Accounting conservatism and firm performance during the COVID-19 pandemic

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Abstract

We explore whether firms with more conditionally conservative accounting practices have higher stock returns than other firms during the Covid-19 outbreak. We find evidence that Chinese firms listed on the Shanghai and Shenzhen Stock Exchanges applying more conditionally conservative reporting have lower declines in stock return performance during the Covid-19 outbreak relative to other firms. We also find that the beneficial role of conditional conservatism is higher when firms have greater information asymmetry following the Covid-19 pandemic. Our results are robust to various model specifications with four different measures of conservatism and an alternative return window.

Key words: Accounting; Conservatism; Pandemic; Information; Asymmetry; Uncertainty

JEL classification: M41, G01, G12

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1. Introduction

This paper investigates whether firms with more conditionally conservative accounting practices have better stock returns during the Covid-19 stock

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market crash relative to other firms. We also examine whether the association between conditional conservatism and stock returns during Covid-19 varies with information asymmetry. Our study extends previous research that has demonstrated that conditional conservatism results in higher firm value by reducing information asymmetry, lowering the cost of capital, and improving investment efficiency through enhanced monitoring and contracting (LaFond and Watts, 2008; Francis and Martin, 2010; Ahmed and Duellman, 2011; García Lara et al., 2011; Artiach and Clarkson, 2013; Kim et al., 2013; Balakrishnan et al., 2016; Ha and Feng, 2018).

The Covid-19 pandemic and worldwide lockdowns have resulted in substantial economic costs globally. The stock markets have fallen dramatically with the Dow Jones and FTSE experiencing their biggest quarterly declines in the first three months of the year since the Black Monday crash of 1987 (BBC News, 2020a). The International Monetary Fund predicted that global growth in 2020 would be −4.9 percent and the world 2021 gross domestic product (GDP) would be about 6.5 percentage points lower than the projections made prior to Covid-19 (International Monetary Fund, 2020). There is significant uncertainty regarding the magnitude and duration of the economic consequences of the pandemic for entities having major reductions in sales and associated job cuts to reduce operating costs and avoid bankruptcy (The Washington Post, 2020). A sudden stock market downfall and increased uncertainty regarding firms’ future earnings prospects have also created a volatile market for potential investors and shareholders.

Investors become more risk-averse and rely more on fundamental information during market downturns, as they consider other information noisy and speculative due to higher risk and uncertainty in the market (Lang and Maffett, 2011). Thus, the quality of accounting information and related disclosures in the financial statements is more important for capital markets and investors in the Covid-19 pandemic period. The body of literature examining the contemporaneous association between earnings and stock returns documents that earnings are an important explanatory factor for equity returns (e.g., Ball and Brown, 1968; Rayburn, 1986; Dechow, 1994; Sloan, 1996; Teoh et al., 1998; Degeorge et al., 1999).

Conditional conservatism 1 is referred to as asymmetric timeliness of gains versus losses as it requires immediate recognition of expected economic losses while the recognition of economic income is deferred until expected gains are verifiable (Basu, 1997; Ball and Shivakumar, 2005; LaFond and Watts, 2008; Khan and Watts, 2009). The accounting literature documents that contracting

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1Unconditional conservatism refers to the understatement of assets and overstatement of liabilities irrespective of any economic news. It does not provide information relevant for decision marking and is less relevant to contracting (Shivakumar, 2013). Thus, we focus only on conditional conservatism. We use conditional conservatism and conservatism interchangeably.

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and monitoring concerns primarily induce conditional conservatism because conditional conservatism forces managers to provide loss information they are more reluctant to reveal in a timely fashion, alleviating earnings management (Basu, 1997; Beaver and Ryan, 2000; Ball and Shivakumar, 2005; Qiang, 2007; Dhaliwal et al., 2014; Barker and McGeachin, 2015). As a result, conditional conservatism reduces information asymmetry between managers, equity investors and other contracting parties, enabling them to form more accurate expectations of future accounting income (Ball, 2001; Watts, 2006; LaFond and Watts, 2008).

By imposing timely recognition of losses, conditional conservatism also provides shareholders and the board of directors with early warning signals about the profitability of projects, forcing managers to promptly identify and discontinue unprofitable projects (Roychowdhury, 2010; García Lara et al., 2016). Thus, conditional conservatism can help firms implement better risk management practices via timely risk revelations and stronger external monitoring by outside stakeholders and shareholders (Biddle et al., 2013; Kim and Zhang, 2015; García Lara et al., 2016). Kim and Zhang (2015) argue that conditional conservatism makes bad news flow into the financial market in a timelier manner, preventing bad news from being hidden and accumulated, reducing the prospect of a firm facing future stock price reductions. Accordingly, firms with conservative reporting practices are more likely to be faced with a lower level of uncertainty upon the arrival of a future bad news event (Kim and Pevzner, 2010).

Our paper hypothesises that firms that have fully incorporated anticipated future losses into their earnings under a more conservative reporting policy have less information asymmetry between inside managers and outside investors during the Covid-19 outbreak. This is because investors are more concerned about the quality of earnings for firms reporting expected losses in a less timely fashion during severe market downturns. Also, firms that have governance and monitoring mechanisms that enable timely recognition of anticipated losses by managers are likely to be able to practise better crisis management than other firms during the Covid-19 pandemic. Consequently, firms with more conservative reporting practices have better stock returns during the Covid-19 outbreak.

We find evidence that firms in a sample of 1,909 Chinese firms listed on the Shanghai, and Shenzhen Stock Exchanges reporting more conditionally conservatively show lower declines in stock return performance during the Covid-19 outbreak using four alternative measures of conservatism and an alternative return window. Our results remain robust when a difference-in-differences model is used by incorporating the pre-Covid-19 period into the regression analyses, further corroborating the positive association between conditional conservatism and stock returns during the Covid-19 stock market crash.
We also perform additional analyses of whether the relation between conditional conservatism and equity returns during the Covid-19 outbreak changes with a firm’s information asymmetry. We find evidence that the beneficial role of conditional conservatism is more pronounced when firms are faced with greater uncertainty concerning their survival prospects following the Covid-19 pandemic. Overall, our results indicate that conditional conservatism helped firms suffer less from the Covid-19 stock market crash. This is done through more efficient contracting and monitoring mechanisms that reduce information asymmetry between firm insiders and outside investors that facilitate better risk management practices during the crisis.

This paper contributes to the literature in several important ways. First, this is the first study that investigates the association between firms’ financial reporting characteristics and stock return performance during the Covid-19 outbreak. A number of recent papers examining the impact of the Covid-19 crisis on stock markets focus mainly on the role of financial flexibility such as cash, leverage and external financing\(^2\) (e.g., Acharya and Steffen, 2020; Ding et al., 2020; Fahlenbrach et al., 2020; Ramelli and Wagner, 2020), corporate social responsibility (CSR) activities\(^3\) (e.g., Albuquerque et al., 2020; Ding et al., 2020), industry characteristics\(^4\) (e.g., Pagano et al., 2020) and analyst forecasts (Landier and Thesmar, 2020).\(^5\) Our study contributes to the fast-growing literature on the stock market response to the Covid-19 pandemic by documenting the first evidence that firms with more conservative reporting practices have relatively lower reductions in stock prices in the Covid-19 outbreak period.

Second, we also contribute to research on the stock market impact of the Covid-19 pandemic by employing a sample of Chinese firms that provides several benefits relative to alternative samples. The period of the Covid-19 outbreak can be more clearly defined in China as China had the earliest large outbreak and is currently one of the few countries to have largely brought its Covid-19 outbreaks under control. In addition, the early studies on the stock market response to the Covid-19 pandemic are concentrated in the US market

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\(^2\)These studies suggest that firms with more cash, less debt and larger profits have better stock price performance during the Covid-19 outbreak.

\(^3\)They provide evidence that firms that invested more in CSR activities prior to the pandemic had better stock price performance, lower return volatility and higher operating profit margins in response to the pandemic.

\(^4\)Pagano et al. (2020) show that firms with technologies and organisational structures that are more robust to social distancing significantly outperformed other firms during the Covid-19 outbreak.

\(^5\)This study analyses firm-level analyst forecasts during the Covid-19 crisis and finds that analyst forecast revisions explain the decrease in equity values during the Covid-19 outbreak.
China provides an important avenue to study the impact of the Covid-19 pandemic since the first large Covid-19 outbreak happened in China, and China has the second-highest GDP and stock market capitalisation in the world (Jones, 2016; Sun et al., 2019; Sun et al., 2020; Kent and Bu, 2020). Therefore, evidence from China extends our understanding of the economic consequences of the Covid-19 pandemic and the corresponding crisis management and response. Furthermore, evidence from the Chinese market is generalisable to other countries, including Australia, as the Chinese government provided stimulus packages and relief efforts in response to the pandemic similar to government interventions in Australia.

Third, this paper extends the literature examining the association between conditional conservatism and stock returns (Francis and Martin, 2010; Kim and Pevzner, 2010; García Lara et al., 2011; Kim et al., 2013; Balakrishnan et al., 2016). Balakrishnan et al. (2016) find that more conservative firms have lower declines in stock performance through improved borrowing capacity during the 2007–2008 global financial crisis. They argue that conditional conservatism mitigates underinvestment problems during the financial crisis by improving the firms’ debt-raising ability and facilitating the supply of external finance. The main feature of the global financial crisis was a loss of liquidity in the banking system, reducing firms’ access to external finance (Balakrishnan et al., 2016). In contrast, the Covid-19 crisis is initially unrelated to the availability of external finance. Accordingly, it is unclear whether conditional conservatism is significantly associated with equity returns during the Covid-19 stock market crash.

Also, Balakrishnan et al. (2016) define the crisis period from 1 July 2007 to 30 June 2008, reflecting that the period of recession occurred relatively slowly. However, the Covid-19 outbreak is a true exogenous shock to the equity market, which provides a more powerful setting to test the relation between conservative reporting and stock returns during the severe market downturn (Albuquerque et al., 2020; Ding et al., 2020; Ramelli and Wagner, 2020). Therefore, by finding evidence on the positive association between conditional conservatism and stock returns, it is unclear whether conditional conservatism is significantly associated with equity returns during the Covid-19 stock market crash.

