New blood brings change: Exploring the link between rookie independent directors and corporate cash holdings

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ABSTRACT

This study examines the relationship between rookie independent directors (RIDs) and corporate cash holdings, using a sample of Chinese A-share firms listed on the Shenzhen and Shanghai stock exchanges from 2006 to 2020. We further investigate the moderating effect of economic policy uncertainty on this association. Our results reveal that the presence of rookie independent directors is positively and significantly related to corporate cash holdings, and that economic policy uncertainty amplifies this relationship. Importantly, we also demonstrate that firms with rookie independent directors exhibit improved operating performance when making cash holding decisions in the Chinese context. The study also finds that firms with greater growth opportunities tend to prefer RIDs, who bring new perspectives essential for leveraging these opportunities, leading to enhanced cash holdings. To ensure the robustness of our findings, we employ a variety of advanced econometric techniques, including alternative proxies, tests for reverse causality, two-stage least squares, propensity score matching, and entropy balancing. Based on our results, we recommend that shareholders in China carefully consider the role of RIDs in their governance structure, as they effectively monitor firm management and contribute to the protection of shareholder interests.

1. Introduction

Effective management of corporate cash reserves is a strategic imperative, transcending mere financial considerations to reflect broader conflicts of interest among key stakeholders such as shareholders, managers, debt holders, and employees. This strategic dimension is rooted in the decision-making process, where managers face a choice: allocating free cash flow towards growth-oriented expansion strategies or conserving it as cash reserves for operational flexibility and autonomy from capital market constraints (Jensen,

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1986; Harford et al., 2008; Jensen and Meckling, 1976; Easterbrook, 1984).[1] These decisions are not made in a vacuum but are deeply embedded in the company's strategic context, impacting not only shareholder value but also the firm's obligations to debt holders and the job security and compensation of employees (Ozkan and Ozkan, 2004; Faulkender and Wang, 2006; Ginglinger et al., 2011). Consequently, the strategic trade-offs inherent in cash management, balancing expansionary aspirations against the need for financial stability and governance considerations, represent a critical area of strategic decision-making and an ongoing topic of scholarly debate in the field of strategic management.

Despite a proliferation of studies investigating the role of corporate governance mechanisms in resolving agency conflicts related to corporate cash holding decisions (e.g. Dittmar and Mahrt-Smith, 2007; Chen, 2008; Harford et al., 2008; Atif et al., 2019; Duplat et al., 2020; García-Ramos and Díaz, 2021; Barroso-Castro et al., 2022; Díaz-Díaz et al., 2022; Hudson and Morgan, 2022; Elms and Pugliese, 2023), there is a notable gap in understanding the specific impact of rookie independent directors (RIDs[2]) on mitigating managerial opportunism in these decisions. The examination of RIDs' impact is crucial as prior research suggests that they are more committed to monitoring management and more effective in doing so than seasoned independent directors, as they attend more board meetings (Chen and Keefe, 2020). Furthermore, RIDs are more likely to develop a diligent reputation in the job market and vote against opportunistic managerial decisions (Holmstrom, 1982; Jiang et al., 2016), indicating that they may serve as more effective monitors in controlling managerial opportunistic behavior in corporate cash holding decisions. This perspective extends the discourse on corporate governance beyond traditional considerations, highlighting the nuanced role of RIDs in strategic decision-making within firms, a domain where empirical evidence is still evolving.

However, the potential inexperience of RIDs could also pose challenges in effective governance. As Chen and Keefe (2020) point out, RIDs' limited board-level experience may hinder their effectiveness as monitors. This concern is echoed in findings by Bai and Yu (2022) and Chen et al. (2022), where a higher presence of RIDs on boards correlates with increased instances of corporate fraud, suggesting a potential shortfall in RIDs' ability to mitigate opportunistic behavior due to their inexperience. These contrasting views on RIDs' impact on corporate cash holding decisions lead us to explore three critical research questions: (1) How does the representation of RIDs on the board influence corporate cash holdings? (2) What are the potential mechanisms through which RIDs affect these holdings? and (3) What is the impact of RIDs-influenced cash holding decisions on firm operating performance? Addressing these questions will provide nuanced insights into the strategic role of RIDs in corporate financial management.

To investigate our research questions, we analyze a dataset of Chinese A-share firms listed on the Shanghai and Shenzhen Stock Exchanges. This focus on China is strategic, as the unique corporate governance landscape, characterized by time-limited board tenures and a relative scarcity of seasoned independent directors, positions RIDs as pivotal players (Bai and Yu, 2022; Chen et al., 2022). For example, while Kang et al. (2016) find that around 33% of newly appointed US independent directors are *RIDs*, Chen and Keefe (2020) in their recent study report that over 60% of the newly appointed Chinese independent directors are *RIDs*. However, the empirical evidence regarding the effectiveness of these directors in China is less clear (see for example, Chen and Keefe, 2020; Bai and Yu, 2022; Chen et al., 2022). This raises questions about the effectiveness of these directors in controlling agency conflicts between managers and shareholders.

In this study, we first examine whether RIDs are more efficient monitors in controlling agency conflicts of corporate cash holding decisions. Harford et al. (2008) find that firms with weaker corporate governance mechanisms have smaller cash reserves. Because RIDs attend more board meetings and that they are more efficient monitors and positively impact corporate governance (Kang et al., 2016; Chen and Keefe, 2020), we predict that RIDs are more likely to constraint managers from spending free cash flow generated, thereby leading to larger cash reserves. We follow Kang et al. (2016) and Chen and Keefe (2020) and define RIDs as the number of independent directors with less than three years on the board scaled by the total number of independent directors. We find a positive and significant association between RIDs and corporate cash holdings. Our results are robust to alternative measures of RIDs and corporate cash holdings as well as endogeneity concerns.

Next, a potential drawback in our understanding of the impact of RIDs on corporate cash holdings is the channel through which RIDs are associated with corporate cash holdings. We examine the role played by economic policy uncertainty (EPU) in corporate cash holding decisions in the presence of *RIDs*. If RIDs are more efficient monitors and their role is to monitor management, then we would expect the documented positive association between RIDs and corporate cash holdings to be more prominent in times of EPU. This is important because previous research shows that firms tend to take precautionary measures for future financial constraints (Myers, 1977; Miller and Orr, 1966; Han and Qiu, 2007), and that in times of EPU corporate cash holdings increase (Demir and Ersan, 2017; Duong et al., 2020; Feng, Lo, & Chan, 2022). This points us to the expectation that RIDs will support precautionary measures to avoid future financial constraints, especially in times of EPU. Consistent with this view, we find that EPU strengthens the previously documented positive association between RIDs and corporate cash holdings.

We then examine whether cash holding decisions in the presence of RIDs is good or bad for firm operating performance. Existing research shows that corporate cash holdings improve firm performance, and that it is more detrimental in poorly governed firms

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[1] It is important to acknowledge, however, that there exists a third significant option for the dispersion of cash—returning it to the owners either directly through dividends or indirectly via share buybacks (Fama and French, 2001; Jensen, 1986). While this aspect falls outside the core focus of our paper on cash management strategies and is closely linked with core agency dilemmas in finance literature, it is critical to delineate this as a boundary condition in our study. Thus, we explicitly note that our exploration does not extend to this domain, which represents a fundamental component of financial strategy and agency considerations.

[2] In the corporate governance landscape, RIDs are directors who have spent less than three years on the board (Chen and Keefe, 2020; Bai and Yu, 2022; Chen et al., 2022).

(Dittmar and Mahrt-Smith, 2007; Deb, David and O'Brien, 2017). In addition, given that increased cash holdings alleviate underinvestment problem and maximises shareholder value in uncertain times (Feng et al., 2022), we argue that the increased cash holdings associated with the presence of RIDs might lead to an improvement in firm operating performance. Consistent with this argument, we find that an increase in cash holdings linked to the presence of RIDs leads to an improved firm operating performance. Additionally, our study highlights the significant influence of independent directors' varied attributes—academic, financial, and international expertise—on strategic cash management, underscoring the strategic importance of diverse board composition in corporate financial decision-making.

Our study makes significant contributions to the literature in three key areas. First, we enrich the discourse on RIDs by examining their role in corporate cash management, a less explored aspect in existing studies focusing on firm performance and corporate fraud (Kang et al., 2016; Chen and Keefe, 2020; Bai and Yu, 2022; Chen et al., 2022). Our findings contribute to the ongoing debate about RIDs' effectiveness as monitors, revealing that firms with a higher proportion of RIDs tend to maintain larger cash reserves. Secondly, we extend the research on corporate governance mechanisms and their impact on cash holding decisions. While previous studies have investigated various aspects of corporate governance (Dittmar and Mahrt-Smith, 2007; Chen, 2008; Harford et al., 2008; Atif et al., 2019), our work uniquely explores the role of RIDs in the context of economic policy uncertainty (EPU). We demonstrate that EPU influences the effectiveness of RIDs in managing cash reserves, shedding light on how external economic conditions interact with internal governance structures. Lastly, our study advances the understanding of the relationship between cash holdings and firm performance. While prior research has established a link between these factors (Tan and Peng, 2003; Dittmar et al., 2003; Daniel et al., 2004; Harford et al., 2008; Kim and Bettis, 2014; Deb et al., 2017; Feng et al., 2022), our findings provide new empirical evidence that RIDs, through their role in monitoring and governance, can positively influence firm operating performance by managing cash reserves effectively. This insight underscores the strategic importance of incorporating RIDs in board composition for enhanced firm performance.

