Can independent directors with macro vision relieve debt default – from the perspective of independent director’s ‘advisory’ function

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ABSTRACT
The phenomenon of corporate debt default has broken out in recent years, which highlights the importance of the macro situation to the stability of business operations. In this paper, the debt default of A-share listed companies in Shanghai and Shenzhen Stock Exchange from 2008 to 2018 are used as a sample to conduct a research from the perspective of independent directors with macro vision. The empirical results show that the larger the number and the higher the proportion of macro-background independent directors in bond issuing companies, the less debt default will be found; moreover, the relationships are stronger when enterprises face more economic uncertainty and higher systemic risk. Meanwhile, independent director with macro vision mainly reduces the company’s default risk. The above results not only provide new evidence for the advisory role of independent directors, but also supplement the influencing factors of debt default.

1. Introduction
In recent years, macro policy shifts represented by industrial restructuring, deleveraging, government subsidy retreat and economic and political events represented by the Sino-US trade war and the Sino-Indian border conflict have greatly impacted the stable operation of the capital market and business risks of enterprises, which have sparked concerns about macro risks from all walks of life. As the saying goes, ‘the duck knows early when the river is warm in spring’, the practice community has been keenly aware of the importance of macro information. The following phenomena, such as the 10 million annual salary of Ren Zeping, chief economist of Evergrande Group, the massive introduction of famous macroeconomists in the group of independent directors of listed companies, etc., can show that enterprises have attached increasingly greater importance to macro information. The debt financing method, as an important source of funds for enterprises, has a direct bearing on their financing security and operational risks, and

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the stability of its operation is largely influenced by the macro environment. From the existing literature, scholars have systematically examined the factors influencing debt default mainly from three aspects: corporate financial status (Campbell & Dietrich, 1983), corporate governance (Brogaard et al., 2017; Goncharov & Zimmermann, 2007), and macroeconomics (Merton, 1974; Wilson, 1998). However, the downside is that in most of these studies, only macro- or micro-level factors have been distinguished one-sidedly, and no attention has been paid to the fact that some micro factors with macro features existing in the corporate governance system may have a comprehensive impact on its debt default problem, which is a new potential mechanism of action for the enterprises themselves to prevent the debt default phenomenon. The study in this paper is anchored on the hot phenomenon of Chinese enterprises’ continuous emphasis on macro information, trying to probe whether talents with macro vision among enterprises can play a role in enhancing companies’ sensitivity to national policies and economic situations, so that management can have a more accurate understanding of macro news, assisting them in making more effective decisions to avoid macro risks likely to be faced by enterprises, and thus alleviate their debt default crisis.

As an important corporate governance mechanism of modern enterprises, the independent directors system aims to reduce the agency costs of enterprises by having independent directors perform supervisory functions and thereby alleviate the agency problem (Fama & Jensen, 1983). However, years of institutional practice have shown that it is debatable whether independent directors can effectively perform their supervisory function (Adams & Ferreira, 2007), especially in China, where their supervisory function has been sceptically questioned (Zheng et al., 2016). Contrastingly, the advisory role of the independent director has, in turn, received increasing attention and recognition. A considerable number of studies have found that independent directors can use their expertise background, such as academic (Francis et al., 2015), legal (He & Liu, 2017), and industry background (Faleye et al., 2018), to help companies make effective decisions, performing more of a technical advisory role (Adams & Ferreira, 2007). Therefore, as the saying goes, ‘the stone from other mountains can polish the jade’, independent directors with macroeconomic knowledge and experience, i.e. macro-background independent directors, should also play an important advisory role to help companies better predict the macro situation and plan ahead, and then reduce the impact of unfavourable macro factors on companies or enable them to seize favourable macro opportunities (Dou, Chen, et al., 2020), increase the stability of the company’s operations, thereby reducing the degree of risk and the chances of debt default faced by the company. In defining the macro perspective of independent directors, four aspects of independent directors are examined in terms of academic research, government management, industry practice, and policy banks in this paper, where an independent director is deemed to have a macro background as long as he or she is macro-related in some aspect. ‘The great trend of history is vast and turbulent. If you follow it, you will prosper, if you go against it, you will die’. Without understanding and foreseeing the macro situation, it is difficult for a well-run enterprise to survive safely in the treacherous modern market environment in the short term, especially in the environment of China’s economic system where government

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1Guiding Opinions on the Establishment of an Independent Director System in Listed Companies (CSRC No. 102 [2001], effective 16 August 2001).
factors dominate. Thus, in this paper, independent directors with macro vision are used as the research object to explore how a company’s ability to control macro information can help it avoid risks. It helps to understand the impact of the advisory role of independent directors on the capital market and corporate operations from a new perspective in the context of the repeatedly questioned independent directorship, making it a very Chinese research topic.

To study the above issue, in this paper, the distribution of macro-background independent directors in companies is measured by the number and proportion of independent directors with macro vision based on web crawler technology to obtain debt defaults of A-share listed companies from 2008 to 2018. The empirical results show that the higher the number and proportion of macro-background independent directors, the fewer debt defaults occur; also, when firms face higher economic uncertainty and higher systemic risk, independent directors with macro vision can more significantly reflect their advisory role and have a more significant mitigating effect on corporate debt defaults. Further analysis also shows that macro-background independent directors can help companies reduce the risk of debt default, which in turn improves the company’s debt warning capability and reduces the incidence of debt defaults. The research contributions of this paper are mainly reflected in the following four aspects: (1) the factors influencing the debt default phenomenon are added from a new perspective of combining macro and micro, verifying that the corporate governance mechanism of macro-background independent directors can effectively reduce the number of debt defaults; (2) the advisory role of independent directors has been explored from a new perspective, effectively complementing research on non-institutional governance mechanisms within firms. They provide new evidence and perspectives on the advisory role of independent directors around the macro-contextual characteristics of independent directors; (3) by utilising the emerging technology of web crawlers, the overall default data of listed companies in the last decade has been comprehensively collected for the first time, providing an important research reference for the comprehensive interpretation of the easily overlooked debt default problem; (4) the influential mechanism of enterprise macro information control ability on third parties (creditors) in the market has been revealed earlier, providing new insights to alleviate the current corporate debt default problem, cooperate with the deployment of regulatory work to combat debt evasion, and prevent systemic financial risks.

