-0.945 (0.590)	-0.270** (0.131)	-0.270** (0.131)
CRASH_{t-1}	1.779*** (0.124)	1.767*** (0.124)	-0.073*** (0.013)	-0.071*** (0.014)	1.992*** (0.115)	1.986*** (0.115)	-0.077*** (0.013)	-0.077*** (0.013)
SIGMA_{t-1}	0.835* (0.444)	9.378*** (3.323)	0.091* (0.051)	1.003*** (0.172)	1.001** (0.446)	0.964** (0.445)	0.087 (0.060)	0.080 (0.060)
OPACITY_{t-1}	1.684** (0.829)	1.422* (0.839)	0.038 (0.080)	0.009 (0.079)	2.836*** (0.758)	2.826*** (0.760)	0.095 (0.078)	0.112 (0.079)
DTURN_{t-1}	0.928 (0.735)	0.677 (0.728)	0.267*** (0.069)	0.248*** (0.069)	1.703*** (0.614)	1.867*** (0.658)	0.134*** (0.045)	0.124*** (0.045)
RETURN_{t-1}	0.178 (2.172)	0.195 (2.178)	0.322* (0.182)	0.322* (0.182)	2.214 (1.912)	2.157 (1.907)	0.194 (0.247)	0.194 (0.248)
Constant	-1.799*** (0.632)	-2.065*** (0.644)	-0.123** (0.054)	-0.097* (0.055)	-1.179*** (0.359)	-1.021*** (0.366)	-0.303*** (0.042)	-0.312*** (0.042)
N	1786	1786	1786	1786	1943	1943	1944	1944
Year effect	Oui	Oui	Oui	Oui	Oui	Oui	Oui	Oui
R²	0.127	0.128	0.052	0.054	0.168	0.170	0.053	0.054

See the Appendix for variables definition. Standard errors in parentheses *** p < 0.01. ** p < 0.05. *p < 0.1.

Table 8 The effect of accounting conservatism on stock price crash risk

Variables	NSCKEW_t	
	(1)	(2)
NOA_{t-1}	-0.013* (0.007)	- -
Cscore_{t-1}	- -	-0.406*** (0.046)
MKTB_{t-1}	0.018*** (0.003)	0.019*** (0.003)
SIZE_{t-1}	4.48e-08** (2.11e-08)	3.77e-08* (2.08e-08)
LEV_{t-1}	-0.009 (0.006)	-0.015*** (0.004)
ROA_{t-1}	-0.002 (0.036)	-0.001 (0.036)
CRASH_{t-1}	0.023*** (0.003)	0.024*** (0.003)
SIGMA_{t-1}	0.014 (0.015)	0.383*** (0.043)
OPACITY_{t-1}	0.030 (0.019)	0.037* (0.019)
DTURN_{t-1}	0.002 (0.014)	5.24e-05 (0.014)
RETURN_{t-1}	0.066 (0.067)	0.065 (0.067)
Constant	0.126*** (0.010)	0.130*** (0.010)
N	3730	3730
Year effect	Oui	Oui
R²	0.026	0.032

See the Appendix for variables definition. Standard errors in parentheses *** p < 0.01. ** p < 0.05. *p < 0.1.

Table 9 GMM regression

VARIABLES	DUVOL_t	
	1	2
NOA_{t-1}	-0.243* (0.133)	- -
Cscore_{t-1}	- -	-3.794** (1.628)
MKTB_{t-1}	-0.527** (0.253)	-0.00627 (0.0725)
SIZE_{t-1}	3.67e-07** (1.53e-07)	2.79e-08 (4.60e-08)
LEV_{t-1}	-0.152 (0.0948)	-0.0472* (0.0276)
ROA_{t-1}	0.139 (0.157)	0.0676 (0.0588)
CRASH_{t-1}	-0.0461** (0.0214)	-0.0206*** (0.00733)
SIGMA_{t-1}	0.0823 (0.0595)	4.007*** (1.321)
OPACITY_{t-1}	-0.0897 (0.123)	-0.157*** (0.0484)
DTURN_{t-1}	-0.243 (0.151)	-0.0948** (0.0406)
RETURN_{t-1}	0.0321 (0.173)	0.118 (0.0787)
Constant	1.339** (0.670)	-0.0298 (0.196)
N	3730	3730
Year effect	Oui	Oui
Number of Years	12	12
Arellano-Bond : AR (1)	0.000	0.000
Arellano-Bond : AR (2)	0.509	0.398
Test de Sargan :(p-val)	0.000	0.000
Test de Hansen : (p-val)	0.028	0.191

See the Appendix for variables definition. Standard errors entre parenthèses
*** p < 0.01. ** p < 0.05. *p < 0.1.

Table 10 change analysis

VARIABLES	Δ CRASH		Δ DUVOL	
	1	2	3	4
ΔNOA	-0.646* (0.362)	- -	-0.043*** (0.014)	- -
ΔCscore	- -	-0.889** (0.402)	- -	-0.113** (0.046)
Variables de contrôle	Oui	Oui	Oui	Oui
Constante	-1.464*** (0.053)	-1.365*** (0.052)	-0.097*** (0.027)	-0.101*** (0.027)
N	3721	3721	3727	3727
Year effect	Oui	Oui	Oui	Oui
R²	0.298	0.298	0.029	0.030
See the Appendix for variables definition. Standard errors in parentheses *** p < 0.01. ** p < 0.05. *p < 0.1.				