The remainder of the paper is organized as follows: Section 2 presents a literature review and hypothesis development; Section 3 details our research methodology; Section 4 discusses the empirical results; and Section 5 concludes the paper.

2. Related literature and hypotheses

The strategic decision to hold or utilize corporate cash reserves is a pivotal aspect of corporate governance, shaping a firm's ability to respond to uncertainties, capitalize on growth opportunities, and balance stakeholder interests (Li & Luo, 2020). This decision-making process is intricately linked to the composition and characteristics of the firm's board of directors, with a particular interest in the role of rookie independent directors (RIDs). The relationship between corporate governance and cash holdings has been well-established in the literature, with seminal works like Dittmar and Mahrt-Smith (2007) and Harford et al. (2008) illustrating how weaker governance structures often associated with poor cash management practices. These studies, however, primarily focus on broad governance indices[3] and fail to dissect the nuanced effects of specific board members, such as RIDs, on corporate cash holdings. This study aims to fill this theoretical gap by examining how RIDs, as a unique antecedent in the governance structure, influence corporate cash management strategies.

The role of board independence, explored by researchers such as Chen (2008) and Atif et al. (2019), has shown mixed results. While Chen's work indicates no significant impact of board independence on cash holdings, Atif et al. discovered that gender diversity, particularly female independent directors, tends to reduce corporate cash reserves. These findings, though insightful, leave a gap in our understanding of the specific influence exerted by RIDs in the realm of corporate cash management. RID effectiveness in corporate governance has recently become a debated topic. Studies like Kang et al. (2016) and Chen and Keefe (2020) hint at their potential as efficient monitors positively impacting firm performance. In contrast, Bai and Yu (2022) and Chen et al. (2022) challenge this view, suggesting an association between greater RID representation and a propensity for corporate fraud, suggesting that these directors are inefficient monitors in constraining corporate fraud. This dichotomy highlights a critical theoretical gap: the specific mechanisms through which RIDs impact corporate financial decisions, particularly in the context of cash holding.

We propose a dual perspective on RIDs' influence on corporate cash holdings. On one side, RIDs' commitment to establishing a credible reputation and their fresh, unbiased perspectives might foster more conservative and objective financial strategies, potentially favoring larger cash reserves. This view aligns with theories of efficient monitoring and reputation building (Holmstrom, 1982; Yermack, 2004), suggesting that new directors, eager to prove their effectiveness, might advocate for prudent cash management policies. Building on from the preceding argument, we would expect that RIDs may become more effective monitors and strengthen corporate governance mechanisms in an attempt to improve their reputation, thereby constraining managers from spending free cash flow generated. This argument points to the expectation that cash holdings will increase in the presence of RIDs.

RIDs often adopt conservative financial strategies due to their inexperience, leading to increased cash holdings and a cautious stance toward investment. This approach aims not just at preserving liquidity but also at strengthening corporate governance. Supporting this, Ullah et al. (2023) find RIDs' presence negatively impacts innovation, as they prioritize financial stability. Kang et al. (2016) note the improved monitoring by RIDs but also a decrease in innovation, especially in complex firms, attributing this to RIDs' limited advisory capacity on strategic initiatives. However, the 2013 Spencer Stuart Report underscores the value of introducing 'fresh

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[3] While Gompers et al. (2003) corporate governance index captures six antitakeover provisions, Bebchuk et al. (2009) corporate governance index uses the same data but more provisions than as in Gompers et al. (2003). The governance data used by both studies is provided by Investor Responsibility Research Center (IRRC), which varies between zero and 24.

blood' to the boardroom, stating, ' … competence and ability to contribute are more important than board experience in itself. The board should bring in 'fresh blood' as long as they can contribute … ' This highlights that the benefits of new perspectives and diligent oversight by RIDs can outweigh their conservative impact on financial strategies. Levit and Malenko (2016) and Chen et al. (2022) further suggest that early-career directors, by enhancing board independence and monitoring, can significantly improve firm performance, reinforcing the strategic importance of balancing RIDs' conservatism with their contribution to governance and oversight.

Conversely, the relative inexperience of RIDs at the board level might pose risks to effective corporate governance (Chen and Keefe, 2020). Their lack of a track record could lead to overreliance on seasoned directors, potentially resulting in support for riskier financial strategies and reduced cash holdings. This scenario reflects the complexity in assessing the impact of RIDs on corporate governance – a balance between the value of fresh perspectives and the need for experienced judgment. Given the strategic importance of cash holdings in firm operations and growth, the role of RIDs in guiding these decisions becomes crucial. Their potential to influence cash management strategies extends beyond financial oversight; it encompasses a broader strategic role in shaping the firm's approach to risk, investment, and stakeholder management. This dual perspective underscores the complexity of RIDs' role in corporate governance and their impact on cash management.

Drawing on these considerations, our study hypothesizes that the presence of RIDs on the board, despite potential drawbacks, generally leads to more prudent cash management practices, culminating in increased cash reserves. This hypothesis aligns with the notion that stronger corporate governance, characterized by effective monitoring and conservative financial strategies, is associated with larger cash reserves. This leads us to our first hypothesis as follows:

H1. *The presence of RIDs on the board is positively associated with increased corporate cash holdings.*

Next, the existing literature has provided evidence that firms tend to take precautionary measures to hedge against potential financial constraints in the future (Myers, 1977; Miller and Orr, 1966; Han and Qiu, 2007; Pearce and Patel, 2018; Jung et al., 2020; Kolev and McNamara, 2020; Shen et al., 2022; Weck et al., 2022). This has been observed to be the case even in times of EPU, where firms tend to increase their corporate cash holdings (Demir and Ersan, 2017; Duong et al., 2020; Feng et al., 2022), underpinning the strategic importance of cash reserves in uncertain economic climates. In light of this, it is important to examine the potential impact of EPU on the relationship between RIDs representation on the board and corporate cash holdings. As discussed and conjectured in hypothesis 1, if the presence of RIDs is expected to increase corporate cash holdings, then it is reasonable to expect that the positive relationship between RIDs representation on the board and corporate cash holdings would be more pronounced in times of EPU. On the other hand, considering the relative inexperience of RIDs, there is also a plausible argument that they might not favor such precautionary measures in times of EPU, potentially leading to a less significant impact on cash holdings. This perspective stems from the assumption that RIDs, due to their nascent tenure on the board, might lack the depth of experience required to navigate complex economic uncertainties effectively.

Drawing upon these considerations, the study posits that the interplay between RIDs and EPU is a critical factor in determining corporate cash holdings. If RIDs are inclined towards precautionary measures, as would be expected from their risk-averse nature and commitment to effective governance, then the positive relationship between RIDs on the board and corporate cash holdings should be amplified in times of EPU. This hypothesis aligns with the broader strategic management discourse, which emphasizes the role of board characteristics in shaping firm responses to external economic factors. This leads us to form our second hypothesis as follows:

H2. Economic policy uncertainty strengthens the positive association between RIDs and corporate cash holdings.

The relationship between corporate governance quality, cash holding decisions, and firm performance forms a critical triad in strategic management research. While previous studies, notably by Dittmar and Mahrt-Smith (2007) documented that firms with poor corporate governance dissipate cash quickly in ways that significantly reduce operating performance, these studies have not explicitly addressed the role of RIDs in this dynamic. In this current study, we attempt to elucidate whether RIDs cash holding decisions can influence firm operating performance. This is important because some scholars have documented that corporate cash holdings improve firm performance, and that it is more detrimental in poorly governed firms (Dittmar and Mahrt-Smith, 2007; Deb et al., 2017). In line with the literature suggesting that effective cash management can improve firm performance, especially in well-governed firms (Dittmar and Mahrt-Smith, 2007; Deb et al., 2017), this study hypothesizes that the cash holding decisions influenced by RIDs would positively impact a firm's operating performance. This hypothesis stems from the expectation that RIDs, through their active engagement in board activities and their influence on strategic decisions, contribute to a more efficient allocation of resources, ultimately benefitting the firm's operational outcomes. The exploration of this hypothesis is particularly pertinent as it extends the understanding of the role of board composition in strategic decision-making. It examines not just the presence of RIDs on the board but also delves into the implications of their involvement in crucial financial decisions for the firm's operational success. This leads us to our third hypothesis as follows:

H3. Corporate cash holding decisions in the presence of RIDs should lead to better firm operating performance.

3. Research design

3.1. Sample

The initial sample of our study consists of all A-share firms listed on Shenzhen and Shanghai stock exchanges over the period from 2006 to 2020. The stated data period is selected due to (a) the availability of mostly governance-related variables data in China after

2005, and (b) the split share reform around 2005 in China has significantly changed the summarization and reporting of key financial indicators during pre and post-reform period (Liao et al., 2014; Bai and Yu, 2022; Elamer and Boulhaga, 2024; Hui et al., 2024; Ullah et al., 2024). We collected data from two databases. First, the data about *RIDs*, corporate cash holdings, and other control variables are collected from China Stock Market and Accounting Research (CSMAR). CSMAR is a reliable database and has been widely used in the preceding studies in China (Bai and Yu, 2022; Chen and Keefe, 2020; Ullah et al., 2022). Secondly, we followed He et al. (2020) and collected the EPU index data from a website develop by Huang and Luk (2020).[4]

We combined the two distinct datasets and then performed the following procedures on the original data. First, we eliminated all of the observations that were missing for the independent, dependent, moderating, and control variables (a total of 354 observations). Second, in accordance with earlier studies (Chen and Keefe, 2020; Atif et al., 2019), we eliminated the financial sector firms (a total of 1126 observation) because of their distinct structure and functions from those of the other firms. Finally, during the study's sample period, we winsorized all of our continuous variables at a 1% level and obtained a total number of 35,691 firm-year observations.