The overall arrangement of this paper is as follows: the first part is the introduction, the second part is the literature review and research hypothesis, the third part is the research design, including the extraction of data samples, the use of models, and the description of variables, the fourth part is the empirical results and analysis of the article, the fifth part is the relevant robustness tests, and the last part is the research conclusion of the whole paper.

2. Literature review and research hypothesis

2.1. Macro view of independent directors and debt default

Currently, the risk of debt default in the real economy is obviously clustered (Ding et al., 2021), debt defaults are increasingly frequent, and the growth of default scale is unabated, so the research on factors affecting corporate debt default is not only an important
topic to expand the existing theoretical results, but also a key exploration to prevent the potential danger of corporate debt default. Due to limitations in data availability, existing studies have focused more on the factors influencing the probability indicator of debt default risk (Giesecke et al., 2011) rather than on the antecedents of the objective fact causing debt default numbers. A small number of current studies on the factors influencing the debt default phenomenon have been conducted mainly from two perspectives: the external environment and internal management. From the perspective of the firm’s external environment, as far as the macro context is concerned, it has long been established that both macroeconomic and market information significantly affect firms’ financial distress (Shumway, 2001), that the financial cycle plays an important role in firms’ debt defaults (Luo & Li, 2020), and that the impact of monetary policy on expected inflation also acts on firms’ debt default phenomenon (Bhamra et al., 2011). In the case of micro-entities, government relief may lead to an increased likelihood of corporate moral hazard and debt default (Wang et al., 2018). From the perspective of the internal corporate environment, it has been shown that, in terms of corporate governance, a weak governance environment is more likely to lead to financial distress (Tian & Wang, 2017), that investor protection deficiencies can likewise contribute to the accumulation of corporate financial risk (La Porta et al., 2002) and increase the potential for debt default. The shareholding structure and the presence of large shareholders are also related to the maturity of corporate debt (Ozkan, 2000), in relation to the firm’s ability to repay its debts when due. In terms of firm operations, a situation where the market value of a firm’s assets falls below a certain solvency boundary triggers corporate debt default (Davydenko, 2012); while an increase in total factor productivity facilitates a reduction in debt default (Luo & Li, 2020).

Unfortunately, the existing studies on the factors influencing debt default still need to be further deepened and expanded in the following three aspects: first, the existing studies mostly focus on the probabilistic performance of debt default risk (Beaver, 1966; McDonald & Gucht, 1999; Ohlson, 1980), often relying on a single model approach and historical financial information. In fact, risk variables, due to their inherent strong uncertain, do not reflect the objective facts of the debt default phenomenon in a comprehensive manner; second, in terms of research perspectives, the existing literature focuses more on the impact of macro factors on corporate debt defaults, but less on the potential mitigation mechanisms from the internal perspective of enterprises, which lacks practical guidance at the micro level, and there is a relative lack of research on the impact factors of debt defaults from the perspective of corporate governance; third, the phenomenon of corporate debt default is influenced by a combination of macro- and micro-level factors, but existing research results tend to artificially separate the two, so it is logical to study the economic phenomenon from an integrated perspective of the role played by macro and micro factors (Kim, 2013; Srivastava et al., 2018). In view of this, the mitigation effect of the improvement of corporate governance mechanism on the bond default phenomenon is explored from the perspective of independent directors with macro vision in this paper, aiming to remedy the shortcomings of existing studies to a certain extent.

Traditional agency theory assumes that in addition to monitoring management and mitigating agency conflicts, independent directors can play an advisory role by supporting management in making professional decisions (Fama & Jensen, 1983). Moreover,
some scholars have questioned whether independent directors can effectively monitor (Zheng et al., 2016), while a large number of studies have found that independent directors perform well in an advisory role (Adams & Ferreira, 2007). Specifically, with respect to the professional background of independent directors, independent directors with academic backgrounds can significantly improve firms’ M&A performance, stock price information content, and corporate governance (Francis et al., 2015), the advisory role of independent directors with legal backgrounds leads to a generally higher market value of their firms (He & Liu, 2017), and academician (candidate) backgrounds of independent directors are also able to effectively mitigate the constraining effects of conservative strategies and management myopia on corporate innovation through strategic consulting (Xu & Li, 2019). In terms of the industry experience of independent directors, the higher the proportion of independent directors with industry backgrounds in a company, the more R&D expenditures, number of patents and patent citations the company has, which can facilitate the company's R&D investments (Faleye et al., 2018); also, independent directors who are managers, directors or representatives in banks and other financial institutions increase the likelihood of restructuring the company after bankruptcy, allowing firms to access more financial resources (Arora, 2018). Based on the above literature analysis, it can be seen that the influence of the advisory function of independent directors on the business development of enterprises is significant, while on the other hand, independent directors with macro vision should also be able to exert their unique influence to better help the management of enterprises to anticipate the situation and avoid risks.