García Lara et al. (2011) find that conditional conservatism is negatively associated with a firm’s cost of capital, arguing that conservatism mitigates information asymmetry and increases firm value, making external financing more accessible to investment projects. In the context of seasoned equity offerings, Kim et al. (2013) find that more conditionally conservative firms have smaller price reductions at seasoned equity offerings’ announcements. Similarly, Francis and Martin (2010) show that acquirers adopting a higher degree of conservatism have larger acquisition announcement returns. Kim and Pevzner (2010) examine the relation between conservatism and the abnormal return around a firm’s quarterly earnings announcement. They find some evidence that the stock market reacts more strongly to the good earnings news of more conservative firms than to the good earnings news of less conservative firms.
conservatism and stock return performance during the Covid-19 outbreak, this study records the beneficial role of conditional conservatism in firm resilience during the market downturn.

Fourth, our study contributes to the strand of research examining the informational benefits of conditional conservatism. Prior research suggests that the role of conservatism becomes more important when there is higher information asymmetry (LaFond and Watts, 2008; García Lara et al., 2009; Balakrishnan et al., 2016). Consistent with this, we find evidence that the positive association of conditional conservatism is more pronounced when firms are faced with higher uncertainty concerning their survival prospects following the Covid-19 pandemic. Thus, our results add to this line of literature by showing that the association between conservatism is minimal when firms are faced with low information asymmetry even during severe market downturns.

Lastly, this paper has implications for accounting standards setters, regulators and policymakers. The International Accounting Standards Board (IASB) has recently reintroduced the concept of prudence (conservatism) into its conceptual framework (Barker, 2015). Our findings provide supporting evidence that conservatism has a beneficial role in the capital markets by providing real economic benefits through lower declines in stock returns during the Covid-19 stock market crash.

The remainder of this paper is organised as follows. Section 2 discusses the theory and develops the hypothesis. Section 3 presents the research design and Section 4 describes the sample. Section 5 reports and analyses the empirical results. Finally, Section 6 concludes.

2. Literature review and hypothesis development

Managers have greater incentives to withhold bad news, but to quickly reveal good news to investors, because good news’ disclosures help managers continue employment and increase their wealth connected to firm value. Alternatively, bad news’ disclosures are costly to managers as they can lead to quick termination and wealth reduction (Kothari et al., 2009). Thus, conditional conservatism ensures that losses from bad economic events are incorporated into earnings as soon as expected, while expected gains from good economic events are voluntarily disclosed by managers through the notes to the financial statements, conference calls and management guidance (Guay and Verrecchia, 2018). Therefore, conditional conservatism improves the overall information environment of the firm by reducing managers’ earnings management, enforcing timely disclosures of good and bad news events and producing hard verifiable numbers that act as a benchmark for other sources of soft information in the market (LaFond and Watts, 2008).

The extant literature also documents that early recognition of bad news provides the board of directors and shareholders with early signals about the
profitability of projects being undertaken. This allows them to investigate the reasons for losses and quickly intervene to take corrective actions to abandon negative net present value projects or replace incapable managers (Watts, 2003; Roychowdhury, 2010; Louis et al., 2012; García Lara et al., 2016). Thus, conditional conservatism can discourage managers from investing in value-destroying projects by requiring managers to reveal their private knowledge about anticipated losses in a timely manner (Shivakumar, 2013).

Previous studies suggest that conditional conservatism is expected to reduce a firm’s risk of failure. Kim and Zhang (2015) find that a greater extent of conditional conservatism in financial reporting significantly reduces the likelihood of a firm having future stock price crashes. They argue that conservative accounting limits the ability of managers to hide firm-specific bad news so that the accumulation of bad news does not reach a tipping point that can lead to a stock price crash. Balakrishnan et al. (2016) also find that more conservative firms have better stock performance during the global financial crisis by engaging in more investment through better access to funding from banks or other creditors than less conservative firms. In line with this, Zhang (2020) also shows that conservatism is positively associated with firms’ access to trade credit both before and after the onset of the global financial crisis as suppliers prefer to provide trade credit to customers with higher conditional conservatism to avoid counterparty credit risk during the financial crisis.

The Covid-19 pandemic hit the equity markets sharply and forced many firms into a liquidity crisis, reducing their stream of cash flows and increasing their default risk (Acharya and Steffen, 2020). As a result, firms are faced with unprecedentedly high risks and uncertainty concerning their future earnings and survival prospects during the Covid-19 crisis.

When there is high uncertainty, investors become more risk-averse and less reliant on other sources of information than financial statements, that is more likely to reflect speculation and noise (Isidro and Dias, 2017). Transparent financial information mitigates uncertainty about the firm’s fundamental value and reduces risk perception (Barton and Waymire, 2004). As a result, reliable earnings information becomes more important to investors during market downturns due to higher risks in the market and higher uncertainty concerning firms’ future cash flows (Lang and Maffett, 2011).

Prior research suggests that the role of conservatism becomes more important when there is greater uncertainty because more reliable accounting information better assists investors in assessing the previous and future performance of a firm (LaFond and Watts, 2008; Khan and Watts, 2009; Kim et al., 2013; Balakrishnan et al., 2016). Moreover, the features of conditional conservatism that force managers to incorporate future anticipated losses into earnings and prevent expected gains from being reported reduces the intensity and magnitude of write-downs during the market downturn for firms reporting more conservatively. Also, the market reacts less strongly to the announcement of bad news for more conservative firms following the onset of the crisis as
investors are less concerned that the revelation of bad news is incomplete for more conservative firms (Kim and Pevzner, 2010). Further, more conservative firms can better negotiate credit terms with their suppliers, which can help them manage increased credit risk during the Covid-19 pandemic (Hui et al., 2012; Zhang, 2020). Consequently, we expect that more conservative firms have better stock return performance than their counterparts during the Covid-19 outbreak.

However, past studies have also raised issues about a decrease in value relevance of earnings reported under conservatism. For example, Penman and Zhang (2002) argue that conservative accounting can yield lower-quality earnings because conservatism creates a hidden reserve which can subsequently be used to increase or reduce earnings, providing investors with incorrect inferences. Also, Chen et al. (2014, p. 233) find that firms with more conservative accounting produce less persistent earnings and ‘that the pricing multiple on more conservative earnings is smaller than pricing multiples on less conservative earnings’, suggesting that market participants evaluate less persistent earnings unfavourably. Guay and Verrecchia (2006) also warn that asymmetric accounting conservatism that reports bad news in a timely manner, but good news in an untimely manner, creates information inefficiencies and is associated with distortion of the earnings–returns relation, reducing value relevance for users of financial statements.

However, the capital market benefits of accounting conservatism, including its positive association with firm value and stock return performance, have also been well documented by previous empirical studies (e.g., Francis and Martin, 2010; García Lara et al., 2011; Kim et al., 2013; Kim and Zhang, 2015; Li, 2015; Balakrishnan et al., 2016). Therefore, this study empirically investigates whether conditional conservatism is significantly associated with stock return performance during the Covid-19 outbreak leading to the following null hypothesis:

\[ H1: \text{There is no relation between conditional conservatism and stock returns during the Covid-19 outbreak.} \]

3. Research design

3.1. Measures of conditional conservatism

Khan and Watts (2009) modify Basu’s (1997) asymmetric timeliness measure to estimate a firm-year measure of conditional conservatism. They assume that the asymmetric timeliness of gains versus losses is a linear function of firm-specific characteristics such as firm size, market-to-book ratio and firm leverage. The following equation is Khan and Watts’s annual cross-sectional regression model:
\[ X_i = \beta_1 + \beta_2 D_i + R_i(\mu_1 + \mu_2 SIZE_i + \mu_3 MB_i + \mu_4 LEV_i) \\
+ D_i^* R_i(\lambda_1 + \lambda_2 SIZE_i + \lambda_3 MB_i + \lambda_4 LEV_i) \\
+ (\delta_1 SIZE_i + \delta_2 MB_i + \delta_3 LEV_i + \delta_4 D_i^* SIZE_i + \delta_5 D_i^* MB_i + \delta_6 D_i^* LEV_i) + \varepsilon_i \]

where \( X \) is earnings per share, \( R \) is stock returns, \( D \) is a dummy variable equal to one when \( R < 0 \) and zero otherwise, \( SIZE \) is firm size computed as the natural logarithm of total assets (Abu Bakar et al., 2020; Keshk et al., 2020), \( LEV \) is the leverage ratio, defined as total debts divided by total assets (Hsu et al., 2020), and \( MB \) is the market-to-book ratio (Wei et al., 2020). To estimate conservatism prior to the Covid-19 outbreak, all variables in Equation (1) are measured in the fiscal period ending before 1 January 2020.

Estimators of \( \lambda_i, i = 1–4 \) obtained from running the above regression on a pooled sample of firms, are substituted into Equation (2) to estimate firm-level conditional conservatism (\( CSCORE \)), and a higher \( CSCORE \) means higher conservatism. This is represented by:

\[ \text{Conservation Score (CSCORE) = } \lambda_1 + \lambda_2 SIZE_i + \lambda_3 MB_i + \lambda_4 LEV_i \] (2)

Givoly et al. (2007) argue that the exclusive reliance on any single measure to assess overall conservatism can lead to incorrect inferences. Therefore, we also perform our multivariate regression analysis by employing three other alternative measures of conservatism. These are Zhang’s (2008) skewness of earnings (\( CONSV_SKE \)), Givoly and Hayn’s (2000) non-operating accruals (\( CONSV_ACC \)) and Ball and Shivakumar’s (2005, 2006) asymmetric accruals to cash flow measure (\( CONSV_ACF \)).

The accumulation of non-operating accruals measures the extent of conservatism by summarising the actual recording of bad news such as asset write-downs and restructuring charges (Givoly and Hayn, 2000; Zhang, 2008). Non-operating accruals are measured as net income plus depreciation minus cash flow from operations minus operating accruals where operating accruals equal \( \Delta \) accounts receivable + \( \Delta \) inventory + \( \Delta \) prepay expenses - \( \Delta \) accounts payable - \( \Delta \) taxes payable. Then, our first alternative measure of conservatism (\( CONSV_ACC \)) takes the ratio of non-operating accruals to total assets accumulated over 5 fiscal years prior to the Covid-19 outbreak (i.e., the end of the last fiscal period ends before 1 January 2020). We multiply this ratio by \(-1\) so that the higher the \( CONSV_ACC \), the higher the level of conservatism.