3.2. Rookie independent directors

We followed previous studies (e.g., Chen and Keefe, 2020; Bai and Yu, 2022; Chen et al., 2022) and divided the independent directors into RIDs (i.e., independent directors having less than three-year experience as a board member) and seasoned independent directors (i.e., independent directors having more than three-year experience as a board member) on the bases of their experience as a board member.[5] We selected the three-year threshold for RIDs based on previous studies in the Chinese context (e.g., Bai and Yu, 2022). Moreover, to differentiate between RIDs and seasoned independent directors, we followed Chen and Keefe (2020) and considered the director appointments data from 1999 onwards (CSMAR has such data from 1999) and calculated the average experience of an independent director as a member of the board in year *t*. We call an independent director to be RIDs if his/her overall experience as a board member in year *t* is less than three years and vice versa. Secondly, for our robustness analyses, we used a second proxy *Rookie2* which is a dummy variable that equals "1" if the ratio of RIDs to total independent directors is greater than or equal to 50% and "0" if vice versa.

3.3. Cash holdings

We followed the preceding literature (e.g., Atif et al., 2019; Marwick et al., 2020; Chang et al., 2021) and used two proxies for corporate cash holdings. Firstly, we measured cash holdings by the ratio of cash and cash equivalent to total assets in year *t*. Secondly, we used the ratio of cash and cash equivalent to net assets where net assets value is obtained by subtracting the cash and cash equivalent from a firm's total assets in year *t*. Moreover, we further followed Hou and Liu (2020) and Marwick et al. (2020) and used the natural logarithm of the above-mentioned two proxies as our alternate proxies for our robustness analyses.

3.4. Control variables

Based on the previous studies (e.g., Elamer and Boulhaga, 2024; Harford et al., 2008; Mahran and Elamer, 2024; Ullah et al., 2024; Qiu and Wan, 2015; Atif et al., 2019; Marwick et al., 2020; Cheung et al., 2021), we also used various control variables that are expected to have significant impact on corporate cash holdings. For example, corporate cash holding is considered one of the fundamental corporate decisions as it helps in liquidity provision which allows firms to meet their operational needs. However, it is argued that excessive cash holding can lead toward agency problems due to managerial opportunistic behaviour and can spend excess cash reserves to fulfil their own interest (Jensen, 1986; Harford et al., 2008; Atif et al., 2019). Consistent with these studies, we employed four board of directors' attributes namely board size measured as the total number of board of directors in a firm in year *t*, board independence measured as the ratio of independent directors to total directors in a firm in year *t*, gender diversity measured as the ratio of female directors to total directors in a firm in year *t*, and CEO duality measured as a dummy variable equals "1" if a firm CEO is also the chairman of the board in year *t* and "0" if vice versa.

Second, preceding studies (e.g., Nguyen and Rahman, 2020; Cheung et al., 2021) also highlights the importance of ownership structure in corporate decision making including corporate cash holdings. For example, Nguyen and Rahman (2020) found that a higher proportion of institutional shareholdings is associated with higher cash balances. Cheung et al. (2021) argued that institutional shareholders' distraction is negatively and significantly associated with corporate cash holdings. Hence, based on these studies, we used institutional ownership measured as the proportion of shares held by institutional investors as a control variable to check the association between RIDs and corporate cash holdings. Lastly, following previous studies (Atif et al., 2019; Cheung et al., 2021; Marwick et al., 2020; Qiu and Wan, 2015), we also included firm-specific control variables namely firm size measured as the natural logarithm of firm total assets, leverage measured as the debt to asset ratio, return on assets measured as the earnings before interest and taxes scaled by total assets, market to book ratio measured as market value of equity divided by book value of equity dividends payout

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[4] https://economicpolicyuncertaintyinchina.weebly.com/.
[5] In addition, we used two more cutoffs for RIDs. For the first proxy (Rookie_2nd year), we define a director to be RID if he (she) has 2 or less than two years of directorship experience. For the second proxy (Rookie_4th year), we define a director to be RID if he (she) has 4 years of directorship experience. The empirical findings of our study for all models while using these two additional proxies support our main findings where we used a three-year cutoff for RIDs. For brevity, we have not displayed the results of this analysis.

measured as a dummy variable equals "1" if a firm pay dividend in year t and "0" if vice versa, and sale growth measured as the proportion of change in firm sale in year t.

3.5. Economic policy uncertainty

In order to evaluate the moderating effect of economic policy uncertainty (EPU) on the relationship between RIDs and corporate cash holdings, our study follows the methodology established in the work of He et al. (2020) and utilizes the China EPU index developed by Huang and Luk (2020). This index is based on a similar approach as the one proposed by Baker et al. (2016) and features monthly data from the year 2000 until the present.

The China EPU index is constructed through the analysis of ten Chinese newspapers, including Beijing Youth Daily, The Beijing News, Jiefang Daily, Guangzhou Daily, People Daily Overseas Edition, Southern Metropolis Daily, Shanghai Morning Post, Today Evening Post, Wen Hui Daily, and Yangcheng Evening News. The index is generated by identifying articles in these newspapers that contain at least one keyword related to economy, uncertainty, or policy. The monthly total of articles is then scaled by the number of articles that meet the criteria for each respective month, and the series is standardized to have a uniform standard deviation over the period from January 2000 to December 2011.

Huang and Luk (2020) calculated the simple average of the monthly series across the ten newspapers and normalized the index to have an average value of 100 for the study period. However, our study features annual data, thus, following the methodology of He et al. (2020), we calculated the arithmetic average of the monthly EPU index on an annual basis and took the natural logarithm of this annual EPU index.

3.6. Econometric model

To test our hypotheses, we employed the following baseline regression models with industry and year fixed effects.

$$\text{Cashholdings}_{it} = b_0 + \beta_1 \text{RIDs}_{it} + \beta_2 \text{Controls}_{it} + \beta_3 \text{Industry}_i + \beta_4 \text{Year}_t + \varepsilon_{it}\ldots\ldots\ldots\ldots \quad (1)$$

$$\text{Cashholdings}_{it} = b_0 + \beta_1 \text{LnEPU}_{it} + \beta_2 RIDs_{it} + \beta_3\ LnEPU_{it} * \text{RIDs}_{it} + \beta_4 \text{Controls}_{it} + \beta_5 \text{Industry}_i + \beta_6 \text{Year}_t$$
$$+ \varepsilon_{it}\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots. \quad (2)$$

$$\text{ROA}_{it} = b_0 + \beta_1 \text{Cashholdings}_{it} + \beta_2\ \text{RIDs}_{it} + \beta_3\ \text{Cashholdings}_{it} * \text{RIDs}_{it} + \beta_4 \text{Controls}_{it} + \beta_5 \text{Industry}_i + \beta_6 \text{Year}_t$$
$$+ \varepsilon_{it}\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots. \quad (3)$$

The above-mentioned variables have been briefly explained in subsections 3.2, 3.3, 3.4, and 3.5, respectively. The first equation of the model has been used to test the association between *RIDs* and corporate cash holdings. The second equation indicates the moderating role of EPU in the aforementioned relationship while the third equation shows how cash holdings decisions in the presence of RIDs affect firm operating performance. To address potential heteroskedasticity and serial correlation concerns within our models, we have utilized clustered standard errors by industry in our estimations.
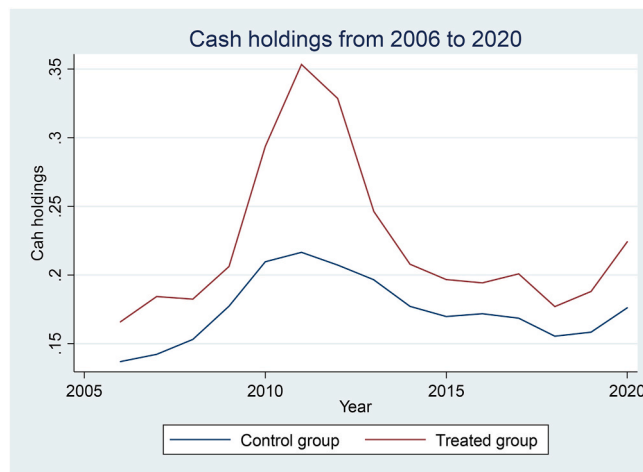

Fig. 1. RIDs and corporate cash holdings over time.
This figure shows the corporate cash holdings in firms having high vs low proportion of *RIDs* from 2006 to 2020.

4. Empirical results

4.1. Descriptive statistics

Fig. 1 shows the difference in cash holding values in the treated and control group sample. In Fig. 1, the treated (control) group is composed of firm-year observations when the ratio of RIDs to total independent directors is greater (less) than 50%. The findings reveal that firms with a higher proportion of RIDs tend to have more cash reserves than their counterparts.