Notably, risk identification, measurement, and decision making are important theoretical foundations of economics (Kondor et al., 2003), especially the theory of decision making in risky states is a key research problem in modern economics (Eeckhoudt et al., 2009). Given the general risk aversion view of economics, independent directors with a solid theoretical foundation in economics (academics) or a macro background with many years of practical experience (practice) usually tend to hold a more cautious attitude towards risk in their thinking and approach. Their professional knowledge of risk prevention and control, as well as their ability to identify and make decisions under macro uncertainty, guarantee the scientific rationality of corporate risk control behaviour. On the one hand, macro background independent directors can participate in corporate decision-making in a direct manner by performing their oversight role, which in turn can help promote the effectiveness of corporate governance and reduce the number of corporate debt defaults. Specifically, in the process of directly participating in board resolutions and gauging relevant motions, independent directors with macro vision can exercise their own voice and decision-making power and use their understanding of macro-level economic operations, policy changes, and cyclical fluctuations. That makes corporate decision-making programmes and key motions fully take into account the development risks of the macroeconomic situation, helping to reduce the risk of future uncertainty for the company and thus avoiding the occurrence of debt defaults. At the same time, independent directors with macro vision can also exercise their supervisory and inspection powers to more effectively regulate the self-interested behaviour of other directors and executives, thereby mitigating corporate governance risks and management problems, and preventing serious damage to the company’s financial position caused by potential macro risks hidden in unreasonable decisions (Migiani et al., 2015; Shahwan,
2015; Wang & Deng, 2006), thus helping firms to avoid the occurrence of debt defaults. In addition, in light of the fact that independent directors are more likely to play an advisory rather than a supervisory function in the context of our cultural system (Xie et al., 2016), it is argued in this paper that, on the other hand, independent directors with a macro background are also able to influence corporate macro information and risk perceptions in an indirect way by playing an advisory role, which in turn assists in maintaining the stability of corporate operations and reducing the chances of potential debt defaults. With regard to the macro information possessed by enterprises, in the modern business society where the division of labour is becoming more and more refined and specialised, management focuses more on micro information at the company and industry levels and less on thinking specifically from a macro perspective (Hutton et al., 2012). Macro background independent directors can use their knowledge base to express their views on the current macroeconomic, helping companies overcome the impact of uncertainty in the macro environment and assisting in improving the company’s operating performance and financial performance. In general, the better the operating performance and financial position of a company, the lower the probability of debt default (Xu & Jin, 2016). With regard to firms’ risk attitudes, macro background independent directors can use their risk-prevention attitudes and prudent behaviours to teach corporate executives by example through formal and informal channels, such as board meetings and after-dinner. They can help company executives gain insight into the macroeconomic impact on industry and company development, and answer management’s macroeconomic doubts in a timely manner (Dou, Wang, et al., 2020), to reinforce their risk awareness. Furthermore, firms with above-average levels of financial risk attitudes are less likely to be in financial distress (Chalise & Anong, 2017). In summary, the following first hypothesis is formulated in this paper:

H1: Independent directors with macro vision are effective in reducing the number of corporate debt defaults.

2.2. Macro vision of independent directors and debt default under different contexts

Systemic risk poses a serious challenge for risk assessment and risk management (Renn et al., 2020). Characteristically, systemic risks are mainly closely related to macro-level factors (Cui & Zhang, 2021), whereas the management of enterprises focusing on micro-management often has a large cognitive gap in the cognition of macro risks. In this situation, independent directors with macro backgrounds can precisely assume the role of professional consultation to help enterprises and management understand various macro risks scientifically, prevent macro risks in advance, respond scientifically and deal with risks appropriately, which greatly exerts a positive influence of macro-background independent directors on enterprises. Judging from the impact of systemic risk on firm finances, systemic risk shocks such as stronger external government regulatory policies and industry competition can deepen individual firm financial risks (Wang & Chen, 2018). When a company is exposed to a relatively high level of systemic risk, its operational activities and financial performance are more influenced by macro-level factors.
Therefore, the existence value of independent directors with macro vision is more obvious, and they should be able to play a more significant marginal effect. Moreover, independent directors with the macro-level backgrounds can better help the management to anticipate and understand the circumstances and take precautions in advance by directly participating in corporate governance and indirectly making suggestions. Accordingly, they can help enterprises avoid risks more effectively in strategic choices and business decisions, thus helping to reduce the number of debt defaults. In consequence, the following research hypothesis is proposed in this paper:

**H2a**: Macro-background independent directors reduce the number of corporate debt defaults more significantly in firms with higher systemic risk exposure.

Higher economic policy uncertainty is detrimental to a company’s business development. The higher the local policy risk, the higher the cost of debt financing for the firm (Bradley et al., 2016). Macroeconomic policy uncertainty is also negatively related to investment efficiency and is ultimately associated with a higher risk of debt default (Wang et al., 2019). Simultaneously, companies in a period of high economic policy uncertainty tend to face more variables and become very cautious and sensitive to operational risks, thus companies are particularly motivated to hedge macro risks. Moreover, management is obliged to accurately identify and properly deal with various uncertainties of the company (Priem et al., 2002). Their demand for professional advice on macroeconomic aspects is greater than that in the period of economic stability for reducing decision-making risks and mistakes. At this time, the advisory role of macro-background independent directors can be more fully reflected. With their sensitivity, analysis and judgement on macroeconomics, macro-background independent directors can help the management to make professional and accurate interpretations of macro information, and then formulate reasonable and effective countermeasures. Accordingly, the company can prevent in advance, reduce the impact of macroeconomic policy uncertainty on business development, lower the uncertainty faced by the company, and thus alleviate the debt default crisis faced by the enterprise. In consequence, the following research hypothesis is proposed in this paper:

**H2b**: Independent directors with macro vision can more significantly reduce the number of corporate debt defaults in periods of higher levels of economic policy uncertainty.

### 3. Research design

#### 3.1. Data sources and sample selection

The research subjects selected in this paper are A-share listed companies from 2008 to 2018, bond default data and debt restructuring data are obtained from the WIND database, and bank loan overdue data of companies are sourced from the listed company announcement system of Juchao Information (www.cninfo.com). By searching all company announcements from 2008 to 2018 that included the words ‘debt default’, ‘overdue’, ‘debt’, ‘maturity’, ‘restructuring’, ‘bond default’, and ‘debt maturity’ in their titles, the files were obtained with Python 3.7 web crawlers. The annual default data of the companies were sorted and
summarised by manual reading. All the default data obtained were cross-referenced with WIND’s bond default data and debt restructuring data, and duplicate and incorrect samples were removed to ensure the consistency of the final sample. Financial data and capital market data are obtained from the CSMAR database. In this paper, the starting year of the sample is 2008 and the sample time span is from 2008 to 2018, considering the impact of the change in corporate accounting standards in 2007 on financial reporting. In this paper, the collected data were also processed as follows: (1) companies in the financial and insurance industries were removed; (2) companies listed in the current year were removed; (3) companies with abnormal financial data (including three cases of negative total assets, negative operating income and long-term liabilities greater than total liabilities) were removed; and (4) all continuous variables were winsorised at the 1% and 99% levels.