Following Beatty et al. (2008), skewness of earnings (\( CONSV_SKE \)) is used as our second alternative measure of conservatism, as earnings are negatively skewed to a greater extent if a firm incorporates bad news immediately but good news gradually. The skewness of earnings deflated by the skewness of operating cash flows is measured over the previous 20 quarters (a minimum of five quarters) prior to the crisis period (i.e., the end of the last quarter in the...
measurement period ending before 1 January 2020) (e.g., Beatty et al., 2008; Zhang, 2008). We multiply the skewness of earnings by $-1$ to make the direction of this measure consistent with other conservatism measures.

Our final measure is the asymmetric accruals to cash flow model of Ball and Shivakumar (2005, 2006) using positive and negative operating cash flows as proxies for good and bad news, respectively, and is stated as follows.

$$ACC = \alpha_0 + \alpha_1 D + \beta_1 CFO + \beta_2 D \times CFO + \epsilon$$

(3)

where $ACC$ is accruals measured as the difference between earnings and cash flow from operations, scaled by total assets, $CFO$ is net cash flow from operations scaled by total assets, $D$ is a binary indicator which takes the value of one if $CFO$ is negative and zero otherwise. Following Ball and Shivakumar (2006), $\beta_2$ in Equation (3) is estimated by industry regressions based on the one-digit industry classification code of the China Securities Regulatory Commission (CSRC) issued in 2012 and used as a measure of conditional conservatism. We require each industry regression to have at least 30 observations including five loss observations, consistent with Ball and Shivakumar (2006).

3.2. Model specification

In our study, the period of the Covid-19 outbreak is defined to be from 2 January 2020 through 10 March 2020. On 1 January 2020, Chinese health authorities closed the Huanan Seafood Wholesale Market after wild animals sold in the market were suspected to be the potential source of the virus (World Health Organization, 2020). On 10 March 2020, Chinese President Xi visited the city of Wuhan, which was widely accepted as a sign that the outbreak was largely contained in the country (The Wall Street Journal, 2020). Although the stock market still did not fully recover from the pandemic effect after 10 March 2020, we measure the stock return performance over this period because the shock from the pandemic combines with other market demand factors as the return window is prolonged (Balakrishnan et al., 2016; Zhang, 2020).

We use daily buy-and-hold returns ($RAW$), market-adjusted returns ($MAR$) and capital asset pricing model (CAPM)-adjusted returns ($AR$) to measure stock return performance during the Covid-19 outbreak. By using the value-weighted index from the China Stock Market & Accounting Research (CSMAR) database as the market proxy, the market-adjusted returns ($MAR$) are calculated as the difference between the daily buy-and-hold and market returns over the period of the Covid-19 outbreak. The CAPM-adjusted returns ($AR$) are computed as the daily excess returns on the stock minus beta multiplied by the market excess returns. The CSMAR value-weighted index is used as the market proxy and the

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Footnote: Ball and Shivakumar (2006) note that the estimates of conditional conservatism measured from firm-specific time-series regressions can be noisy and unreliable.

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one-year term deposit rate as the risk-free rate. The stock beta is estimated over the period from 2 January to 31 December 2019.

We employ the following regression model to test the association between conditional conservatism and equity returns during the Covid-19 outbreak.

\[ RAW_i, MAR_i \text{ or } AR_i = \alpha_0 + \beta_1 \text{Conservatism}_i + \beta_2 \text{BM}_i + \beta_3 \text{SIZE}_i \\
+ \beta_4 \text{CASH}_i + \beta_5 \text{SDEBT}_i + \beta_6 \text{LDEBT}_i + \beta_7 \text{PRO}_i \\
+ \beta_8 \text{MOM}_i + \beta_9 \text{STATE}_i + \beta_{10} \text{TOP1}_i \\
+ \beta_{11} \text{BSIZE}_i + \beta_{12} \text{INDEP}_i + \sum \text{Industry dummies} + \epsilon_i \]

(4)

Conservatism in Equation (4) refers to our main variables of interest that measure firm-level conservatism, \( \text{CSCORE, CONSV}_\text{SKE}, \text{CONSV}_\text{ACC} \) and \( \text{CONSV}_\text{ACF} \). We also include a vector of variables in the regression model to control for various firm-specific and corporate governance characteristics that are known to be correlated with stock return performance. Following previous studies (Haford, 1999; Bates et al., 2009; Kahle and Stulz, 2013; Pinkowitz et al., 2016; Lins et al., 2017), we use several proxies to measure a firm’s financial health that reflects its ability to withstand a severe downturn in the economy during the crisis such as \( \text{CASH} \) (cash and marketable securities divided by total assets), \( \text{SDEBT} \) (short-term debt divided by total assets), \( \text{LDEBT} \) (long-term debt divided by total assets) and \( \text{PRO} \) (operating income divided by total assets). We also control for individual firm characteristics that may affect the stock return performance such as \( \text{SIZE} \) (the natural logarithm of total assets), \( \text{BM} \) (book value of equity divided by the market value of equity) and \( \text{MOM} \) (a firm’s raw return measured over the period 2 January–31 December 2019) (Daniel and Titman, 1997).

We also include three variables that proxy for corporate governance mechanisms, following Erkens et al. (2012) and Aldamen et al. (2020), that find board characteristics and ownership structure are associated with firm performance during the crisis period. They are \( \text{INDEP} \) (the number of independent directors), \( \text{BSIZE} \) (the number of directors) and \( \text{TOP1} \) (the percentage of shares held by the largest shareholder). \( \text{STATE} \) (the percentage of shares owned by the state) is also incorporated into the model specification following Zou and Adams (2008) who report the impact of state ownership on stock market returns and volatility in the context of China. We also include industry dummies based on the one-digit industry classification code of the CSRC issued in 2012 as the stock market response to the Covid-19 pandemic can vary significantly across different industries (e.g., Ramelli and Wagner, 2020). A description of all our variables is provided in the Appendix.

4. Sample description

Our sample consists of all Chinese firms that were listed on the Shanghai and Shenzhen Stock Exchanges during the Covid-19 outbreak. We exclude firms
from the financial sector because of their significantly different disclosure and regulation requirements. We also exclude firms from the pharmaceutical industry as these firms demonstrate significantly different price movements due to investors' expectations that pharmaceutical companies are likely to develop Covid-19 remedies and vaccines (CNBC, 2020). Our final sample includes 1,909 individual firms. All our variables, including the government subsidies and corporate governance data, are collected from CSMAR.

5. Empirical results

5.1. Descriptive statistics

Figure 1 demonstrates the average daily stock return performance from 2 January to 10 March 2020. As Figure 1 shows, when the Covid-19 pandemic first began, the market had significant declines recording average negative ARs. The market had the largest drop in late January to early February and this coincided with the Chinese government's travel restrictions and quarantines in several cities and placing the city of Wuhan in complete lockdown on 23 January 2020 (The Wall Street Journal, 2020). However, the market rebounded, which may be attributed to the Chinese government's multiple economic stimulus measures announced throughout February (KPMG, 2020). However, the market had a sharp decline in late February again as the Covid-19 outbreaks grew significantly in Iran, Italy and South Korea. Following this, the market picked up again until another steep decline in early March as there were new outbreaks in Europe and the Americas. However, the market improved again on 10 March when Chinese President Xi visited Wuhan.

Figure 2 plots the industry average daily RAW (buy-and-hold returns), MAR (market-adjusted returns) and AR (CAPM-adjusted returns) measured from 2 January to 10 March 2020 based on the one-digit industry classification code of the CSRC issued in 2012. As presented in Figure 2, the information technology industry outperformed the market during the Covid-19 outbreak, reflecting that their technologies and organisational structures were more robust to social distancing and less reliant on human interaction in physical proximity (Pagano et al., 2020). The manufacturing industry also outperformed the market. Although the manufacturing industry, in general, has faced significant disruption in production, firms providing essential services such as manufacturing food, daily necessities, alcohol, computers and other electronic equipment may have performed well due to higher demand during the Covid-19 outbreak. All other industries exhibited negative MAR and AR. Mining and

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7We only include RAW (buy-and-hold returns) and AR (CAPM-adjusted returns) in the graph since the average MAR (market-adjusted returns) converges to zero once we aggregate MARs to the market level as MAR is the difference between RAW and the market return.
transport services industries are among those that had the worst stock return performance during the Covid-19 outbreak.

Table 1 reports descriptive statistics. All continuous variables used in the regression analyses are winsorised at 1 percent at each extreme to mitigate the effect of outliers. As shown in Table 1, both the mean and median of MAR (market-adjusted returns) and AR (CAPM-adjusted returns) are negative, indicating that our sample firms had negative market and risk-adjusted returns on average during the Covid-19 outbreak. The mean (median) of CASH is 0.143 (0.123), which suggests that firms were holding on average 14 percent of cash and cash equivalents relative to their total assets prior to the Covid-19 outbreak. The mean and median of SDEBT (short-term debt divided by total assets) are 0.384 and 0.375 while LDEBT (long-term debt divided by total assets) reports the mean and median of 0.091 and 0.061, respectively. This indicates that our sample firms are holding significantly larger amounts of short-term debt than long-term debt relative to their assets prior to the Covid-19 outbreak.

Table 2 reports Pearson correlation coefficients among all our variables used in the multivariate analysis. We briefly discuss the results from the correlation matrix as we do not attempt to draw any inference from the bivariate analysis.

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Our return measures (RAW, MAR and AR) are positively correlated with our conservatism measures (CSCORE, CONSV_SKE and CONSV_ACF) except for CONSV_ACC. SIZE, BM and LDEBT are all negatively and significantly correlated with our return measures (RAW, MAR and AR). This indicates that firms that are smaller and have a lower book-to-market ratio and larger amounts of long-term debt have lower stock returns during the Covid-19 outbreak. Also, the correlation coefficients between MOM and our return measures (RAW, MAR and AR) are all positive and statistically significant, supporting the momentum effect (Daniel and Titman, 1997). The correlation coefficient between INDEP and BSIZE is relatively high at 72 percent, indicating that larger boards have a larger number of independent directors. All other variables do not report a high correlation coefficient.

5.2. Conservatism and stock return performance during the Covid-19 outbreak

Table 3 provides the regression results of the multivariate analysis that tests our hypothesis of whether conditional conservatism is significantly associated with stock returns during the Covid-19 outbreak. The dependent variables are RAW (buy-and-hold returns), MAR (market-adjusted returns) and AR (CAPM-adjusted returns) that are measured over the period of the Covid-19 outbreak.
outbreak from 2 January to 10 March 2020. As presented in Table 3, the coefficients on $CSCORE$ in all regressions (Models (1)–(6)) are positive and statistically significant, suggesting that firms with more conservative accounting practices have better stock returns during the Covid-19 outbreak.