Table 1 reports the summary statistics of our main variables including dependent, independent, controls, and moderating variables. This table shows the total number of observations, mean, standard deviation, and percentile (25th, 50th, and 75th) values of the variables. As Table 1 shows, the mean value of corporate cash holdings indicates that, on average, the ratio of cash and cash equivalent to total (net) assets of each firm is 0.184 (0.278), respectively. The mean value of cash holding proxies is quite similar to other studies (Chang et al., 2021; Li et al., 2020) in the Chinese context. The mean value of RIDs indicates that, on average, out of total independent directors, each firm has 28.2% of RIDs while in 18.3% of the firms, the ratio of RIDs out of total independent directors is greater than 50%. The mean values of RIDs proxies are consistent with the previous studies (e.g., Chen and Keefe, 2020; Bai and Yu., 2022) in the Chinese context. Moreover, the values of corporate governance and firm-specific variables and the EPU index are consistent with the previous literature (Jebran et al., 2019; He et al., 2020; Hou and Liu, 2020; Li et al., 2020; Chang et al., 2021; Ullah et al., 2022).

In Table 2, we undertake the test for differences in mean across all the variables used in this study between firms with higher and lower proportions of *RIDs*. Here, we use the second proxy of RIDs (*Rookie2*) to differentiate between the two groups. The results suggest that firms with a higher proportion of RIDs tend to have higher cash reserves as compared to firms with a lower proportion of *RIDs*. The T-values indicate that the mean difference between both values is significant at a 1% level. This relation validates our argument that RIDs enhance corporate cash holdings. Moreover, the mean values of all the control variables in our study are significantly different in firms with a higher proportion of RIDs as compared to their counterparts. These findings indicate that firms with a higher ratio of RIDs are different in terms of board attributes, ownership, and firm characteristics.

Table 3 shows the Variance Inflation Factor (VIF) and correlation analyses among cash holdings, *RIDs*, and the control variables. The VIF highest value is around 1.7, which is quite below the cutoff point of 10 (Kennedy, 2008; Ullah et al., 2022). Hence, it appears that multicollinearity may not be an issue in our data. Moreover, the correlation result shows that *RIDs*, board size, gender diversity, CEO duality, institutional ownership, firm performance, market-to-book ratio, and dividend payout have a positive and significant impact on corporate cash holdings while firm size and leverage have a negative impact on cash holdings.

4.2. Regression results

4.2.1. The nexus between RIDs and cash holdings

In Table 4, we use equation (1) to test our first hypothesis regarding the relation between RIDs and corporate cash holdings through various regression models. In Panel A, columns 1 and 2 show the results of the regression models with industry and year effect while columns 3, 4, 5, and 6 show the regression models with the alternate proxies for both RIDs and corporate cash holding variables. In panel B, to test the omitted variable bias, we followed previous studies (Güner et al., 2008; Giannetti et al., 2015; Xu et al., 2018; Hu et al., 2019; Feng et al., 2022) that highlights the importance of regional level factors and other board of director's attributes in corporate decision making. We added three regional-level variables namely the natural log of provincial-level gross domestic product (GDP) per capita, the natural log of the total population and inflation rate measure through provincial consumer price index (CPI), and three board of directors attributes such as the proportion of directors with financial background (B_Financial), the proportion of directors with international experience (B_Foreign), the average age of board of directors (B_Age) to our regression models.

As Panels A and B of Table 4 reveal, RIDs have a positive and a significant relation with corporate cash holdings at 1% level across all regression models. These findings support our first hypothesis that RIDs tend to increase corporate cash holdings. With respect to economic significance, for instance, columns (1) and (2) indicate that one standard deviation increase in the proportion of RIDs tend to enhance corporate cash holdings by 0.81% ($0.029 \times 0.282 \times 100$) and 2.1% ($0.077 \times 0.282 \times 100$), respectively.[6] The policy implication of our study based on these findings is that, on average, a higher proportion of RIDs in a firm is associated with higher cash reserves.

Overall, these findings support the preceding literature (e.g., Dittmar and Mahrt-Smith, 2007; Harford et al., 2008; Chen and Keefe, 2020) and our argument that RIDs can play a critical role in enhancing corporate governance by efficiently monitoring management and providing guidance in cash holding decisions. By focusing on RIDs, our study extends agency theory in a crucial way. Traditionally, agency theory emphasizes the conflicts between management and shareholders, mainly addressing broad governance structures. Our research deepens this perspective by highlighting the distinct role of RIDs in mitigating agency conflicts, particularly in the strategic management of cash reserves. The introduction of RIDs into this discourse offers a nuanced understanding of how specific board

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[6] In response to concerns regarding potential spurious correlations due to the common use of total assets as a denominator in our variables, we conducted additional analyses using logarithmic values of the raw amounts of cash and cash equivalents (Ln_CCE) and net income, independent of total assets. This approach aimed to directly assess the influence of Rookie Independent Directors (RIDs) on corporate cash holdings without the mediating effect of total assets. These unreported results, which utilize Ln_CCE as the dependent variable and incorporate net income as a control, reaffirm our initial findings, demonstrating a positive and significant impact of RIDs on corporate cash holdings. This analysis, performed to address potential methodological concerns, further supports the robustness of our conclusions.

Table 1

Descriptive statistics.

Variables	N	Mean	SD	P25	P50	P75
CASH1	35691	0.184	0.129	0.0940	0.148	0.237
CASH2	35691	0.278	0.314	0.104	0.174	0.313
Rookie1	35691	0.282	0.282	0	0.250	0.429
Rookie2	35691	0.183	0.387	0	0	0
B_Size	35691	9.309	2.788	8	9	9
B_IND	35691	0.372	0.0550	0.333	0.333	0.429
Gen_Div	35691	0.139	0.125	0	0.111	0.222
CEO_D	35691	0.263	0.440	0	0	1
INST_OWN	35691	0.0600	0.0620	0.0130	0.0410	0.0870
Firmsize	35691	21.93	1.295	21.00	21.77	22.66
Leverage	35691	0.431	0.212	0.261	0.422	0.584
ROA	35691	0.0400	0.0390	0.0190	0.0340	0.0550
M/B	35691	1.989	1.183	1.269	1.616	2.238
Dividend	35691	0.717	0.451	0	1	1
Sale_Growth	35691	0.248	0.687	−0.0230	0.118	0.302
LnEPU	35691	4.916	0.161	4.855	4.944	5.015

Table 2

Univariate analyses.

Variables	Rookie2 = 1	Rookie2 = 0	Mean difference	T-values
Observation	6549	29142	NA	NA
CASH1	0.228	0.174	−0.053	−30.729***
CASH2	0.392	0.252	−0.140	−33.239***
B_Size	10.371	9.069	−1.302	−34.731***
B_IND	0.369	0.372	0.002	3.614***
Gen_Div	0.147	0.137	−0.010	−5.896***
CEO_D	0.336	0.246	−0.089	−14.923***
INST_OWN	0.052	0.062	0.010	11.947***
Firmsize	21.404	22.042	0.637	36.678***
Leverage	0.384	0.440	0.056	19.727***
ROA	0.045	0.038	−0.007	−14.531***
M/B	1.942	1.999	0.057	3.522***
Dividend	0.753	0.708	−0.044	−7.226***
Sale_Growth	0.255	0.246	−0.942	0.345

Notes: This table shows univariate analysis of corporate cash holdings based on *RIDs*. *, **, and *** show significance (two-tailed) at the 0.10, 0.05, and 0.01 levels. Please see Appendix A for variable description.

member characteristics influence corporate governance and strategic decision-making. We explore not just the presence of RIDs but their unique potential to enhance governance through vigilant monitoring and strategic guidance in cash management, a critical yet underexplored aspect in agency theory.

Our study's empirical findings, as presented in Panels A and B of Table 4, affirm our hypothesis: a higher proportion of RIDs in a firm is significantly correlated with increased corporate cash holdings. This positive relationship across all regression models, including a notable increase in cash holdings with a standard deviation rise in RIDs' proportion, underscores their strategic influence in financial decision-making.

By focusing on RIDs, our study extends agency theory in a crucial way. Traditionally, agency theory emphasizes the conflicts between management and shareholders, mainly addressing broad governance structures. Our research deepens this perspective by highlighting the distinct role of RIDs in mitigating agency conflicts, particularly in the strategic management of cash reserves. The introduction of RIDs into this discourse offers a nuanced understanding of how specific board member characteristics influence corporate governance and strategic decision-making. We explore not just the presence of RIDs but their unique potential to enhance governance through vigilant monitoring and strategic guidance in cash management, a critical yet underexplored aspect in agency theory.

Moreover, our analysis of control variables aligns with existing literature (Atif et al., 2019; Jebran et al., 2019; Hou and Liu, 2020; Chang et al., 2021). Our findings suggest that firms with larger boards, a high proportion of independent directors, CEO duality, increased institutional ownership, high return on assets, more dividend payouts, and higher sales growth are positively and significantly associated with higher cash holdings. Conversely, firms with a higher proportion of female directors, larger firm size, higher leverage, and higher market-to-book ratios are negatively and significantly associated with higher cash holdings. These results provide evidence that these factors influence the level of corporate cash holdings across Chinese firms. This complements our extension of agency theory by demonstrating the multifaceted nature of corporate governance and its impact on strategic financial decisions within firms, particularly in the context of Chinese corporate governance. In essence, our study not only contributes to the existing body of knowledge on corporate governance and cash management but also offers a strategic extension to agency theory. By integrating the

Table 3
VIF and correlation.