3.2. Empirical model

\[ DF_t = a_0 + a_1 Macro_{t-1} + a_2 Size_{t-1} + a_3 Lev_{t-1} + a_4 ROA_{t-1} + a_5 CFO_{t-1} + a_6 Dual_{t-1} \]
\[ + a_7 Indep_{t-1} + a_8 Mghold_{t-1} + a_9 Cstr_{t-1} + a_{10} Inst_{t-1} + a_{11} Age_{t-1} \]
\[ + \sum Industry Effects + \sum Year Effects \]  

(1)

In this paper, the dependent variable, \( DF_t \), and the corresponding system of control variables are constructed with reference to the study of debt default events by Luo and Li (2020). The logit model (1) is proposed, where \( DF_t \) denotes a dummy variable for whether or not a default occurs. A company is in default on its debts if any of its bank loans are overdue, its bonds are in default or its debts are restructured during the year. \( Macro_{t-1} \) denotes independent directors with macro vision. In this paper, each independent director is examined from four aspects: academic research (regular university teachers and researchers in the field of macroeconomics, whose disciplinary scope focuses on the two categories of theoretical economics and applied economics in the first-level disciplinary classification of the Ministry of Education), government management (major leaders of party committees and governments at all levels above the county level, including secretaries, standing committee members, heads and deputy heads of governments; personnel at the county level or above serving in finance, taxation, monetary and economic policy-making and regulatory departments, etc., including but not limited to institutional departments such as the Development and Reform Commission, State-owned Assets Supervision and Administration Commission, Finance Bureau and Financial Office), industry practice (macroeconomists serving in brokerage firms, enterprises, etc.) and policy banks (personnel serving in the People’s Bank of China and the three major policy banks such as China Development Bank, Export-Import Bank of China and Agricultural Development Bank of China). Other control variables are defined in detail in Table 1.
Table 1. Variable definition table.

| Variables | Variable Definition |
|-----------|---------------------|
| **Dependent Variable** | **DF** Debt default is the dummy variable of any event such as bank loans overdue, bond default, or debt restructuring in the current year. |
| **Independent Variable** | **MacroD** Existence of independent directors with macroeconomic vision |
| | **MacroP** Percentage of independent directors with macroeconomic vision among independent directors |
| | **MacroN** Number of independent directors with macroeconomic vision |
| **Control Variable** | **Size** Natural logarithm of the total assets of the enterprise at the end of the previous year |
| | **Lev** The ratio of enterprise liabilities to total assets at the end of the previous year |
| | **Roa** The ratio of total profit for the period to total assets at the end of the year |
| | **Cfo** The ratio of net cash from operations for the period to total assets at the end of the year |
| | **Dual** Dummy variable for the dual positions of chairman and general manager at the end of the previous year |
| | **Indep** Percentage of independent directors on the board of directors of the company at the end of the previous year |
| | **Mghold** Shareholding ratio of the company’s executives at the end of the previous year |
| | **Cstr** Ratio between the shareholding of the second to fifth shareholders and the shareholding of the first largest shareholder in the prior year-end |
| | **Inst** Shareholding ratio of institutional investors at the end of the previous year |
| | **Age** Natural logarithm of the company’s listing year plus 1 |

4. Empirical results

4.1. Descriptive statistics and debt default distribution

Table 2 shows the results of descriptive statistical analysis of the main variables in this paper. As can be seen from Table 2, the mean and standard deviation of DF are 0.081 and 0.272, respectively, indicating that the probability of actual debt default varies considerably across firms. The descriptive statistical characteristics of MacroD, MacroP, and MacroN indicate that the proportion and number of independent directors with macroeconomic vision vary significantly across companies. In addition, the mean value of Indep is 37.1%, while the mean value of MacroP is 14.0%, indicating that on average, nearly 1/5 of the independent directors have macroeconomic vision, so it is more common for listed companies to employ independent directors with macroeconomic vision, which also

Table 2. Descriptive statistics table.

| Variable | N  | Mean | SD  | Min | 1/4 | Median | 3/4 | Max  |
|----------|----|------|-----|-----|-----|--------|-----|------|
| **DF**   | 24,462 | 0.081 | 0.272 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 |
| **MacroD** | 24,462 | 0.406 | 0.491 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 |
| **MacroP** | 24,462 | 0.140 | 0.195 | 0.000 | 0.000 | 0.000 | 0.333 | 1.000 |
| **MacroN** | 24,462 | 0.549 | 0.778 | 0.000 | 0.000 | 0.000 | 1.000 | 8.000 |
| **Size** | 24,462 | 21.876 | 1.298 | 18.938 | 20.955 | 21.728 | 22.623 | 25.8301 |
| **Lev** | 24,462 | 0.467 | 0.509 | 0.016 | 0.266 | 0.435 | 0.609 | 11.967 |
| **Roa** | 24,462 | 0.038 | 0.099 | −1.451 | 0.014 | 0.038 | 0.067 | 1.271 |
| **Cfo** | 24,462 | 0.041 | 0.084 | −0.592 | 0.001 | 0.041 | 0.084 | 0.488 |
| **Dual** | 24,462 | 0.242 | 0.429 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 |
| **Indep** | 24,462 | 0.371 | 0.052 | 0.300 | 0.333 | 0.333 | 0.400 | 0.571 |
| **Mghold** | 24,462 | 0.170 | 0.304 | 0.000 | 0.000 | 0.000 | 0.215 | 1.230 |
| **Cstr** | 24,462 | 0.669 | 0.601 | 0.000 | 0.204 | 0.501 | 0.960 | 4.000 |
| **Inst** | 24,462 | 0.986 | 0.118 | 0.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| **Age** | 24,468 | 2.183 | 0.740 | 0.000 | 1.609 | 2.303 | 2.833 | 3.258 |
shows that the research in this paper has some realistic research value from the side. The descriptive statistics of the other control variables are not abnormal, possessing good statistical distribution properties.