As for the control variables, the coefficients on $MOM$ are positive and statistically significant at 1 percent in Models (4)–(6). This indicates that firms that have higher stock returns in 2019 continue to have better stock returns even during the Covid-19 outbreak, confirming the stock market momentum effect (Daniel and Titman, 1997). The coefficients on $TOP1$ are negative and statistically significant at 1 percent in all regressions, which suggests that firms with a higher percentage of shares held by the largest shareholder have larger declines in stock performance during the Covid-19 outbreak. $STATE$ is also negatively and significantly associated with equity returns during the Covid-19 outbreak (at 10 percent only in Models (4) and (6)), which provides some evidence that firms with greater state ownership have a larger decline in price during the Covid-19 outbreak. The coefficients on $SIZE$ are positive and statistically significant in Models (5) and (6), potentially reflecting investors’ concern about the survival of small businesses during the Covid-19 pandemic.

We repeat our regression analyses by employing three alternative conservatism measures: Zhang’s (2008) skewness of earnings ($CONSV_SKE$), Givoly

| Variables | Obs  | Mean  | P25   | Median | P75   | SD   |
|-----------|------|-------|-------|--------|-------|------|
| RAW       | 1,909| 0.069 | −0.059| 0.021  | 0.157 | 0.179|
| MAR       | 1,909| −0.008| −0.129| −0.056 | 0.070 | 0.175|
| AR        | 1,909| −0.011| −0.129| −0.058 | 0.066 | 0.174|
| CSCORE    | 1,909| 0.214 | 0.078 | 0.235  | 0.399 | 0.430|
| $CONSV_{SKE}$ | 1,936| 0.018 | −1.289| −0.472 | 0.878 | 5.189|
| $CONSV_{ACC}$ | 1,975| 0.010 | −0.014| 0.006  | 0.029 | 0.124|
| $CONSV_{ACF}$ | 1,874| −0.235| −0.997| −0.285 | 0.449 | 1.201|
| BM        | 1,909| 0.630 | 0.328 | 0.530  | 0.809 | 0.439|
| SIZE      | 1,909| 22.680| 21.757| 22.526 | 23.413| 1.325|
| CASH      | 1,909| 0.143 | 0.080 | 0.123  | 0.181 | 0.091|
| SDEBT     | 1,909| 0.384 | 0.258 | 0.375  | 0.494 | 0.169|
| LDEBT     | 1,909| 0.091 | 0.016 | 0.061  | 0.131 | 0.098|
| PRO       | 1,909| 0.396 | 0.157 | 0.305  | 0.518 | 0.425|
| MOM       | 1,909| 0.239 | 0.010 | 0.150  | 0.390 | 0.355|
| STATE     | 1,909| 0.019 | 0.000 | 0.000  | 0.000 | 0.073|
| TOP1      | 1,909| 0.332 | 0.225 | 0.311  | 0.424 | 0.138|
| BSIZE     | 1,909| 8.416 | 7.000 | 9.000  | 9.000 | 1.571|
| INDEP     | 1,909| 3.146 | 3.000 | 3.000  | 3.000 | 0.499|

This table reports descriptive statistics. A description of variables is provided in the Appendix. All continuous variables are winsorised at 1% at each extreme to mitigate the effect of outliers.
This table reports Pearson correlation coefficients among the test and control variables used in the multivariate analyses. All continuous variables are winsorised at 1% at each extreme to mitigate the effect of outliers. The correlation coefficients in bold indicate statistically significance at the 0.05 or higher level. A description of all our variables is provided in the Appendix.
Table 3
Conditional conservatism and stock return performance during the Covid–19 outbreak

|                      | RAW (1) | MAR (2) | AR (3) | RAW (4) | MAR (5) | AR (6) |
|----------------------|---------|---------|--------|---------|---------|--------|
| Constant             | -0.010  | -0.760**| -0.082***| 0.320   | -0.190**| -0.246***|
|                      | (-0.02) | (-2.35) | (-2.55) | (-2.55) | (-2.06) | (-2.68) |
| CSCORE               | 0.026***| 0.021** | 0.015*  | 0.026** | 0.028***| 0.024**|
|                      | (2.81)  | (2.24)  | (1.68)  | (2.56)  | (2.76)  | (2.76)  |
| BM                   |         |         |         | -0.012  | -0.004  | -0.009 |
|                      |         |         |         | (-0.96) | (-0.32) | (-0.75) |
| SIZE                 |         |         |         | 0.004   | 0.009*  | 0.012***|
|                      |         |         |         | (0.92)  | (1.93)  | (2.63)  |
| CASH                 |         |         |         | -0.047  | -0.022  | -0.019 |
|                      |         |         |         | (-1.06) | (-0.49) | (-0.24) |
| SDEBT                |         |         |         | -0.037  | -0.038  | -0.048*|
|                      |         |         |         | (-1.38) | (-1.38) | (-1.80) |
| LDEBT                |         |         |         | -0.072  | -0.07   | -0.081*|
|                      |         |         |         | (-1.49) | (-1.49) | (-1.68) |
| PRO                  |         |         |         | -0.002  | 0.001   | 0.003  |
|                      |         |         |         | (-0.24) | (0.15)  | (0.28)  |
| MOM                  | 0.063***| 0.061***| 0.057***|         |         |        |
|                      | (5.29)  | (5.17)  | (4.79)  |         |         |        |
| STATE                | -0.09*  | -0.084  | -0.098* |         |         |        |
|                      | (-1.67) | (-1.57) | (-1.83) |         |         |        |
| TOP1                 | -0.124***| -0.088***| -0.081***|         |         |        |
|                      | (-4.27) | (-3.01) | (-2.79) |         |         |        |
| BSIZE                | -0.007**| -0.005  | -0.005  |         |         |        |
|                      | (-2.01) | (-1.5)  | (-1.40) |         |         |        |
| INDEP                | 0.002   | 0.003   | 0.003   |         |         |        |
|                      | (0.19)  | (1.24)  | (0.23)  |         |         |        |
| Industry dummies     | Yes     | Yes     | Yes     | Yes     | Yes     | Yes    |
| N                    | 1,909   | 1,909   | 1,909   | 1,909   | 1,909   | 1,909   |
| Adj. $R^2$           | 0.12    | 0.09    | 0.09    | 0.15    | 0.11    | 0.10    |

This table provides the regression results of the multivariate analyses testing our hypothesis of whether conditional conservatism is significantly associated with stock returns during the Covid-19 outbreak. The dependent variables are RAW (daily buy-and-hold returns), MAR (market-adjusted returns) and AR (CAPM-adjusted returns) that are measured over the period of the Covid-19 outbreak from 2 January to 10 March. The market-adjusted returns (MAR) are calculated as the daily buy-and-hold returns minus the market returns during the crisis period, by using the CSMAR value-weighted index as the market proxy. The CAPM-adjusted returns (AR) are computed as the daily excess returns on the stock minus beta times the market excess returns. The CSMAR value-weighted index is used as the market proxy and the one-year term deposit rate as the risk-free rate. The stock beta is estimated over the period from 2 January to 31 December 2019. CSCORE refers to conditional conservatism estimates measured based on Khan and Watts (2009). A description of variables is provided in the Appendix. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively. All continuous variables are winsorised at 1% at each extreme to mitigate the effect of outliers.
and Hayn’s (2000) non-operating accruals (CONSV_ACC) and Ball and Shivakumar’s (2005) asymmetric accruals to cash flow measure (CONSV_ACF). The regression estimates for the multivariate analysis in which RAW (buy-and-hold returns) is used as a dependent variable are presented in Panel A of Table 4. The regression results with the dependent variable of MAR (market-adjusted returns) and AR (CAPM-adjusted returns) are reported in Panels B and C of Table 4, respectively.

The coefficients on CONSV_SKE, CONSV_ACC and CONSV_ACF are positive and statistically significant in all regressions in Table 4, indicating that conditional conservatism is positively and significantly associated with stock returns during the Covid-19 outbreak. This result corroborates our previous finding that firms with a more conservative reporting policy are significantly less subject to the Covid-19 stock market crash, supporting the beneficial role of conditional conservatism in firm resilience during the extreme market downturn. For brevity, the results for the control variables are not discussed as they are comparable to the results obtained in the previous regression analysis.

To ensure that our results are not sensitive to a different return window, we repeat our regression analyses by using an alternative period of the Covid-19 outbreak. On 8 April 2020, the Chinese government officially lifted the lockdown in Wuhan, which is considered as another official sign of confidence that China had managed to control the Covid-19 outbreak (BBC News, 2020b). Thus, we use the period from 2 January to 8 April 2020 as our alternative return window and measure daily buy-and-hold returns (RAW), market-adjusted returns (MAR) and CAPM-adjusted returns (AR) over this period. The results are provided in Table 5.

The coefficients on CSCORE are positive and statistically significant at 1 percent in all regressions across Models (1)–(6), indicating that the positive association between conditional conservatism and stock returns during the Covid-19 outbreak continues to hold when the return window is extended to 8 April 2020. The results for the control variables also remain like those obtained from the previous regression analyses except for SIZE. The coefficients on SIZE are negative but remain statistically significant only in Model (4), providing some indication that it is consistent with the size effect theory that smaller firms have higher returns (Daniel and Titman, 1997). We expect that this size effect becomes more apparent as the return window is extended to 8 April (from 10 March) since investors’ concern about the survival of small firms during the Covid-19 pandemic can dissipate over time.