Variables	VIF	1	2	3	4	5	6	7	8	9	10	11	12	13
1.CASH1	–	1												
2.Rookie1	1.10	0.167*	1											
3.B_Size	1.26	0.186*	0.186*	1										
4.B_IND	1.14	0.005	−0.003	−0.326*	1									
5.Gen_Div	1.03	0.024*	0.037*	−0.062*	0.042*	1								
6.CEO_D	1.06	0.130*	0.084*	0.007	0.100*	0.104*	1							
7.INST_OWN	1.18	0.026*	−0.073*	−0.054*	−0.006	−0.021*	−0.025*	1						
8.Firmsize	1.67	−0.251*	−0.212*	−0.006	0.019*	−0.099*	−0.166*	0.228*	1					
9.Leverage	1.41	−0.411*	−0.110*	−0.028*	−0.024*	−0.091*	−0.165*	0.050*	0.416*	1				
10.ROA	1.26	0.211*	0.076*	0.188*	−0.027*	0.008*	0.056*	0.166*	−0.047*	−0.201*	1			
11.M/B	1.38	0.110*	−0.009*	−0.147*	0.058*	0.054*	0.066*	0.157*	−0.392*	−0.214*	0.176*	1		
12.Dividend	1.29	0.196*	0.031*	0.138*	−0.011*	0.012*	0.056*	0.138*	0.141*	−0.240*	0.319*	−0.095*	1	
13.Sale_Growth	1.03	−0.006	0.018*	−0.027*	0.009*	−0.009*	0.004	0.052*	0.009*	0.086*	0.112*	0.057*	−0.029*	1

Notes: * shows significant (two-tailed) at the 0.10 level.

Table 4

Regression results.

Panel A: Fixed effect and alternate proxies

	Fixed effect		Alternate proxies			
	(1)	(2)	(3)	(4)	(5)	(6)
Variables	CASH1	CASH2	LnCASH1	LnCASH2	CASH1	CASH2
Rookie1	0.029***	0.077***	0.111***	0.164***		
	[0.000]	[0.000]	[0.000]	[0.000]		
Rookie2					0.021***	0.057***
					[0.000]	[0.000]
B_Size	0.007***	0.019***	0.032***	0.049***	0.007***	0.019***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
B_IND	0.106***	0.299***	0.483***	0.739***	0.109***	0.307***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Gen_Div	−0.009**	−0.019	−0.082***	−0.092***	−0.009*	−0.018
	[0.048]	[0.103]	[0.003]	[0.007]	[0.061]	[0.128]
CEO_D	0.012***	0.032***	0.053***	0.073***	0.012***	0.032***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
INST_OWN	0.070***	0.101***	0.772***	0.880***	0.068***	0.097***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Firmsize	−0.007***	−0.016***	−0.039***	−0.053***	−0.007***	−0.017***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Leverage	−0.204***	−0.465***	−1.033***	−1.342***	−0.204***	−0.465***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
ROA	0.272***	0.643***	1.520***	1.881***	0.272***	0.643***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
M/B	0.001	−0.004**	−0.009*	−0.011**	0.001	−0.004**
	[0.424]	[0.033]	[0.058]	[0.040]	[0.468]	[0.029]
Dividend	0.022***	0.035***	0.183***	0.214***	0.022***	0.034***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Sale_Growth	0.001	0.003	0.005	0.008	0.001	0.003
	[0.236]	[0.227]	[0.397]	[0.291]	[0.178]	[0.166]
Constant	0.235***	0.385***	−1.622***	−1.323***	0.240***	0.397***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	35,691	35,691	35,691	35,691	35,691	35,691
R-squared	0.304	0.289	0.263	0.290	0.304	0.290

Panel B: Omitted variable bias

	(1)	(2)
	CASH1	CASH2
Rookie1	0.029***	0.075***
	[0.000]	[0.000]
LnGDP	0.009***	0.019***
	[0.000]	[0.000]
LnPOP	−0.003***	−0.008***
	[0.006]	[0.001]
CPI	−0.003**	−0.008***
	[0.015]	[0.006]
B_Financial	0.014***	0.037***
	[0.003]	[0.001]
B_Foreign	0.043***	0.122***
	[0.000]	[0.000]
B_Age	−0.001***	−0.002***
	[0.005]	[0.000]
Constant	0.491***	1.189***
	[0.000]	[0.000]
Control variables	Yes	Yes
Year effect	Yes	Yes
Industry effect	Yes	Yes
Observations	35,691	35,691
R-squared	0.308	0.294

Notes: This table shows the regression results for the impact of RIDs on corporate cash holdings. Please see Appendix A for descriptions of variables. *, **, and *** report the significance level at 0.10, 0.05, and 0.01 respectively. P-values are reported in brackets.

Table 5

Moderating impact of economic policy uncertainty.

Panel A: Fixed effect and alternate proxies

	Fixed effect		Alternate proxies			
	(1)	(2)	(3)	(4)	(5)	(6)
Variables	CASH1	CASH2	LnCASH1	LnCASH2	CASH1	CASH2
LnEPU	0.005	−0.018	0.202***	0.213***	0.016***	0.017
	[0.423]	[0.151]	[0.000]	[0.000]	[0.002]	[0.152]
Rookie1	−0.335***	−1.122***	−1.175***	−1.838***		
	[0.000]	[0.000]	[0.002]	[0.000]		
LnEPU × Rookie1	0.074***	0.244***	0.262***	0.408***		
	[0.000]	[0.000]	[0.001]	[0.000]		
Rookie2					−0.200***	−0.741***
					[0.000]	[0.000]
LnEPU × Rookie2					0.045***	0.162***
					[0.000]	[0.000]
B_Size	0.007***	0.019***	0.032***	0.049***	0.007***	0.020***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
B_IND	0.107***	0.301***	0.485***	0.742***	0.109***	0.308***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Gen_Div	−0.010**	−0.019*	−0.083***	−0.093***	−0.009*	−0.018
	[0.044]	[0.093]	[0.003]	[0.006]	[0.060]	[0.123]
CEO_D	0.012***	0.032***	0.053***	0.073***	0.012***	0.032***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
INST_OWN	0.069***	0.099***	0.770***	0.876***	0.068***	0.095***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Firmsize	−0.007***	−0.017***	−0.039***	−0.053***	−0.007***	−0.017***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Leverage	−0.203***	−0.461***	−1.029***	−1.336***	−0.204***	−0.462***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
ROA	0.273***	0.646***	1.523***	1.885***	0.272***	0.646***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
M/B	0.001	−0.004*	−0.008*	−0.011*	0.001	−0.004**
	[0.348]	[0.051]	[0.070]	[0.051]	[0.409]	[0.041]
Dividend	0.022***	0.035***	0.183***	0.214***	0.022***	0.034***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Sale_Growth	0.001	0.003	0.005	0.008	0.001	0.003
	[0.239]	[0.230]	[0.399]	[0.293]	[0.175]	[0.161]
Constant	0.226***	0.503***	−2.463***	−2.186***	0.175***	0.344***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	35,691	35,691	35,691	35,691	35,691	35,691
R-squared	0.305	0.291	0.263	0.290	0.305	0.291

Panel B: Omitted variable bias

	(1)	(2)
	CASH1	CASH2
LnEPU	−0.013*	−0.050***
	[0.063]	[0.001]
Rookie1	−0.329***	−1.109***
	[0.000]	[0.000]
LnEPU × Rookie1	0.073***	0.241***
	[0.000]	[0.000]
LnGDP	0.009***	0.018***
	[0.000]	[0.000]
LnPOP	−0.003***	−0.008***
	[0.006]	[0.001]
CPI	−0.003**	−0.008***
	[0.015]	[0.006]
B_Financial	0.014***	0.038***
	[0.002]	[0.001]
B_Foreign	0.043***	0.122***
	[0.000]	[0.000]
B_Age	−0.001***	−0.002***
	[0.005]	[0.000]

Table 6
Corporate cash holdings, RIDs directors and firm performance.

Panel A: Fixed effect and alternate proxies

| | Fixed effect | | Alternate proxies | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
Variables	ROA	ROA	ROA	ROA	ROA	ROA
CASH1	0.026***	−0.028			0.026***	−0.944*
	[0.000]	[0.335]			[0.000]	[0.074]
Rookie1	0.002***	0.135	0.002***	−0.005*		
	[0.001]	[0.140]	[0.001]	[0.077]		
CASH1 × Rookie1		0.191*				
		[0.061]				
CASH2			0.010***	−0.289*		
			[0.000]	[0.075]		
CASH2 × Rookie1				0.029***		
				[0.004]		
Rookie2					0.002***	−0.007**
					[0.001]	[0.036]
CASH1 × Rookie2						0.047***
						[0.005]
B_Size	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
B_IND	0.021***	0.022***	0.021***	0.024***	0.021***	0.024***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Gen_Div	0.006***	0.006***	0.006***	0.006***	0.006***	0.006***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
CEO_D	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
INST_OWN	0.055***	0.055***	0.056***	0.057***	0.055***	0.057***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Firmsize	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Leverage	−0.020***	−0.020***	−0.020***	−0.025***	−0.020***	−0.025***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
M/B	0.008***	0.008***	0.008***	0.008***	0.008***	0.008***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Dividend	0.024***	0.024***	0.024***	0.025***	0.024***	0.025***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Sale_Growth	0.006***	0.006***	0.006***	0.006***	0.006***	0.006***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Constant	−0.073***	−0.106***	−0.071***	0.000	−0.072***	0.087
	[0.000]	[0.000]	[0.000]	[0.990]	[0.000]	[0.309]
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	35,691	35,691	35,691	35,691	35,691	35,691
R-squared	0.257	0.257	0.257	0.252	0.257	0.252