Meanwhile, the corporate debt defaults as shown in Table 3 are also detailed in this paper. From Table 3 Panel A, it can be seen that overall debt defaults increased year by year after 2014 and reached a new peak of corporate debt defaults in 2018, where the types of debt defaults also changed to some extent, probably related to the government’s approach to debt risk. The changing trend of bond defaults and bank loan delinquencies illustrates that the government is gradually abandoning the rigid exchange of debt, making the way of debt risk resolution more market-oriented. Panel B shows that the debt default frequency is highest in the manufacturing sector, indicating that China’s real manufacturing sector may face greater debt pressure due to lower profits and credit discrimination. Overall, the distribution of debt defaults counted in this paper is more in line with the actual situation of China’s debt risk problem, which also verifies the reliability of the data in this paper. Panel C and Panel D² show a decreasing trend of macro independent directors from 2016 to 2018. In terms of macro-independent director types, the proportion of government-type macro-independent directors is the highest, followed by the academic-type, and the lowest are industry-type and bank-type macro-independent directors. In terms of industry distribution, the industries with the highest concentration of independent directors with macro vision are manufacturing, wholesale and retail trade, real estate, and information transmission, software and information technology. In particular, among real estate companies, the number of independent directors with macro vision are mainly those with high survival pressure, high capital risk, and the need to deal with banks frequently or obtain government policy support.

4.2. Regression results and analysis

4.2.1. Independent directors with macro backgrounds and debt defaults
The regression results for H1 are shown in Table 4, where columns (1) to (3) are the results without controlling for year and industry effects, and columns (4) to (6) are the results with controlling for year and industry effects. Specifically, in models that do not control for year and industry effects, MacroD, MacroP, and MacroN are all negatively correlated with DF at the 1% level of significance. After controlling for the year and industry effects, column (4) shows that the coefficient of MacroD is −0.202, significant at the 1% level, indicating that firms with independent directors with macro vision reduce corporate debt default risk by 18.3%; the coefficient of MacroP is −0.677, significant at the 1% level, indicating that doubling the proportion of independent directors with macro vision reduces corporate debt default risk 49.2%; the coefficient of MacroN is −0.196, significant at the 1% level, indicating that increasing one independent director with macroeconomic background can reduce the risk of corporate debt default by 17.8%. In conclusion, the results in Table 4

²Because some macro-independent directors have multiple backgrounds, there is a slight difference between the total number of macro-independent directors plus and the sum of the number of macro-independent directors of each type in Table 3 Panel C and Panel D.
Table 3. Distribution of debt defaults of A-share listed companies.

Panel A. Annual Distribution of Debt Defaults (Number of Companies) (Unit: Company-Year)

| Year | Debt Restructuring | Bond Default | Overdue Bank | Total Default |
|------|--------------------|--------------|--------------|---------------|
| 2008 | 227                | 0            | 4            | 231           |
| 2009 | 211                | 0            | 4            | 215           |
| 2010 | 185                | 0            | 9            | 194           |
| 2011 | 170                | 0            | 11           | 181           |
| 2012 | 138                | 0            | 10           | 148           |
| 2013 | 134                | 0            | 13           | 147           |
| 2014 | 147                | 1            | 13           | 161           |
| 2015 | 149                | 2            | 12           | 162           |
| 2016 | 184                | 1            | 12           | 196           |
| 2017 | 176                | 5            | 23           | 200           |
| 2018 | 97                 | 14           | 32           | 137           |
| Total| 1,818              | 23           | 143          | 1,972         |

Panel B. Industry Distribution of Debt Defaults (Number of Companies) (Unit: Company-Year)

| Industry                                                                 | Debt Restructuring | Bond Default | Overdue Bank | Total Default |
|--------------------------------------------------------------------------|--------------------|--------------|--------------|---------------|
| Transportation, storage and postal                                      | 20                 | 0            | 3            | 23            |
| Accommodation and catering                                              | 8                  | 4            | 4            | 12            |
| Information transmission, software information technology                | 46                 | 2            | 8            | 56            |
| Agriculture, forestry, animal husbandry and fishery                      | 33                 | 1            | 2            | 35            |
| Manufacturing                                                            | 1,261              | 9            | 92           | 1,357         |
| Health & social work                                                     | 1                  | 0            | 0            | 1             |
| Residential services, repairs and other                                  | 1                  | 0            | 0            | 1             |
| Construction                                                             | 73                 | 0            | 7            | 80            |
| Real estate industry                                                     | 74                 | 1            | 6            | 81            |
| Wholesale and retail trade                                               | 82                 | 1            | 4            | 87            |
| Culture, sports and entertainment                                        | 20                 | 0            | 1            | 21            |
| Water, environment and public facilities                                 | 9                  | 0            | 2            | 11            |
| Electricity, heat, gas and water                                         | 60                 | 3            | 9            | 70            |
| Scientific research and technical services                               | 9                  | 0            | 0            | 9             |
| Leasing and business services                                            | 9                  | 1            | 2            | 12            |
| Comprehensive                                                            | 36                 | 0            | 0            | 36            |
| Mining                                                                   | 76                 | 1            | 3            | 80            |
| Total                                                                    | 1,818              | 23           | 143          | 1,972         |