5.3. Information asymmetry tests

Prior research documents that conditional conservatism plays a more important role for firms with greater information asymmetry by mitigating moral hazard problems and agency costs through more efficient contracting and stronger monitoring (Lafond and Watts, 2008; Lai and Taylor, 2008;
Table 4
Conditional conservatism and stock return performance during the Covid-19 outbreak: alternative measures of conservatism

|                  | Panel A: RAW                     | Panel B: MAR                      | Panel C: AR                      |
|------------------|---------------------------------|----------------------------------|---------------------------------|
|                  | (1)    | (2)    | (3)    | (4)    | (5)    | (6)    | (7)    | (8)    | (9)    |
| Constant        | 0.175  | 0.113  | 0.119  | −0.052 | −0.086 | −0.068 | −0.118 | −0.137 | −0.129 |
|                  | (1.32) | (1.34) | (1.36) | (−1.39) | (−1.02) | (−0.78) | (−0.08) | (−1.63) | (−1.48) |
| CONSV_SKE       | 0.002**| 0.002**| (2.15) | (2.12) | (2.09) | 0.002**| −0.086 | −0.118 | −0.137 |
| CONSV_ACC       | 0.154**| 0.114* | (2.31) | (1.71) | (1.9)  | 0.126* | −0.068 | −0.118 | −0.137 |
| CONSV_ACF       | 0.007* | (1.90) | −0.001 | 0.025  | 0.007  | 0.006* | 0.018  | 0.005  | 0.001  |
| BM              | 0.015  | 0.003  | −0.001 | 0.025  | 0.007  | 0.006  | 0.018  | 0.005  | 0.001  |
|                 | (0.74) | (0.26) | (−0.11) | (1.27) | (0.63) | (0.51) | (0.92) | (0.46) | (0.1)  |
| SIZE            | −0.002 | 0.000  | 0.000  | 0.002  | 0.004  | 0.003  | 0.006  | 0.006  | 0.006  |
|                 | (−0.37)| (−0.08)| (−0.11)| (0.39) | (0.93) | (0.68) | (0.94) | (1.57) | (1.45) |
| CASH            | −0.032 | 0.025  | −0.018 | −0.006 | 0.044  | 0.007  | −0.004 | 0.05   | 0.013  |
|                 | (−0.51)| (0.58) | (−0.39)| (−0.09)| (1.01) | (0.15) | (−0.06)| (1.15) | (0.28) |
| SDEBT           | 0.003  | −0.041***| −0.031| 0.001  | −0.032**| −0.028| −0.015| −0.035**| −0.041*|
|                 | (0.09) | (−2.68)| (−1.25)| (0.03) | (−2.1) | (−1.14)| (−0.41)| (−2.32)| (−1.67)|
| LDEBT           | −0.017 | −0.031 | −0.047 | −0.015 | −0.026 | −0.038 | −0.028 | −0.029 | −0.048 |
|                 | (−0.25)| (−0.71)| (−1.03)| (−0.23)| (−0.6) | (−0.83)| (−0.41)| (−0.66)| (−1.03)|
| PRO             | −0.009 | 0.004  | −0.002 | 0.004  | 0.006  | 0.002  | 0.008  | 0.006  | 0.003  |
|                 | (−0.45)| (0.49) | (−0.18)| (0.21) | (0.75) | (0.21) | (0.39) | (0.84) | (0.37) |
| MOM             | 0.054***| 0.056***| 0.06***| 0.053***| 0.052***| 0.059***| 0.050***| 0.050***| 0.056***|
|                 | (3.06) | (5.96) | (5.16) | (3.01) | (5.49) | (5.05)**| (2.83) | (5.34) | (4.82)**|
| STATE           | −0.146*| −0.069*| −0.120**| −0.140*| −0.080**| −0.114***| −0.15*| −0.092***| −0.131***|
|                 | (−1.83)| (−1.71)| (−2.19)| (−1.76)| (−1.99)| (−2.09)| (−1.88)| (−2.31)| (−2.4) |
| TOP1            | −0.09* | −0.144***| −0.127***| −0.054***| −0.112***| −0.093 | 0.048**| −0.105***| −0.085 |

(continued)
Table 4 (continued)

| Panel A: RAW | Panel B: MAR | Panel C: AR |
|-------------|-------------|-------------|
| (1)         | (2)         | (3)         | (4)         | (5)         | (6)         | (7)         | (8)         | (9)         |
| BSIZE       |             |             |             |             |             |             |             |             |
| (-2.19)     | (-5.17)     | (-4.39)     | (-1.32)     | (-4.02)     | (-3.21)     | (-1.17)     | (-3.78)     | (-2.96)     |
| -0.014***   | -0.006      | -0.006*     | -0.012      | -0.004      | -0.004      | -0.011      | -0.004      | -0.004      |
| (-2.92)     | (-1.9)      | (-1.74)     | (-2.54)     | (-1.2)      | (-1.22)     | (-2.37)     | (-1.11)     | (-1.1)      |
| INDEP       |             |             |             |             |             |             |             |             |
| 0.003       | -0.003      | -0.007      | 0.004       | -0.004      | -0.006      | 0.003       | -0.003      | -0.006      |
| (0.19)      | (-0.31)     | (-0.61)     | (0.28)      | (-0.38)     | (-0.55)     | (0.2)       | (-0.33)     | (-0.56)     |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| N           | 1.936       | 1.975       | 1.874       | 1.936       | 1.975       | 1.874       | 1.936       | 1.975       | 1.874       |
| Adj. $R^2$  | 0.08        | 0.14        | 0.11        | 0.06        | 0.11        | 0.08        | 0.05        | 0.10        | 0.07        |

This table provides the regression results of the multivariate analyses testing whether conditional conservatism is significantly associated with stock returns during the Covid-19 outbreak by employing three alternative measures of conservatism: Zhang's (2008) skewness of earnings ($CONSV_{SKE}$), Givoly and Hayn's (2000) non-operating accruals ($CONSV_{ACC}$) and Ball and Shivakumar's (2005) asymmetric accruals to cash-flow measure ($CONSV_{ACF}$). The dependent variables are RAW (daily buy-and-hold returns), MAR (market-adjusted returns) and AR (CAPM-adjusted returns) that are measured over the period of the Covid-19 outbreak from 2 January to 10 March. The market-adjusted returns (MAR) are calculated as the daily buy-and-hold returns minus the market returns during the crisis period, by using the CSMAR value-weighted index as the market proxy. The CAPM-adjusted returns (AR) are computed as the daily excess returns on the stock minus beta times the market excess returns. The CSMAR value-weighted index is used as the market proxy and the one-year term deposit rate as the risk-free rate. The stock beta is estimated over the period from 2 January to 31 December 2019. The regression estimates for the multivariate analysis in which RAW is used as a dependent variable are presented in Panel A. The regression estimates with the dependent variables MAR and AR are reported in Panels B and C, respectively. A description of variables is provided in the Appendix. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively. All continuous variables are winsorised at 1% at each extreme to mitigate the effect of outliers.
Table 5
Conditional conservatism and stock return performance during the Covid-19 outbreak: alternative return window

|                  | Raw (1) | Mar (2) | AR (3) | Raw (4) | MAR (5) | AR (6) |
|------------------|---------|---------|--------|---------|---------|--------|
| Constant         | 0.129***| 0.116***| 0.114***| 0.333***| 0.208** | 0.199**|
|                  | (4.10)  | (3.36)  | (3.60)  | (3.71)  | (2.31)  | (2.20) |
| CSCORE           | 0.029***| 0.025***| 0.025***| 0.026***| 0.028***| 0.028***|
|                  | (3.27)  | (2.79)  | (2.76)  | (2.70)  | (2.86)  | (2.85) |
| BM               | 0.005   | 0.012   | 0.011   | 0.005   | 0.012   | 0.011  |
|                  | (0.43)  | (0.95)  | (0.89)  | (0.43)  | (0.95)  | (0.89) |
| SIZE             | −0.007**| −0.004  | −0.003  | −0.007**| −0.004  | −0.003 |
|                  | (−1.70) | (−0.83) | (−0.75) | (−1.70) | (−0.83) | (−0.75) |
| CASH             | 0.031   | 0.051   | 0.052   | 0.031   | 0.051   | 0.052  |
|                  | (0.71)  | (1.16)  | (1.19)  | (0.71)  | (1.16)  | (1.19) |
| SDEBT            | −0.033  | −0.033  | −0.034  | −0.033  | −0.033  | −0.034 |
|                  | (−1.24) | (−1.24) | (−1.29) | (−1.24) | (−1.24) | (−1.29) |
| LDEBT            | −0.067  | −0.067  | −0.068  | −0.067  | −0.067  | −0.068 |
|                  | (−1.43) | (−1.42) | (−1.44) | (−1.43) | (−1.42) | (−1.44) |
| PRO              | 0.002   | 0.006   | 0.006   | 0.002   | 0.006   | 0.006  |
|                  | (0.24)  | (0.58)  | (0.59)  | (0.24)  | (0.58)  | (0.59) |
| MOM              | 0.056***| 0.054***| 0.053***| 0.056***| 0.054***| 0.053***|
|                  | (4.80)  | (4.67)  | (4.55)  | (4.80)  | (4.67)  | (4.55) |
| STATE            | −0.068  | −0.063  | −0.062  | −0.068  | −0.063  | −0.062 |
|                  | (−1.30) | (−1.19) | (−1.18) | (−1.30) | (−1.19) | (−1.18) |
| TOP1             | −0.085***| −0.057* | −0.058  | −0.085***| −0.057* | −0.058 |
|                  | (−3.00) | (−1.98) | (−2.01) | (−3.00) | (−1.98) | (−2.01) |
| BSIZE            | −0.008**| −0.006* | −0.006* | −0.008**| −0.006* | −0.006*|
|                  | (−2.37) | (−1.91) | (−1.93) | (−2.37) | (−1.91) | (−1.93) |
| INDEP            | 0.017   | 0.017   | 0.017   | 0.017   | 0.017   | 0.017  |
|                  | (1.56)  | (1.56)  | (1.60)  | (1.56)  | (1.56)  | (1.60) |
| Industry dummies | Yes     | Yes     | Yes     | Yes     | Yes     | Yes    |
| N                | 1,909   | 1,909   | 1,909   | 1,909   | 1,909   | 1,909  |
| Adj. R²          | 0.08    | 0.06    | 0.05    | 0.10    | 0.07    | 0.07   |

This table provides the regression results of the multivariate analyses testing whether conditional conservatism is significantly associated with stock returns during the Covid-19 outbreak. We employ an alternative Covid-19 crisis period, from 2 January to 8 April 2020, to ensure that our results are robust to a different return window. The dependent variables, daily buy-and-hold returns (RAW), market-adjusted returns (MAR) and CAPM-adjusted returns (AR) are remeasured from 2 January to 8 April 2020. The market-adjusted returns (MAR) are calculated as the daily buy-and-hold returns minus the market returns during the crisis period, by using the CSMAR value-weighted index as the market proxy. The CAPM-adjusted returns (AR) are computed as the daily excess returns on the stock minus beta times the market excess returns. The CSMAR value-weighted index is used as the market proxy and the one-year term deposit rate as the risk-free rate. The stock beta is estimated over the period from 2 January to 31 December 2019. CSCORE refers to conditional conservatism estimates measured based on Khan and Watts (2009). A description of variables is provided in the Appendix. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively. All continuous variables are winsorised at 1% at each extreme to mitigate the effect of outliers.
Francis and Martin, 2010; Kravet, 2014; García Lara et al., 2016). Following these studies, we examine how the relation between conditional conservatism and equity returns during the Covid-19 outbreak varies with a firm’s information asymmetry.