Panel B: Omitted variable bias

| | (1) | (2) |
	ROA	ROA
CASH1	0.026***	−0.028
	[0.000]	[0.342]
Rookie1	0.002***	0.113
	[0.002]	[0.217]
CASH1 × Rookie1		0.190*
		[0.062]
LnGDP	0.000	0.000
	[0.568]	[0.544]
LnPOP	0.002***	0.002***
	[0.000]	[0.000]
CPI	0.000	0.000
	[0.261]	[0.248]
B_Financial	−0.002	−0.002
	[0.283]	[0.232]
B_Foreign	−0.001	−0.001
	[0.529]	[0.499]
B_Age	−0.000	−0.000
	[0.495]	[0.340]

Table 6 (*continued*)

Panel A: Fixed effect and alternate proxies						
	Fixed effect		Alternate proxies			
	(1)	(2)	(3)	(4)	(5)	(6)
Variables	ROA	ROA	ROA	ROA	ROA	ROA
Constant	−0.143***	−0.172***				
	[0.001]	[0.001]				
Control variables	Yes	Yes				
Year effect	Yes	Yes				
Industry effect	Yes	Yes				
Observations	35,691	35,691				
R-squared	0.259	0.258				

Notes: This table shows the regression results for corporate cash holdings, RIDs and firm performance. Please see Appendix A for descriptions of variables. *, **, and *** report the significance level at 0.10, 0.05 and 0.01 respectively. P-values are reported in brackets.

4.3.1. Reverse causality

In addressing reverse causality concerns, we followed Bai and Yu (2022) who took their dependent variable (corporate fraud) at time t+1 to address the reverse causality issue between RIDs and corporate fraud. We follow their approach and employ the dependent variable of the study namely corporate cash holdings at a forward lag (t+1) and check the above-mentioned relationship. The unreported results reveal that the coefficient values are positive and significant at 1% level, indicating that a higher proportion of RIDs leads to greater cash reserves. These results affirm the robustness of our earlier findings (as shown in columns 1 and 2 of Table 4) and demonstrate that the observed relationship between RIDs and cash holdings is not significantly influenced by reverse causality. By employing this focused approach to address reverse causality, we effectively address a key source of endogeneity, thereby reinforcing the credibility of our empirical findings without overextending the analysis.[7]

4.3.2. Instrumental variables

Following the previous literature (e.g., Chen and Keefe, 2020; Chen et al., 2022), one of the potential endogeneity issues in our main findings is that RIDs may not be allocated to a firm accidently. However, their appointments and presence in a firm as RIDs may be due to other factors such as firm demand or the willingness of RIDs to join a specific firm. Hence, if some of these unobservable factors are connected with corporate cash holding and are not controlled properly then our baseline regressions may lead toward biased results.

Therefore, we used 2SLS to alleviate the potential endogeneity issue. The 2SLS is an effective method for robustness testing, however, the issue surrounding the use of this approach is to find appropriate instrumental variables which have significant associations with the independent variable (*RIDs*) but not with the dependent ones (corporate cash holdings). To address this issue, we followed preceding studies (Kang et al., 2016; Chen and Keefe, 2020; Chen et al., 2022) and used *First_year_directors$_{t-1}$*, which is measured as the percentage mean value of first-year directors of other firms' headquarters in the same city in year t-1. The motive behind first-year directors is that Chinese firms prefer to appoint local independent directors due to many reasons such as, for example, travel convenience (Zhou et al., 2018). Moreover, Chen and Keefe (2020) highlight that first-year directors in other firms in year t-1 are more likely to be RIDs for a firm in year *t*. Similarly, *First_year_directors$_{t-1}$* is a city-level variable and has no direct association with corporate cash holdings.

Table 7 presents the results from the 2SLS regressions. In Column 1, we show the regression results regarding the validity of our instrumental variable by taking *First_year_directors$_{t-1}$* as our independent variable while RIDs is a dependent variable. The regression results show that *First_year_directors$_{t-1}$* has a positive and significant impact on *RIDs*. Moreover, the wald F value (16.88) of our instrumental variable is greater than the standard threshold of 10 (Staiger and Stock, 1997), showing the relevancy of our instrumental variable by indicating a stronger effect on *RIDs*. Columns 2 and 3 show the second stage of the 2SLS regression results. We find that RIDs is positively and significantly associated with corporate cash holdings. These results validate our main findings reported earlier that a higher proportion of RIDs is associated with greater corporate cash holdings.

4.3.3. Entropy balancing method

We employed entropy balancing technique to further minimize the potential endogeneity issue. For entropy balancing technique, we split the sample into two categories: treatment and control group. The treatment group in our sample is composed of firm observations where the ratio of RIDs to total independent directors is greater than or equal to 50%, and vice versa for the control group. In

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[7] Following Ali et al. (2022), to address reverse causality, we took our independent and control variables at different lags. Ali et al. (2022) highlighted that lag values of independent variables especially corporate governance help to control for reverse causality and tend to be less susceptible to the endogeneity effect. Therefore, we used lagged values for our independent and control variables (t-1, t-2, and t-3). The unreported findings indicate that *RIDs* tend to enhance corporate cash holdings after controlling for reverse causality issue.

Table 7
2SLS regression results.

	First_Stage	Second_Stage	
	(1)	(2)	(3)
Variables	Rookie1	CASH1	CASH2
First_year_directors$_{t-1}$	0.001***		
	[0.000]		
Rookie1		0.422***	0.572**
		[0.003]	[0.029]
B_Size	0.004***	−0.002**	−0.003*
	[0.000]	[0.045]	[0.076]
B_IND	0.142***	−0.038	−0.052
	[0.000]	[0.142]	[0.273]
Gen_Div	0.079***	−0.035***	−0.050**
	[0.000]	[0.008]	[0.037]
CEO_D	0.026***	0.001	0.013
	[0.000]	[0.892]	[0.103]
INST_OWN	−0.096***	0.125***	0.162***
	[0.000]	[0.000]	[0.000]
Firmsize	−0.031***	0.009**	0.013
	[0.000]	[0.042]	[0.131]
Leverage	−0.074***	−0.164***	−0.394***
	[0.000]	[0.000]	[0.000]
ROA	0.061	0.094***	0.137**
	[0.186]	[0.003]	[0.040]
M/B	−0.019***	0.012***	0.018***
	[0.000]	[0.000]	[0.001]
Dividend	0.011***	0.019***	0.036***
	[0.002]	[0.000]	[0.000]
Sale_Growth	0.008***	−0.001	0.001
	[0.000]	[0.405]	[0.861]
Constant	0.905***	−0.107	−0.076
	[0.000]	[0.425]	[0.764]
F-statistics (First_stage)	16.88		
Year effect	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes
Observations	30,530	30,530	30,530
R-squared	0.405	0.518	0.441

Notes: This table shows the 2SLS results for the impact of RIDs on corporate cash holdings. Please see Appendix A for descriptions of variables. *, **, and *** report the significance level at 0.10, 0.05 and 0.01 respectively. P-values are reported in brackets.

Table 8, Panel A and Panel B, we followed Hainmueller and Xu (2013) to converge the mean, variance, and skewness of all covariates in the treatment and control groups. In Panel C of Table 8, based on the treated balance, we re-estimate our equation (1). The regression results suggest that RIDs have a positive and significant impact on corporate cash holdings. Therefore, our findings still support our baseline regression results reported earlier after addressing the potential endogeneity issue.

4.4. Additional analyses

4.4.1. The role of independent directors attributes on corporate cash holdings

Besides RIDs, existing studies emphasize heterogeneous independent boards for more effective decision-making and strengthening a firm corporate governance (Cho et al., 2017; Mollah et al., 2021; Oh et al., 2021; Jin et al., 2022). For example, it is argued that academic independent directors (AIDs) bring a unique perspective to the boardroom, characterized by analytical thinking and a grasp of modern managerial and scientific knowledge. This expertise can be crucial in shaping a company's cash holding policies. AIDs, through their research background and understanding of theoretical models, might advocate for a more prudent cash management strategy, emphasizing the importance of having sufficient reserves for innovation and long-term projects. Their academic perspective could lead to a more balanced approach to cash holdings, balancing the need for liquidity against potential investment opportunities (Francis et al., 2015; Cho et al., 2017; Jin et al., 2022).

Secondly, independent directors with financial expertise (FIDs) are likely to have a significant impact on a firm's approach to risk management and financial strategy (Mollah et al., 2021). Their understanding of complex financial instruments and markets can guide the firm in optimizing its cash reserves in line with its risk profile. FIDs are likely to be instrumental in decisions regarding cash holdings as a buffer against market volatility and financial uncertainties. Their insights can lead to policies that maintain adequate liquidity to safeguard the firm's financial health while also ensuring funds are available for opportunistic investments (Tang et al., 2013).

Table 8
Entropy balancing method.