Panel C. Annual Distribution of Independent Directors with Macro Vision (Unit: Number of Independent Directors)

| Year | Academic Type | Industry Type | Bank Type | Government Type | Total Number of Independent Directors with Macro Vision |
|------|---------------|---------------|-----------|-----------------|------------------------------------------------------|
| 2008 | 355           | 25            | 62        | 530             | 907                                                  |
| 2009 | 382           | 22            | 63        | 605             | 1,005                                                |
| 2010 | 403           | 23            | 63        | 684             | 1,098                                                |
| 2011 | 505           | 32            | 78        | 822             | 1,335                                                |
| 2012 | 527           | 33            | 91        | 914             | 1,462                                                |
| 2013 | 535           | 31            | 85        | 898             | 1,463                                                |
| 2014 | 530           | 32            | 75        | 877             | 1,434                                                |
| 2015 | 617           | 47            | 89        | 828             | 1,489                                                |
| 2016 | 615           | 48            | 79        | 628             | 1,277                                                |
| 2017 | 613           | 56            | 67        | 562             | 1,205                                                |
| 2018 | 393           | 39            | 32        | 356             | 763                                                  |
| Total| 5,475         | 388           | 784       | 7,704           | 13,438                                               |

(Continued)
indicate that independent directors with macro vision can help firms mitigate debt default risk, which is strongly statistically significant and economically significant, supporting the H1 of this paper, indicating that macroeconomic-background independent directors possess a stronger risk awareness. As for the control variables, independent
Table 4. Independent directors with macroeconomic vision and debt defaults.

|          | (1)          | (2)          | (3)          | (4)          | (5)          | (6)          |
|----------|--------------|--------------|--------------|--------------|--------------|--------------|
| MacroD   | −0.166***    |              |              | −0.202***    |              | −0.196***    |
|          | (−3.33)      |              |              | (−3.99)      |              | (−5.79)      |
| MacroP   | −0.576***    | −0.175***    | −0.677***    |              |              |              |
|          | (−4.40)      | (−5.30)      | (−5.08)      |              |              |              |
| MacroN   |              |              |              |              |              |              |
| Size     | 0.064***     | 0.066***     | 0.124***     | 0.124***     | 0.130***     |
|          | (0.03)       | (0.03)       | (5.56)       | (5.59)       | (5.85)       |
| Lev      | 0.500***     | 0.500***     | 0.457***     | 0.455***     | 0.456***     |
|          | (4.82)       | (4.79)       | (5.15)       | (5.14)       | (5.15)       |
| Roa      | −1.720***    | −1.724***    | −1.579***    | −1.580***    | −1.588***    |
|          | (−5.17)      | (−5.18)      | (−4.97)      | (−5.00)      | (−5.00)      |
| Cfo      | −1.748***    | −1.763***    | −2.111***    | −2.120***    | −2.133***    |
|          | (−6.35)      | (−6.38)      | (−7.05)      | (−7.08)      | (−7.10)      |
| Dual     | 0.057        | 0.056        | 0.052        | 0.118*       | 0.119*       |
|          | (0.87)       | (0.87)       | (1.77)       | (1.79)       | (1.73)       |
| Indep    | 1.498***     | 1.476***     | 1.554***     | 1.921***     | 2.009***     |
|          | (3.26)       | (3.22)       | (4.22)       | (4.18)       | (4.40)       |
| Mghold   | −1.871***    | −1.875***    | −1.884***    | −1.425***    | −1.417***    |
|          | (−9.14)      | (−9.15)      | (−9.17)      | (−6.95)      | (−6.92)      |
| Cstr     | −0.099**     | −0.103**     | −0.101**     | −0.038       | −0.041       |
|          | (−2.19)      | (−2.26)      | (−2.23)      | (−0.83)      | (−0.90)      |
| Inst     | −1.456***    | −1.464***    | −1.461***    | −1.220***    | −1.224***    |
|          | (−10.03)     | (−10.05)     | (−10.02)     | (−8.04)      | (−8.05)      |
| Age      | 0.260***     | 0.263***     | 0.257***     | 0.532***     | 0.537***     |
|          | (5.75)       | (5.83)       | (5.68)       | (10.04)      | (10.15)      |
| Constant | −3.439***    | −3.420***    | −3.542***    | −6.306***    | −6.466***    |
|          | (−7.36)      | (−7.32)      | (−7.57)      | (−11.54)     | (−11.53)     |
| Year/Ind Effects | No | No | No | Yes | Yes | Yes |
| N        | 24,462       | 24,462       | 24,462       | 24,462       | 24,462       |
| chi²     | 623          | 627          | 629          | 1,154        | 1,162        |
| p        | 0.000        | 0.000        | 0.000        | 0.000        | 0.000        |
| R²pseudo | 0.079        | 0.080        | 0.080        | 0.118        | 0.119        | 0.120        |

Note: ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively, and the standard deviation of the coefficients is adjusted for annual-firm two-way Cluster.

directors (Indep) can increase the risk of debt default, indicating that increasing the number of independent directors alone does not reduce the risk of debt default but the source and composition of independent directors is more important.

4.2.2. Moderating effect

To test H2a, the CAPM model is used in this paper to calculate the Beta value of individual stocks from April 30 of each year to May 1 of the following year, and the Beta value is used to represent the systematic risk of individual stocks, which requires the presence of at least 200 trading days in the calculation sample (so the total sample in Table 5 is less than 24,462). The full sample is divided into companies with higher systematic risk (HighBeta = 1) and companies with lower systematic risk (HighBeta = 0) according to the median and tested with the main regression model. As shown in Table 5, columns (1) to (3) show the results for the high systematic risk group, indicating that independent directors with macroeconomic vision are negatively associated with debt default at the 5% and above significance level. Columns (4) to (6) show the results for the low systematic risk group, from which it is found that the regression coefficients for independent
Table 5. Independent directors with macroeconomic vision, beta risk and debt defaults.