Most firms were exposed to severe uncertainties when they were first exposed to the Covid-19 crisis as it was extremely difficult to make any predictions about the pandemic and resulting economic downturn. This in turn leads to acute information asymmetry between firm insiders and external investors. However, we expect that there has been relatively lower information asymmetry for firms with higher survival prospects during the Covid-19 pandemic due to relatively less uncertainty regarding the future value of these firms following the onset of the crisis. Accordingly, we partition the sample firms by measures that can indicate a firm’s higher survival prospects during the Covid-19 pandemic to test whether the association of conservatism is weaker (stronger) for firms with lower (higher) information asymmetry.8

First, we divide our sample firms between firms that are ultimately controlled by the state (SOEs) and those that are not (non-SOEs).9 Many businesses struggle to survive amid the Covid-19 pandemic, seeking various types of financial support from the government. Although the main objective of the government is to stabilise the markets during the crisis, the government cannot provide bailout cash for all struggling firms. However, the government is more likely to intervene if government-controlled entities face a higher probability of bankruptcy during the crisis due to political, social and economic pressure (PwC, 2015).

Panel A of Table 6 reports the regression results for SOEs and Panel B for non-SOEs. As tabulated in Table 6, the coefficients on \( \text{CSCORE} \) are positive and statistically significant at 1 percent only in the regressions reported in Panel B, which indicates that the positive and statistically significant association between conditional conservatism and equity returns is found only in non-SOEs. Our findings are consistent with previous studies (e.g., Francis and Martin, 2010; Kim et al., 2013; Balakrishnan et al., 2016) in that the beneficial role of conditional conservatism manifests only for non-SOEs that have greater uncertainty concerning their survival prospects during the Covid-19 crisis. In line with this result, the coefficients on \( \text{SIZE} \) are also positive and statistically

8 Previous studies (e.g., Lafond and Watts, 2008; Francis and Martin, 2010; Kim et al., 2013; Balakrishnan et al., 2016) examining the association of conservatism in the presence of higher information asymmetry use stock market-based measures such as bid-ask spread and stock market volatility. However, we do not use the stock market-based measures of information asymmetry given that the market had extreme volatile movements in the first quarter of this year.

9 We do not use the extent of state ownership to divide the sample firms (e.g., 50 percent of ownership) as firms can be controlled by the state with substantially less than 50 percent ownership.

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Table 6  
Conditional conservatism and stock return performance during the Covid-19 outbreak: analysis of state controlling interest

|                  | Panel A: SOEs |                  | Panel B: Non-SOEs |                  |
|------------------|--------------|------------------|-------------------|------------------|
|                  | Raw (1)      | MAR (2)          | AR (3)            | Raw (4)          | MAR (5)          | AR (6)            |
| Constant         | 0.204        | 0.079            | 0.025             | −0.071           | −0.293**         | −0.352***         |
|                  | (1.33)       | (0.52)           | (0.17)            | (−0.62)          | (−2.55)          | (−3.07)           |
| CSCORE           | −0.066       | −0.001           | −0.004            | 0.039***         | 0.039***         | 0.035***          |
|                  | (−0.16)      | (−0.08)          | (−0.25)           | (3.08)           | (3.08)           | (2.76)            |
| BM               | −0.013       | −0.012           | −0.014            | −0.005           | 0.008            | 0.000             |
|                  | (−0.74)      | (−0.69)          | (−0.78)           | (−0.29)          | (0.48)           | (0.02)            |
| SIZE             | −0.003       | −0.001           | 0.002             | 0.008            | 0.122**          | 0.016***          |
|                  | (−0.44)      | (−0.09)          | (0.28)            | (1.40)           | (2.19)           | (2.80)            |
| CASH             | −0.122       | −0.120           | −0.132            | −0.014           | 0.014            | 0.020             |
|                  | (−1.49)      | (−1.46)          | (−1.60)           | (−0.26)          | (0.27)           | (0.39)            |
| SDEBT            | 0.052        | 0.050            | 0.041             | −0.074***        | −0.069*          | −0.082***         |
|                  | (1.14)       | (1.10)           | (0.91)            | (−2.21)          | (−2.05)          | (−2.45)           |
| LDEBT            | −0.043       | −0.041           | −0.056            | −0.113*          | −0.102*          | −0.113*           |
|                  | (−2.45)      | (−2.51)          | (−0.70)           | (−1.89)          | (−1.69)          | (−1.89)           |
| PRO              | −0.0208      | −0.016           | −0.014            | 0.002            | 0.005            | 0.007             |
|                  | (−0.92)      | (−0.69)          | (−0.61)           | (0.18)           | (0.50)           | (0.62)            |
| MOM              | 0.084***     | 0.081***         | 0.076***          | 0.057***         | 0.056***         | 0.052***          |
|                  | (3.59)       | (3.47)           | (3.28)            | (4.09)           | (4.04)           | (3.69)            |
| TOP1             | −0.161***    | −0.145***        | −0.143***         | −0.111***        | −0.070**         | −0.064*           |
|                  | (−3.30)      | (−2.73)          | (−2.69)           | (−3.16)          | (−2.01)          | (−1.83)           |
| BSIZE            | −0.006       | −0.006           | −0.005            | −0.008*          | −0.006           | −0.006            |
|                  | (0.05)       | (−1.08)          | (−0.88)           | (−0.88)          | (−1.48)          | (−1.48)           |
| INDEP            | −0.005       | −0.002           | −0.003            | 0.007            | 0.007            | 0.008             |
|                  | (−0.31)      | (−0.31)          | (−0.18)           | (0.52)           | (0.52)           | (0.55)            |
| Industry dummies | Yes          | Yes              | Yes               | Yes              | Yes              | Yes               |
| N                | 490          | 490              | 490               | 1,419            | 1,419            | 1,419             |
| Adj. $R^2$       | 0.17         | 0.15             | 0.13              | 0.12             | 0.09             | 0.08              |

This table provides the regression results of the multivariate analyses testing whether the relation between conditional conservatism and stock return performance during the Covid-19 outbreak varies with a firm’s information asymmetry. We divide sample firms between state-owned enterprises (SOEs) and non-SOEs, and Panel A reports the regression results for SOEs and Panel B for non-SOEs. The dependent variables are daily buy-and-hold returns ($RAW$), market-adjusted returns ($MAR$) and CAPM-adjusted returns ($AR$) measured over the period of the Covid-19 outbreak from 2 January to 10 March. The market-adjusted returns ($MAR$) are calculated as the daily buy-and-hold returns minus the market returns during the crisis period, by using the CSMAR value-weighted index as the market proxy. The CAPM-adjusted returns ($AR$) are computed as the daily excess returns on the stock minus beta times the market excess returns. The CSMAR value-weighted index is used as the market proxy and the one-year term deposit rate as the risk-free rate. The stock beta is estimated over the period from 2 January to 31 December 2019. $CSCORE$ refers to conditional conservatism estimates measured based on Khan and Watts (2009). A description of variables is provided in the Appendix. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively. All continuous variables are winsonised at 1% at each extreme to mitigate the effect of outliers.
significant only in Models (5) and (6) in Panel B, reflecting that investors’ concern about the survival of smaller firms following the Covid-19 pandemic appears to exist only in the context of non-SOEs.

We also expect that firms receiving substantial government subsidies face less uncertainty regarding their survival prospects during the Covid-19 pandemic. We use 2019 government subsidy data because we cannot capture subsidies received during the Covid-19 outbreak from 2 January to 10 March.\(^{10}\) We conduct correlation tests between the government subsidies received in the past five years: 2015, 2016, 2017, 2018 and 2019 and find that their (untabulated) correlation coefficients are positive and statistically significant at 83 percent on average (range 77–93 percent).\(^{11}\) Although we acknowledge that the government subsidy policy can change significantly during the Covid-19 crisis, we think it is a reasonable assumption that investors expect that firms that received substantial amounts of subsidy benefit in 2019 continue to receive the benefit in 2020 despite the Covid-19 crisis. Based on this, we rank the sample firms based on the amount of government subsidy received in 2019 and classify those placed in the highest quartile as subsidy-dependent firms. The regression estimates for the government subsidy-dependent firms are reported in Panel A of Table 7. The results for the rest of the sample firms (firms that are not subsidy dependent) are provided in Panel B of Table 7.

As presented in Panel A of Table 7, the coefficients on \(\text{CSCORE}\) are not statistically significant in any regressions, indicating that the firms receiving substantial amounts of government subsidy did not benefit from adopting a more conservative reporting policy in terms of their stock performance during the Covid-19 outbreak. However, the coefficients on \(\text{CSCORE}\) are positive and statistically significant at 5 percent in all regressions reported in Panel B. These results suggest that the extent of conditional conservatism is positively and significantly associated with stock return performance during the Covid-19 outbreak when firms do not heavily depend on government subsidies and thus face greater uncertainties regarding their future survival prospects following the Covid-19 pandemic. Our findings are consistent with the literature that conservatism plays a more important role in the presence of high information asymmetry (e.g., LaFond and Watts, 2008; Francis and Martin, 2010; Kim et al., 2013; Balakrishnan et al., 2016). To ensure that our results are not sensitive to a partitioning method, in untabulated regression analyses, we reclassify the sample firms placed in the highest tercile (based on the government subsidy received in 2019) as a low information asymmetry group and find that our results remain qualitatively similar.

\(^{10}\)Government subsidy data is an annual measure, and the 2020 government subsidy data is not available until early 2021.

\(^{11}\)In particular, the correlation coefficient between 2018 and 2019 government subsidies is 93 percent.