Panel A: Before entropy balancing

	Treatment group (Rookie2 = 1)			Control group (Rookie2 = 0)		
Variables	Mean	Variance	Skewness	Mean	Variance	Skewness
B_Size	10.37	14.38	1.15	9.07	5.98	1.725
B_IND	0.369	0.002	1.126	0.372	0.003	1.473
Gen_Div	0.147	0.016	0.753	0.137	0.015	0.835
CEO_D	0.336	0.223	0.692	0.246	0.185	1.175
INST_OWN	0.052	0.003	1.743	0.062	0.003	1.457
Firmsize	21.4	1.381	1.083	22.04	1.67	0.674
Leverage	0.384	0.046	0.545	0.441	0.043	0.247
ROA	0.045	0.001	1.225	0.038	0.001	1.505
M/B	1.943	1.164	3.01	1.999	1.453	2.587
Dividend	0.753	0.186	−1.174	0.708	0.206	−0.917
Sale_Growth	0.255	0.413	4.796	0.246	0.484	4.595

Panel B: After entropy balancing

	Treatment group (Rookie2 = 1)			Control group (Rookie2 = 0)		
Variables	Mean	Variance	Skewness	Mean	Variance	Skewness
B_Size	10.37	14.38	1.15	10.37	13.79	1.155
B_IND	0.369	0.002	1.126	0.369	0.002	1.525
Gen_Div	0.147	0.016	0.753	0.147	0.015	0.711
CEO_D	0.336	0.223	0.692	0.336	0.223	0.693
INST_OWN	0.052	0.003	1.743	0.052	0.003	1.741
Firmsize	21.4	1.381	1.083	21.41	1.097	0.739
Leverage	0.383	0.046	0.545	0.384	0.041	0.558
ROA	0.045	0.001	1.225	0.045	0.001	1.94
M/B	1.943	1.164	3.01	1.943	0.947	2.802
Dividend	0.753	0.186	−1.174	0.753	0.186	−1.174
Sale_Growth	0.255	0.413	4.796	0.255	0.469	4.751

Panel C: Entropy balancing regression results

	(1)	(2)
Variables	CASH1	CASH2
Rookie2	0.016***	0.040***
	[0.000]	[0.000]
B_Size	0.007***	0.021***
	[0.000]	[0.000]
B_IND	0.121***	0.368***
	[0.000]	[0.000]
Gen_Div	0.003	0.009
	[0.674]	[0.646]
CEO_D	0.014***	0.037***
	[0.000]	[0.000]
INST_OWN	0.089***	0.189***
	[0.000]	[0.000]
Firmsize	−0.011***	−0.030***
	[0.000]	[0.000]
Leverage	−0.273***	−0.680***
	[0.000]	[0.000]
ROA	0.295***	0.879***
	[0.000]	[0.000]
M/B	−0.005***	−0.021***
	[0.000]	[0.000]
Dividend	0.025***	0.034***
	[0.000]	[0.000]
Sale_Growth	0.001	0.003
	[0.487]	[0.425]
Constant	0.368***	0.750***
	[0.000]	[0.000]
Year effect	Yes	Yes
Industry effect	Yes	Yes
Observations	35,691	35,691
R-squared	0.417	0.397

Notes: This table shows the Entropy balancing results for the impact of RIDs on corporate cash holdings. Please see Appendix A for descriptions of variables. *, **, and *** report the significance level at 0.10, 0.05, and 0.01 respectively. P-values are reported in brackets.

Lastly, the foreign experience of directors plays a critical role in emerging economies like China due to weak investor protections and scarce human capital resources which can be a cause of negative firm performance (Giannetti et al., 2015; Yuan and Wen, 2018). Giannetti et al. (2015) argued that directors' foreign experience can be a significant source of foreign market connection, and knowledge transmission (managerial practices and corporate governance) to the local firms thereby leading to enhanced firm performance. Consistently, Oh et al. (2021) contend that like other directors, independent directors with foreign experience (*FEIDs*) are more likely to enhance firm value. Therefore, concluding from the above debate regarding independent directors attributes, we assume that *AIDs*, *FIDs*, and *FEIDs* also play significant roles in reducing agency problems and strengthening corporate governance mechanisms thereby leading to enhanced corporate cash holdings.

In Table 9, we measured *AIDs* (B_Academic_IND), *FIDs* (B_Financial_IND), and *FEIDs* (B_Foreign_IND) by the total number of *AIDs, FIDs*, *FEIDs* divided by the total board of directors respectively, and analyzed their impact on corporate cash holdings. The empirical findings suggest that all these attributes of independent directors namely *AIDs* (columns 1 and 2), *FIDs* (columns 3 and 4), and *FEIDs* (columns 5 and 6) have a positive and significant association with corporate cash holdings at 1% level across regression models, affirming the role of diverse director characteristics in influencing corporate governance and cash management strategies.

The presence of AIDs on the board, as shown in columns 1 and 2 of Table 9, might contribute to increased cash holdings due to their analytical and forward-thinking approach, often leading to more conservative and strategic financial planning. FIDs, detailed in columns 3 and 4, likely bring a depth of understanding in financial matters, thereby influencing the firm's cash holding policies towards risk minimization and financial stability. Lastly, FEIDs, as observed in columns 5 and 6, bring global insights and connections that might encourage firms to maintain higher cash reserves as a strategic tool for international market operations and to mitigate risks associated with global financial volatility. Thus, the presence of these specialized independent directors appears to contribute to a more strategic, risk-averse, and globally-informed approach to managing corporate cash reserves. Their diverse expertise and perspectives seem to converge on the importance of robust cash holdings as a means of ensuring financial flexibility, stability, and strategic readiness.

Table 9
The impact of independent directors attributes.

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	CASH1	CASH2	CASH1	CASH2	CASH1	CASH2
B_Academic_IND	0.030***	0.065***				
	[0.000]	[0.000]				
B_Financial_IND			0.028***	0.052***		
			[0.000]	[0.004]		
B_Foreign_IND					0.045***	0.126***
					[0.000]	[0.000]
B_Size	0.007***	0.021***	0.007***	0.021***	0.007***	0.021***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
B_IND	0.102***	0.295***	0.110***	0.315***	0.109***	0.307***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Gen_Div	−0.006	−0.009	−0.006	−0.011	−0.006	−0.009
	[0.248]	[0.433]	[0.187]	[0.349]	[0.221]	[0.424]
CEO_D	0.013***	0.034***	0.013***	0.034***	0.013***	0.034***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
INST_OWN	0.065***	0.090***	0.067***	0.093***	0.066***	0.091***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Firmsize	−0.008***	−0.020***	−0.008***	−0.020***	−0.008***	−0.021***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Leverage	−0.206***	−0.468***	−0.206***	−0.468***	−0.205***	−0.466***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
ROA	0.276***	0.655***	0.277***	0.657***	0.278***	0.659***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
M/B	0.000	−0.006***	−0.000	−0.006***	−0.000	−0.006***
	[1.000]	[0.003]	[0.843]	[0.002]	[0.811]	[0.001]
Dividend	0.022***	0.035***	0.022***	0.036***	0.022***	0.035***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Sale_Growth	0.001	0.004	0.001	0.003	0.001	0.003
	[0.134]	[0.123]	[0.151]	[0.138]	[0.173]	[0.162]
Constant	0.270***	0.472***	0.269***	0.469***	0.274***	0.490***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	35,691	35,691	35,691	35,691	35,691	35,691
R-squared	0.302	0.286	0.301	0.285	0.302	0.286

Notes: This table shows the regression results for the impact of AIDs, FIDs, and FEIDs on corporate cash holdings. Please see Appendix A for descriptions of variables. *, **, and *** report the significance level at 0.10, 0.05, and 0.01 respectively. P-values are reported in brackets.

4.4.2. The role of growth opportunities in the association between RIDs and corporate cash holdings

It has been observed that growth opportunities play a vital role in corporate cash holdings (Harford et al., 2008; Bates et al., 2009; Dittmar and Mahrt-Smith, 2007; Qiu and Wan, 2015). For example, firms with growth opportunities are assumed to have higher cash reserves to finance their feasible projects and also provide them a shield against external capital finance which seems costly under certain circumstances (Harford et al., 2008; Bates et al., 2009; Qiu and Wan, 2015). Thus, following the argument of previous studies (Dittmar and Mahrt-Smith, 2007; Harford et al., 2008) that strong corporate governance tend to increase corporate cash holdings, we argue that firm with stronger growth opportunities may require a dynamic and flexible board of directors to guide and help them about the execution of potential growth opportunities. Therefore, based on the arguments of Chen and Keefe (2020), firms with stronger growth opportunities may favor RIDs because they can bring new ideas, energy, and a willingness to capitalize on such opportunities thereby leading to enhanced corporate cash holdings.

To check this argument, we followed previous literature (Géczy et al., 1997; Harford et al., 2008) and measured corporate growth opportunities with four different proxies namely research and development (R&D) measured as the ratio of R&D expenses to a firm total sale in a given year, capital expenditure measured (CAPEX) as a ratio of capital expenditure expenses to a firm total assets in a given year, M/B ratio, and firm performance measured as book value of total assets minus book value of equity plus market value of total shares scaled by the book value of total asset (Tobin_Q).