|                | HighBetaRisk | LowBetaRisk |        |        |        |        |
|----------------|--------------|-------------|--------|--------|--------|--------|
|                | (1)          | (2)         | (3)    | (4)    | (5)    | (6)    |
| MacroD         | −0.156**     | −0.085      |        | −0.074 |        |        |
|                | (−1.99)      | (−1.14)     |        |        |        |        |
| MacroP         | −0.733***    | −0.204***   | −0.208 |        |        |        |
|                | (−3.50)      | (−3.97)     |        |        |        |        |
| MacroN         | −7.928***    | −7.928***   | −8.131 | −4.924 | −4.912 | −4.997 |
|                | (−6.98)      | (−7.02)     | (−7.15)| (−6.19)| (−6.17)| (−6.28)|
| Constant       | −0.074       | −0.074      | −0.074 | −0.074 | −0.074 | −0.074 |
| Controls       | Yes          | Yes         | Yes    | Yes    | Yes    | Yes    |
| Year/Ind Effects| Yes         | Yes         | Yes    | Yes    | Yes    | Yes    |
| N              | 11,701       | 11,701      | 11,701 | 11,701 | 11,701 | 11,701 |
| chi2           | 439          | 448         | 449    | 668    | 667    | 668    |
| p              | 0.000        | 0.000       | 0.000  | 0.000  | 0.000  | 0.000  |
| R^2_pseudo     | 0.095        | 0.096       | 0.096  | 0.148  | 0.148  | 0.148  |

Note: *** , ** and * represent statistical significance at the 1%, 5%, and 10% levels, respectively, and the standard deviation of the coefficients is adjusted for annual-firm two-way Cluster.

directors with macro vision under different measures are insignificant. The above results indicate that there is a significant inhibitory effect of firms’ hiring independent directors with macroeconomic vision on debt defaults in companies with high systemic risk, i.e. independent directors with macroeconomic vision can play a role in companies with high systemic risk and effectively reduce corporate debt default events. This finding supports H2a.

Drawing on the metrics of macroeconomic uncertainty from Han and Hu (2016), using the standard deviation of moving GDP over the past three years for each province to represent macroeconomic uncertainty, the sample is divided into a high macroeconomic uncertainty group (MacroGDPRisk = 1) and a low macroeconomic uncertainty group (MacroGDPRisk = 0) by the median in this paper and tested with the main regression model to obtain the regression results as shown in Table 6. Columns (1) to (3) show that in

Table 6. Independent directors with macroeconomic vision, economic policy uncertainty and debt defaults.

|                | HighUncertainty |        |        |        | LowUncertainty |        |        |        |
|----------------|-----------------|--------|--------|--------|----------------|--------|--------|--------|
|                | (1)             | (2)    | (3)    | (4)    | (5)           | (6)    | (7)    | (8)    |
| MacroD         | −0.147**        | −0.037 |        | −0.090 | −0.090        |        |        |        |
|                | (−2.09)         | (−4.56)|        | (−6.206)| (−6.206)      |        |        |        |
| MacroP         | −0.705***       | −0.207 | −0.090 |        | −0.090        |        |        |        |
|                | (−4.07)         | (−4.56)|        | (−6.206)| (−6.206)      |        |        |        |
| MacroN         | −4.502***       | −4.737 | −6.055 | −6.093 | −6.093        |        |        |        |
|                | (−5.83)         | (−6.13)| (−6.41)| (−6.42)| (−6.42)       |        |        |        |
| Constant       | −0.705***       | −0.207 | −0.090 | −0.090 | −0.090        |        |        |        |
| Controls       | Yes             | Yes    | Yes    | Yes    | Yes           |        |        |        |
| Year/Ind Effects| Yes           | Yes    | Yes    | Yes    | Yes           |        |        |        |
| N              | 12,231          | 12,231 | 12,231 | 12,231 | 12,231        |        |        |        |
| chi2           | 565             | 583    | 491    | 490    | 488           |        |        |        |
| p              | 0.000           | 0.000  | 0.000  | 0.000  | 0.000         |        |        |        |
| R^2_pseudo     | 0.123           | 0.124  | 0.125  | 0.126  | 0.126         |        |        |        |

Note: *** , ** and * represent significant at the 1%, 5%, and 10% levels, respectively, and the standard deviation of the coefficients is adjusted for annual-firm two-way Cluster.
the sample group with high macroeconomic uncertainty, the regression coefficients of independent directors with macroeconomic vision are negative and all significant at the 5% level and above; columns (4) to (6) show that in the sample group of macroeconomic uncertainty, the regression coefficients of MacroD, MacroP, and MacroN are insignificant, indicating that in years with high macroeconomic uncertainty, the greater the number of independent directors with macroeconomic vision in the company, the lower the likelihood of debt default. The above results suggest that independent directors with macroeconomic vision can anticipate macroeconomic risks by virtue of their expertise, whose inhibitory effect on debt defaults is more pronounced in years of high macroeconomic policy uncertainty, the finding supporting H2b.

4.2.3. Mechanism test: mediating effect of investment efficiency

It has been abundantly shown that the performance of independent directors can help alleviate agency problems and play an active role in enhancing the efficiency of corporate investment (Duchin et al., 2010; Zhen et al., 2013). Independent directors with macrovision not only have the governance functions of general independent directors, but also have richer and more professional knowledge in the macroeconomic field, which can help enterprises improve the quality of investment decisions with redoubled power. Therefore, the existence of such independent directors will effectively help enterprises improve investment efficiency. Further improvements in investment efficiency would also be good at curbing the occurrence of corporate debt defaults through two paths of disciplining overinvestment and moderating underinvestment (Sun & Zhou, 2016). In particular, high quality investment projects and high levels of investment returns are conducive to reducing the occurrence of debt defaults (Chen et al., 2013). Given the unique influence of the government and economic regulators in China’s economy, independent directors with macroeconomic vision are more likely to judge the intention of government policy implementation and scope of influence with their keen awareness and knowledge background. They will make targeted debt risk warning and debt risk control recommendations at board meetings, which in turn will help the company improve its operations, financing and investment levels and improve its fundamentals to prevent debt risks. In summary, it is argued in this paper that independent directors with macroeconomic vision can mitigate corporate debt defaults by influencing the efficiency of corporate investments.