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Conservatism and stock return performance during the Covid-19 outbreak: analysis of government subsidy

|                  | Raw (1) | Mar (2) | Ar (3) | Raw (4) | Mar (5) | Ar (6) |
|------------------|---------|---------|--------|---------|---------|--------|
| Constant         | 0.001   | -0.246  | -0.258 | 0.048   | -0.159  | -0.227** |
|                  | (0.01)  | (-1.21) | (-1.27) | (0.45)  | (-1.51) | (-2.16) |
| Cscore           | 0.021   | 0.026   | 0.017  | 0.024** | 0.025** | 0.023** |
|                  | (0.77)  | (-0.97) | (0.65) | (2.19)  | (2.29)  | (2.11)  |
| Bm               | -0.017  | -0.007  | -0.010 | -0.013  | -0.006  | -0.012  |
|                  | (-0.59) | (-0.23) | (-0.34) | (-0.95) | (-0.43) | (-0.87) |
| Size             | 0.006   | 0.130   | 0.014  | 0.003   | 0.007   | 0.011** |
|                  | (0.64)  | (1.30)  | (1.37) | (0.68)  | (0.68)  | (2.20)  |
| Cash             | 0.068   | 0.090   | 0.088  | -0.060  | -0.036  | -0.031  |
|                  | (0.65)  | (0.86)  | (0.84) | (-1.21) | (-0.72) | (-0.63) |
| Sdebt            | -0.022  | -0.021  | -0.018 | -0.045  | -0.045  | -0.058* |
|                  | (-0.36) | (-0.34) | (-0.28) | (-0.76) | (-1.49) | (-1.90) |
| Ldebt            | -0.16   | -0.149  | -0.145 | -0.042  | -0.044  | -0.056  |
|                  | (-1.55) | (-1.44) | (-1.40) | (-0.76) | (-0.80) | (-1.02) |
| Pro              | 0.019   | 0.019   | 0.020  | -0.02   | -0.013  | -0.011  |
|                  | (1.12)  | (1.10)  | (1.14) | (-1.60) | (-1.02) | (-0.87) |
| Mom              | 0.01*** | 0.099***| 0.093***| 0.048***| 0.046***| 0.042***|
|                  | (4.00)  | (3.99)  | (3.74) | (3.54)  | (3.39)  | (3.06)  |
| State            | -0.98   | -0.78   | -0.082 | -0.092  | -0.091  | -0.106* |
|                  | (-0.77) | (-0.62) | (-0.64) | (-1.57) | (-1.53) | (-1.79) |
| Top1             | -0.145**| -0.091  | -0.094 | -0.112***| -0.082**| -0.073**|
|                  | (-2.19) | (-1.38) | (-1.42) | (-3.45) | (-2.50) | (-2.25) |
| Bsize            | -0.007* | -0.005  | -0.004 | -0.007* | -0.006  | -0.006  |

(continued)
This table provides the regression results of the multivariate analyses testing whether the relation between conditional conservatism and stock return performance varies with a firm’s information asymmetry. We rank the sample firms based on the amount of government subsidy received in 2019 and classify those placed in the highest quartile as subsidy-dependent firms. The regression estimates for the government subsidy-dependent firms are reported in Panel A. The results for the remaining sample firms are provided in Panel B. The dependent variables are daily buy-and-hold returns ($RAW$), market-adjusted returns ($MAR$) and CAPM-adjusted returns ($AR$) measured over the period of the Covid-19 outbreak from 2 January to 10 March. The market-adjusted returns ($MAR$) are calculated as the daily buy-and-hold returns minus the market returns during the crisis period, by using the CSMAR value-weighted index as the market proxy. The CAPM-adjusted returns ($AR$) are computed as the daily excess returns on the stock minus beta times the market excess returns. The CSMAR value-weighted index is used as the market proxy and the one-year term deposit rate as the risk-free rate. The stock beta is estimated over the period from 2 January to 31 December 2019. $CSCORE$ refers to conditional conservatism estimates measured based on Khan and Watts (2009). A description of variables is provided in the Appendix. *** and * denote significance at the 1%, 5% and 10% levels, respectively. All continuous variables are winsorised at 1% at each extreme to mitigate the effect of outliers.

|                  | Panel A: Subsidy-dependent | Panel B: Not subsidy dependent |
|------------------|---------------------------|-------------------------------|
|                  | $RAW$ (1) | $MAR$ (2) | $AR$ (3) | $RAW$ (4) | $MAR$ (5) | $AR$ (6) |
| $INDEP$          | (−0.88) | (−0.64) | (−0.47) | (−1.92) | (−1.42) | (−1.45) |
|                  | −0.13   | −0.014  | −0.015  | 0.006   | 0.007   | 0.008   |
| Industry dummies | Yes     | Yes     | Yes     | Yes     | Yes     | Yes     |
| $N$              | 475     | 475     | 475     | 1,428   | 1,428   | 1,428   |
| Adj. $R^2$       | 0.19    | 0.16    | 0.15    | 0.11    | 0.11    | 0.10    |

Notes: Table 7 (continued)
We also expect that firms located in the provinces with a lower number of Covid-19 cases are more likely to face lower uncertainties concerning their survival prospects following the Covid-19 pandemic. This is because expectations of an impending economic crisis and recession are higher in the areas that had large outbreaks of Covid-19. Thus, we manually collect the number of confirmed cases from the website of each Provincial Health Commission in China and rank the provinces based on the number of confirmed cases as of 10 March 2020. Then, the sample firms from the provinces that are placed in the lowest quartile are classified as a low-risk Covid-19 group. The regression results for the low-risk Covid-19 group and the remaining sample firms are presented in Panels A and B of Table 8, respectively.

The coefficients on \( \text{CSCORE} \) are positive and statistically significant in all regressions that are reported only in Panel B, which indicates that conditional conservatism is positively associated with stock returns during the Covid-19 outbreak only if firms are not located in the provinces with a small number of confirmed cases. This is consistent with our previous regression results that the association between conservatism and stock returns is pronounced only when firms are faced with greater uncertainty regarding their survival prospects. We repeat the test after reclassifying the firms placed in the lowest tercile (based on the number of confirmed cases as of 10 March 2020) as a low information asymmetry group and confirm that our results (untabulated) remain similar to those reported in Table 8.

While not tabulated, for brevity, we also repeat the regression analyses reported in Tables 6–8 with three other alternative measures of conservatism – \( \text{CONSV}\_\text{SKE} \), \( \text{CONSV}\_\text{ACC} \) and \( \text{CONSV}\_\text{ACF} \) – and find that the results remain qualitatively similar.

5.4. Robustness tests

In this section, we perform additional regression analyses for robustness tests. First, we add province-level fixed effects to our main regression model (Eqn 4) to determine whether our results remain robust after we control for unobserved, time-invariant heterogeneity across different provinces.\(^\text{13}\) The regression results are provided in Panel A of Table 9.

Second, following Lins \textit{et al.} (2017), we introduce a panel regression (difference-in-differences model) by constructing a panel dataset with monthly stock returns measured from January 2019 to March (or April) 2020, incorporating the period prior to the Covid-19 outbreak into the analysis.

\(^{12}\)These provinces are Xizang (1), Qinghai (18), Neimenggu (75), Ningxia (75), Xinjiang (76), Jilin (93), Liaoning (125) and Gansu (125). The numbers reported in parentheses are the number of confirmed cases in each province.

\(^{13}\)Our main regressions are based on cross-sectional data, which does not allow for firm-fixed effects.

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Table 8
Conservatism and stock return performance during the Covid-19 outbreak: analysis of the size of the Covid-19 outbreak

|                  | Panel A: Low risk of Covid-19 spread | Panel B: High risk of Covid-19 spread |
|------------------|--------------------------------------|--------------------------------------|
|                  | RAW (1) | MAR (2) | AR (3) | RAW (4) | MAR (5) | AR (6) |
| Constant         | 0.132   | −0.059 | −0.121 | −0.013 | −0.224* | −0.277**|
|                  | (0.15)  | (−0.39) | (−0.82) | (−0.11) | (−1.84) | (−2.28) |
| CSCORE           | 0.230   | 0.026  | 0.023  | 0.026** | 0.028** | 0.024* |
|                  | (1.38)  | (1.54) | (1.38) | (2.11) | (2.27) | (1.93) |
| BM               | 0.016   | 0.017  | 0.014  | −0.016 | −0.005 | −0.012 |
|                  | (0.78)  | (0.84) | (0.69) | (−1.03) | (−0.29) | (−0.72) |
| SIZE             | 0.001   | 0.005  | 0.008  | 0.005  | 0.010* | 0.013**|
|                  | (0.14)  | (0.67) | (1.12) | (0.92) | (1.84) | (2.38) |
| CASH             | −0.003  | 0.002  | 0.012  | −0.068 | −0.039 | −0.036 |
|                  | (−0.04) | (0.02) | (0.15) | (−1.27) | (−0.71) | (−0.67) |
| SDEBT            | −0.079* | −0.084* | −0.088* | −0.009 | −0.013 | −0.026 |
|                  | (−1.74) | (−1.85) | (−1.94) | (−0.27) | (−0.37) | (−0.76) |
| LDEBT            | −0.049  | −0.058  | −0.060  | −0.094 | −0.095 | −0.109* |
|                  | (−0.67) | (−0.81) | (−0.83) | (−1.46) | (−1.47) | (−1.68) |
| PRO              | −0.019  | −0.018  | −0.015  | −0.008 | −0.003 | −0.002 |
|                  | (−0.97) | (−0.91) | (−0.78) | (−0.68) | (−0.22) | (−0.16) |
| MOM              | 0.097*** | 0.101*** | 0.103*** | 0.062*** | 0.059*** | 0.053***|
|                  | (3.98)  | (4.19)*** | (4.26)*** | (4.43) | (4.22)*** | (3.75)***|
| STATE            | −0.039  | −0.044  | −0.060  | −0.085 | −0.078 | −0.089 |
|                  | (−0.51) | (−0.57) | (−0.79) | (−1.18) | (−1.08) | (−1.23) |
| TOP1             | −0.180*** | −0.144*** | −0.141*** | −0.097*** | −0.064* | −0.058 |
|                  | (−3.67) | (−2.94)*** | (−2.90)*** | (−2.67) | (−1.74) *** | (−1.58)*** |
| BSIZE            | 0.001   | 0.003  | 0.003  | −0.012*** | −0.009** | −0.009* |
|                  | (0.48)  | (0.56) | (0.58) | (−1.85) | (−1.58) | (−1.58) |
Panel A: Low risk of Covid-19 spread

|        | RAW (1) | MAR (2) | AR (3) |
|--------|---------|---------|--------|
| INDEP  | −0.028  | −0.028  | −0.030* |
|        | (−1.55) | (−1.59) | (−1.70) |
| Industry dummies | Yes | Yes | Yes |
| N      | 552     | 552     | 552    |
| Adj. $R^2$ | 0.21    | 0.20    | 0.17   |