Table 10
The impact of growth opportunities.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	CASH1	CASH2	CASH1	CASH2	CASH1	CASH2	CASH1	CASH2
R&D	0.055	−0.366*						
	[0.487]	[0.077]						
CAPEX			−0.913***	−1.865***				
			[0.000]	[0.000]				
M/B					−0.028***	−0.058**		
					[0.003]	[0.011]		
Tobin_Q							−0.005	−0.066
							[0.839]	[0.263]
Rookie1	0.027***	0.074***	−0.120***	−0.161**	−0.111	−0.333	−0.065***	−0.288***
	[0.000]	[0.000]	[0.001]	[0.042]	[0.596]	[0.470]	[0.000]	[0.000]
Rookie1×R&D	0.571*	2.722***						
	[0.062]	[0.003]						
Rookie1×CAPEX			2.654***	4.854***				
			[0.000]	[0.000]				
Rookie1×M/B					0.096***	0.182**		
					[0.003]	[0.022]		
Rookie1×Tobin_Q							0.046***	0.179***
							[0.000]	[0.000]
B_Size	0.007***	0.020***	0.007***	0.022***	0.007***	0.021***	0.007***	0.020***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
B_IND	0.118***	0.300***	0.129***	0.359***	0.116***	0.325***	0.106***	0.298***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Gen_Div	−0.003	−0.018	0.001	0.005	−0.007	−0.012	−0.009**	−0.018
	[0.573]	[0.120]	[0.894]	[0.687]	[0.140]	[0.291]	[0.046]	[0.125]
CEO_D	0.013***	0.032***	0.016***	0.043***	0.013***	0.035***	0.012***	0.033***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
INST_OWN	0.105***	0.080***	0.114***	0.178***	0.065***	0.090***	0.073***	0.088***
	[0.000]	[0.001]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Firmsize	−0.010***	−0.015***	−0.011***	−0.022***	−0.008***	−0.020***	−0.007***	−0.014***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Leverage	−0.197***	−0.465***	−0.203***	−0.469***	−0.206***	−0.470***	−0.205***	−0.467***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
ROA	0.215***	0.620***	0.233***	0.532***	0.277***	0.658***	0.275***	0.615***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Dividend	0.023***	0.036***	0.025***	0.045***	0.022***	0.035***	0.021***	0.035***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Sale_Growth	0.002**	0.003	0.003***	0.007***	0.001	0.003	0.001	0.003
	[0.017]	[0.276]	[0.005]	[0.002]	[0.157]	[0.143]	[0.236]	[0.260]
Constant	0.311***	0.341***	0.369***	0.586***	0.299***	0.559***	0.251***	0.477***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.001]
Year effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	35,625	35,625	35,625	35,625	35,625	35,625	35,625	35,625
R-squared	0.274	0.290	0.276	0.268	0.301	0.285	0.305	0.291

Notes: This table shows the regression results for the moderating role of growth opportunities in the nexus between RIDs and corporate cash holdings. Please see Appendix A for descriptions of variables. *, **, and *** report the significance level at the 0.10, 0.05 and 0.01 respectively. P-values are reported in brackets.

The findings in Table 10, indicate that moderating impact RIDs with all four proxies of growth opportunities (R&D, CAPEX, M/B, and Tobin_Q) on corporate cash holding are positive and significant. These findings confirm our argument that firms with stronger growth opportunities may favor RIDs on their board to inject a fresh perspective and to capitalize on more growth opportunities that can ultimately lead to enhanced corporate cash holdings.

5. Conclusion

Our study explores the impact of RIDs on corporate cash holdings, drawing on evidence from A-share firms listed on the Shenzhen and Shanghai stock exchanges between 2006 and 2020. Consistent with prior research (Kang et al., 2016; Chen and Keefe, 2020), we find that RIDs positively influence cash reserves by effectively mitigating agency conflicts through vigilant management monitoring and strategic guidance. Notably, this positive relationship between RIDs and cash holdings is further intensified during periods of economic policy uncertainty (EPU), aligning with our hypothesis that external economic conditions can magnify the governance role of RIDs. Additionally, our analysis reveals that the strategic cash holding decisions influenced by RIDs contribute to improved firm operating performance. This finding is supported by various robust estimation methods, including alternate proxies, reverse causality analysis, 2SLS, and entropy balancing, ensuring the reliability of our results. Beyond the role of RIDs, our study delves into the broader implications of diverse director attributes on corporate finance. We discover that directors possessing academic, financial, and international expertise are instrumental in enhancing corporate cash reserves. This underscores the strategic significance of a multi-faceted board composition, where diverse skills and experiences are crucial for effective governance and financial decision-making. Our findings highlight the importance of a well-rounded board in navigating complex financial landscapes, offering valuable insights for firms aiming to strengthen their governance structures and financial strategies.

Our study makes several significant contributions to the existing literature on corporate governance, particularly in the context of agency theory. Primarily, it extends the existing literature on RIDs by providing empirical evidence of their impact on corporate cash holdings. This adds a new dimension to the understanding of *RIDs'* roles in corporate governance, particularly in the context of cash management, an area that has not been extensively explored in prior research. Additionally, our findings contribute to the broader discourse on agency theory. The positive association between RIDs and corporate cash holdings supports the notion that effective board monitoring can reduce agency conflicts and enhance financial decision-making. This aligns with the theoretical framework suggesting that board composition, particularly the presence of *RIDs*, plays a crucial role in mitigating managerial opportunism and enhancing corporate governance quality, thereby contributing to a more strategic approach to corporate governance. Moreover, the study contributes to the emerging body of literature on economic policy uncertainty (EPU) by demonstrating how it moderates the relationship between RIDs and corporate cash holdings. This finding enriches the understanding of how external economic conditions interact with internal governance structures to influence strategic financial management within firms.

The practical implications of our findings are substantial for firms aiming to optimize their board composition. A diverse board, enriched with analytical rigor, financial expertise, and global perspectives, can significantly enhance a firm's ability to make strategic decisions about cash holdings and other critical financial issues. This diversity is not just beneficial in enhancing overall corporate governance; it also equips the board to better protect shareholder interests and adeptly navigate complex strategic challenges. In particular, academic independent directors, with their research-oriented backgrounds, can make valuable contributions to a firm's long-term strategic planning, including investments in innovation and research and development. Their expertise is crucial in identifying and supporting strategic projects that necessitate a nuanced approach to cash reserve policies. In essence, our study bridges the gap between corporate governance theory and strategic management practice, offering insights that are vital for firms seeking to strengthen their governance structures in a way that supports strategic, informed decision-making. It highlights the importance of considering the unique attributes of board members, like RIDs, in shaping corporate strategies and responses to external economic pressures.

While our study provides valuable insights into the role of RIDs in managing corporate cash holdings, it does have certain limitations. One key limitation is the specific focus on RIDs, which, while deliberate and central to our research question, also means that we have not explored the impact of other types of independent directors or board compositions. This focus potentially overlooks the nuanced effects that different board attributes may have on cash holding decisions and firm performance. Moreover, our findings highlight the unique impact of RIDs on corporate cash holdings in China, where their representation exceeds 60%. This raises the question of applicability in regions with fewer RIDs. The presence of RIDs, associated with conservatism and fresh insights in decision-making, might not be directly translatable to environments with lower RID prevalence. However, this discrepancy underscores the potential for enhancing corporate governance globally by integrating RIDs. Even in contexts with fewer RIDs, their incorporation can contribute to strategic and financial prudence. Thus, our study, while rooted in China's distinct governance landscape, suggests a broader relevance of RID benefits, advocating for a balanced board composition that includes both experienced and rookie directors to support strategic decision-making across different governance systems.

These limitations, however, present opportunities for future research. We encourage scholars to expand the scope of inquiry to include other attributes of independent directors, such as foreign experience and financial expertise. Investigating how these varied attributes influence cash holdings and other financial decisions can provide a more holistic view of the board's impact on corporate strategy. Additionally, exploring the role of RIDs in different corporate outcomes, such as cost of debt, managerial risk-taking, and financial reporting quality, can deepen our understanding of their overall impact on corporate governance and firm performance. Undertaking these studies would enhance our understanding of RIDs in varying corporate environments and offer richer insights into their strategic implications.

Ethics approval statement

This article does not contain any studies with human participants or animals performed by any of the authors.

CRediT authorship contribution statement

Farid Ullah: Formal analysis, Funding acquisition, Methodology, Visualization, Writing – original draft. **Andrews Owusu:** Conceptualization, Investigation, Writing – original draft. **Ahmed A. Elamer:** Conceptualization, Formal analysis, Supervision, Writing – review & editing.

Declaration of competing interest

The authors declared no potential conflicts of interest.

Data availability

Data will be made available on request.

Appendix A. Variable measurement

Variables	Definition
Dependent variables	
CASH1	Ratio of cash to total assets.
CASH2	Ratio of cash to net assets.
LnCASH1	Natural log of cash to total assets.
LnCASH2	Natural log of cash to net assets.
Independent variables	
Rookie1	The number of rookie independent directors scaled by the number of total independent directors in year t.
Rookie2	Dummy variable equal to '1' if more than 50% independent directors are rookie in year t and '0' otherwise.
Control Variables	
B_Size	The total number of board of directors.
B_IND	The proportion of independent directors out of total directors.
Gen_Div	The proportion of female directors out of total directors.
CEO_D	Dummy variable equals to '1' if CEO is also chairman of the board and '0' otherwise.
INST_OWN	The total proportion of shares held by institutional investors in year t.
Firmsize	Natural logarithm of a firm's total assets.
Leverage	Total debt divided by total assets.
ROA	The earnings before interest and taxes by total assets.
M/B	Market to book ratio.
Dividend	Dummy variable equals to '1' if a firm pay dividend in year t and '0' otherwise.
Sale_Growth	The proportion of change in firm sales in year t.
Moderating variables	
LnEPU	Average logarithm of annual EPU is obtained from the EPU index of Huang and Luk, 2020

In addition, we also use a firm fixed effect to control unobserved heterogeneity that may occur due to time-unvarying omitted variables that differ across firms but are constant over time. The empirical finding shows that *RIDs* have a positive and significant impact on corporate cash holdings after controlling the firm fixed effect. For brevity, we have not displayed the results of this analysis.

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