Panel B: High risk of Covid-19 spread

|        | RAW (4) | MAR (5) | AR (6) |
|--------|---------|---------|--------|
|        | (−2.71) | (−2.16) | (−2.08) |
| INDEP  | 0.015   | 0.016   | 0.015  |
|        | (1.11)  | (1.06)  | (1.11) |
| Industry dummies | Yes | Yes | Yes |
| N      | 1,291   | 1,291   | 1,291  |
| Adj. $R^2$ | 0.15    | 0.11    | 0.09   |

This table provides the regression results of the multivariate analyses testing whether the relation between conditional conservatism and stock return performance varies with a firm’s information asymmetry. We rank the provinces based on the number of Covid-19 confirmed cases as of 10 March 2020 and the sample firms from the provinces that are placed in the lowest quartile are classified as a group with low risk of the Covid-19 spread. The regression results are presented in Panel A. Panel B reports the regression results for the remaining sample firms. The dependent variables are daily buy-and-hold returns (RAW), market-adjusted returns (MAR) and CAPM-adjusted returns (AR) measured over the period of the Covid-19 outbreak from 2 January to 10 March. The market-adjusted returns (MAR) are calculated as the daily buy-and-hold returns minus the market returns during the crisis period, by using the CSMAR value-weighted index as the market proxy. The CAPM-adjusted returns (AR) are computed as the daily excess returns on the stock minus beta times the market excess returns. The CSMAR value-weighted index is used as the market proxy and the one-year term deposit rate as the risk-free rate. The stock beta is estimated over the period from 2 January to 31 December 2019. CSCORE refers to conditional conservatism estimates measured based on Khan and Watts (2009). A description of variables is provided in the Appendix. *** and * denote significance at the 1%, 5% and 10% levels, respectively. All continuous variables are winsorised at 1% at each extreme to mitigate the effect of outliers.
Table 9
Robustness tests

|                  | RAW (1)       | MAR (2)       | AR (3)        |
|------------------|---------------|---------------|---------------|
| **Constant**     | 0.320         | −0.190**      | −0.233***     |
|                  | (0.34)        | (−2.06)       | (−2.68)       |
| **CSCORE**       | 0.025**       | 0.078***      | 0.023**       |
|                  | (−2.68)       | (2.69)        | (2.30)        |
| **Controls**     | Yes           | Yes           | Yes           |
| **Industry dummies** | Yes     | Yes           | Yes           |
| **Province dummies** | Yes   | Yes           | Yes           |
| **N**            | 1,834         | 1,834         | 1,834         |
| **Adj. R²**      | 0.16          | 0.12          | 0.11          |

**Panel A: Main regressions with province fixed effects**

Panel A tests whether our results remain robust after controlling for province-level fixed effects in our main regressions. The dependent variables are daily buy-and-hold returns (RAW), market-adjusted returns (MAR) and CAPM-adjusted returns (AR) measured over the period of the Covid-19 outbreak from 2 January to 10 March. Panels B and C report the regression results for the difference-in-differences model we constructed based on a panel dataset with monthly stock returns measured from January 2019 to March (April) 2020, including firm-fixed effects and monthly time dummies. The regression model is as follows:

\[
RAW_{i,t}, MAR_{i,t} \text{ or } AR_{i,t} = \alpha_0 + \beta_1 CSCORE_{i,t-1} \times COVID_t + \beta_2 \text{Control variables}_{i,t-1} + \text{Time Dummies} + \text{Firm Fixed effects} + \epsilon_i
\]

In Panel B, the dependent variables are monthly buy-and-hold returns (RAW), market-adjusted returns (MAR) and CAPM-adjusted returns (AR) measured from January 2019 to March 2020. In Panel C, the returns are measured from January 2019 to April 2020. CSCORE is the Khan and Watts’s (2009) conservatism ratio estimated over the fiscal period that ends before 1 January 2019. The control variables are consistent with those used in the...
We use a difference-in-differences model with firm-fixed effects and time dummies to control for the potential omitted variable endogeneity issue that there may be some unobservable firm-specific characteristics that are correlated to the firm’s conservatism that separately affects its stock returns. Our difference-in-differences model is as follows:

$$RAW_{i,t}, MAR_{i,t} \text{ or } AR_{i,t} = \alpha_0 + \beta_1 CSCORE_{i,t-1} \times COVID_i + \beta_2 Control\, variables_{i,t-1} + Time\, Dummies + \text{Firm Fixed effects} + \varepsilon_i \quad (5)$$

Consistent with our previous regression analyses, we use three different monthly return measures: buy-and-hold returns ($RAW$), market-adjusted returns ($MAR$) and CAPM-adjusted returns ($AR$). The regression results for the stock returns measured from January 2019 to March 2020 are reported in Panel B of Table 9. To ensure that our results are robust to an alternative period of the Covid-19 outbreak, we also measure the stock returns from January 2019 to April 2020 and the results are provided in Panel C of Table 9.

$CSCORE$ in Equation (5) is the Khan and Watts’s (2009) conservatism ratio estimated over the fiscal period that ends before 1 January 2019. We include the same control variables used in the previous regression analyses measured over the same period in which $CSCORE$ is estimated. $COVID$ is a binary indicator that takes the value of one if the stock return is measured during the period of Covid-19 outbreak and zero otherwise. Consistent with the previous regression analyses, the period of Covid-19 outbreak is defined to be from January 2020 to March (or April) 2020. Time dummies are prepared at the monthly level consistent with the stock return measures and $COVID$ is absorbed by the time dummies in the regression. Firm-fixed effects control for unobservable firm-specific risk factors that may be correlated with conservatism and capture the firm-level $CSCORE$ (Lins et al., 2017). The standard errors are clustered at the firm level. For brevity, we only report the main variables of interest in Table 9.

As presented in Panel A, the coefficients on $CSCORE$ are positive and statistically significant at 1–5 percent across all regressions, suggesting that
more conditionally conservative firms show higher stock returns during the Covid-19 outbreak after controlling for the time-invariant province and industry characteristics. The coefficients on \( CS\text{SCORE} \times COVID \) are positive and statistically significant across all regressions reported in Panels B and C. Our results indicate that the positive association between conditional conservatism and stock returns during the Covid-19 outbreak is statistically significant, even after controlling for the firm’s average return over the entire estimation period and any time-series pattern in overall returns. These results also confirm that our findings do not merely represent a positive association between conservatism and stock returns in general, but manifest the positive association of conditional conservatism with stock returns when there is great uncertainty in the market during the Covid-19 stock market crash.

6. Conclusion

This paper investigates the association between conditional conservatism and equity returns during the Covid-19 outbreak. We find evidence that firms reporting more conditionally conservatively have lower declines in stock return performance during the Covid-19 stock market crash. Our results remain robust across different measures of conservatism, an alternative period of Covid-19 outbreak and different model specifications that incorporate fixed effects and pre-Covid-19 returns into the analyses.

We also investigate whether the association between conservatism and equity returns during the Covid-19 outbreak changes with information asymmetry. We find evidence that the positive relation between conditional conservatism and stock returns during the Covid-19 outbreak manifests only when firms are faced with higher uncertainty concerning their survival prospects during the Covid-19 pandemic. These results suggest that the benefit of conservatism is minimal when firms are faced with low information asymmetry even during severe market downturns.

Overall, our results support the theory that conditional conservatism is expected to increase the value of a firm via the mechanisms that reduce management’s private information relative to public information and make the information supplied to outside investors more credible (Lafond and Watts, 2008; García Lara et al., 2009, 2011; Francis and Martin, 2010; Kim et al., 2013).

This paper contributes to the literature by documenting the first evidence on the extent conservative reporting is associated with stock return performance during the Covid-19 outbreak. By using a true exogenous shock to the equity market, we document the beneficial role of conditional conservatism in firm resilience during an extreme market downturn. Also, our findings support the informational benefits of conservatism (LaFond and Watts, 2008; García Lara et al., 2009; Balakrishnan et al., 2016) by showing how the positive association of conditional conservatism on equity returns during the Covid-19 outbreak is
more pronounced when firms have higher information asymmetry following the Covid-19 crisis.

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**Appendix**

**Variable definitions**

| Definition                                                                 |
|---------------------------------------------------------------------------|
| **Dependent variables**                                                   |
| RAW                         | Daily buy-and-hold returns measured from 2 January to 10 March 2020. |
| MAR                         | Market-adjust returns calculated as the daily buy-and-hold return minus the market return from 2 January to 10 March 2020. The CSMAR value-weighted index is used as the market proxy. |
| AR                          | CAPM-adjusted returns computed as the daily excess returns on the stock minus beta times the market excess returns. The CSMAR value-weighted index is used as the market proxy and the one-year term deposit rate as the risk-free rate. The stock beta is estimated over the period from 2 January to 31 December 2019. |
| **Independent variables**                                                |
| CSCORE                      | Conservatism score estimated following Khan and Watts (2009). |
| CONSV_SKE                   | The skewness of earnings deflated by the skewness of operating cash flows measured over the previous 20 quarters (a minimum of five quarters). The skewness of earnings is multiplied by $-1$. |
| CONSV_ACC                   | The ratio of non-operating accruals to total assets accumulated over the five fiscal years where non-operating accruals are measured as net income plus depreciation minus cash flow from operations minus operating accruals where operating accruals equal $\Delta$ accounts receivable + $\Delta$ inventories + $\Delta$ prepaid expenses – $\Delta$ accounts payable – $\Delta$ taxes payable. The ratio is multiplied by $-1$. |
| CONSV_ACF                   | Following Ball and Shivakumar (2006), $CONSV_ACF$ is $\beta_2$ estimated by industry regressions of $ACC = \alpha_0 + \alpha_1D + \beta_1CFO + \beta_2D^*CFO + \epsilon$ where $ACC$ is accruals measured as the difference between earnings and cash flow from operations, scaled by total assets, $CFO$ is net cash flow from operations scaled by total assets, $D$ is a binary indicator which takes the value of one if $CFO$ is negative and zero otherwise. |
| **Control variables**                                                    |
| SIZE                        | The natural logarithm of total assets. |
| BM                          | The book value of equity divided by the market value of equity. |
| MOM                         | Raw return measured over calendar year 2019. |
| LDEBT                       | Long-term debt divided by total assets. |
| SDEBT                       | Short-term debt divided by total assets. |
| CASH                        | Cash and marketable securities divided by total assets. |
| PRO                         | Operating income divided by total assets. |
| STATE                       | The percentage of shares owned by the state. |
| INDEP                       | The number of independent directors. |
| BSIZE                       | The number of directors. |
| TOP1                        | The percentage of shares held by the largest shareholder. |

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