In this paper, corporate investment efficiency is calculated based on Richardson’s (2006) prospective investment model to measure the impact of independent directors with macroeconomic vision on corporate investment decisions. With reference to the mediation effect procedure, models (2) to (3) are designed in this paper on the basis of model (1), and the regression results are obtained as in Tables 4 and 7. As seen in the tables, independent directors with macroeconomic vision have a significant negative effect on debt default events. Columns (1), (3) and (5) show that independent directors with macroeconomic vision have a significant positive effect on corporate investment efficiency. Columns (2), (4), and (6) show that both independent directors with macroeconomic vision and investment efficiency have a significant effect on the occurrence of debt default events. Moreover, Sobel tests are significant above the 1% level. Consequently, it is evident that there is a significant mediating effect of corporate investment efficiency between independent directors with macroeconomic vision and
Table 7. Independent directors with macroeconomic background and debt default mechanism test.

| Inveff | DF | Inveff | DF | Inveff | DF |
|--------|----|--------|----|--------|----|
| (1)    | (2) | (3)    | (4) | (5)    | (6) |
| Inveff | -0.065*** | -0.062*** | -0.071*** |
| MacroD | 0.028**   | -0.187*** | |
| MacroP | 0.031***  | -0.659*** | |
| MacroN | -3.83     | 4.04     | |
| Constant | 0.034*** | -2.926*** | |
| Controls | Yes | Yes | Yes | Yes | Yes |
| Year/Ind Effects | Yes | Yes | Yes | Yes | Yes |
| Sobel tests | -3.559*** | -4.276*** | -4.338*** |

Note: *** *, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively. Columns (1), (3), and (5) in this table are the regression coefficients of the OLS model, and (2), (4), and (6) are the regression coefficients of the Logit model.

Table 7 shows the results of Model (1) controlling for firm fixed effects, where the dummy variable of independent directors with macroeconomic vision (MacroD), the proportion of independent directors with

debt default events. This may be reflected in reality, that is, independent directors with macroeconomic vision, relying on their professional knowledge and awareness of risk prediction, can help companies understand the macro situation, improve the efficiency of corporate investment, prevent over-investment and under-investment, and thus help companies mitigate debt defaults.

\[
Inveff_t = b_0 + b_1 Macro_{t-1} + b_2 Controls + \sum Industry; Year Effects \quad (2)
\]

\[
DF_t = c_0 + c_1 Macro_{t-1} + c_2 Inveff_t + c_3 Controls + \sum Industry; Year Effects \quad (3)
\]

5. Robustness test

5.1. Endogenous problems

5.1.1. Fixed effect model

The appointment of independent directors with macroeconomic vision by firms originates from the decision of the top management within the firm, and the resulting agency problems may also influence the occurrence of debt defaults. In this paper, corporate governance variables \(Dual_{t-1}, Indepr_{t-1}, Mghold_{t-1}, Inst_{t-1}\) and \(Cstr_{t-1}\) (as defined in Table 1) can better control the factors influencing corporate governance. In addition, considering that other unobservable factors may simultaneously affect the hiring of independent directors with macroeconomic vision and debt defaults, a fixed effects model is used to address this issue in this paper. Table 8 shows the results of Model (1) controlling for firm fixed effects, where the dummy variable of independent directors with macroeconomic vision (MacroD), the proportion of independent directors with
macroeconomic background (MacroP) and the number of independent directors with macroeconomic vision (MacroN) are all negative, with the latter two remaining significant, and the results are similar to those in Table 4. The above indicates that the findings of this paper remain largely unchanged after controlling for firm-specific factors.

5.1.2. Heckman two-stage model
The previous research design still suffers from the reverse causality problem, where firms with lower debt defaults may be more willing to hire independent directors with macro vision to reduce debt risk. To counter this problem, the Heckman two-stage model is used in this paper, and with reference to Zhu et al. (2015), a model of factors influencing corporate hiring of independent directors is constructed in this paper. The regression results are obtained as shown in Table 9. Columns (2) to (4) show that none of the Inverse mills coefficients are significant, indicating that the results in this paper are less affected by the self-selection of firms’ preference for hiring independent directors with macro vision. Accordingly, independent directors with macro vision can still mitigate debt defaults after the problem of self-selection of firms’ hiring independent directors has been controlled for.

5.2. Other robustness tests
Considering that the macroeconomic backgrounds of independent directors involve multiple fields, various types of independent directors with macro vision are delineated in depth in this paper, mainly distinguished into four dimensions: academic background type (AR_Macro), industrial background type (Industry_Macro), banking background type (Bank_Macro) and government background type (Government_Macro). Table 10 shows the regression results for different types of independent directors with macroeconomic vision, indicating that the effect of independent directors with macro vision in inhibiting debt defaults holds significantly across the four professional visions mentioned above. This may be due to the fact that independent directors with macro vision possess keen...
risk perception and rich government information channels, and they are well versed in the Chinese government-enterprise model, and these experiential backgrounds are advantages that enable them to help firms reduce potential debt risks.

6. Conclusion

As an essential part of the modern corporate governance system, independent directors, despite criticism of their supervisory function, have gained recognition in recent years for their advisory role as an important external think tank for companies. In the context of repeated debt defaults and increased macroeconomic uncertainties, it is of great theoretical value and practical significance to focus on the advisory role of independent directors in the macro area for enterprises to prevent the impact of debt default phenomenon, which is a rewarding exploration based on the internal corporate governance system and an important research topic based on the Chinese institutional environment. Thus, in this paper, an attempt is made to investigate whether the independent directors with macro vision can play an advisory role and thus reduce corporate debt defaults. Drawing on a sample of Chinese A-share listed companies from 2008 to 2018, the empirical study in this paper finds that compared to companies without macro-background independent directors, companies with macro-background independent directors experience significantly fewer debt defaults, well supporting the view that independent directors possess a risk-averse bias. The above results also

Table 9. Independent directors with macroeconomic vision and debt defaults (Considering self-selection issues).

|               | Macro | DF |
|---------------|-------|----|
|               | (1)   | (2) | (3) | (4) |
| MacroD        | −0.167*** | (−3.15) |
| MacroP        | −0.588*** | (−4.25) |
| MacroN        | −0.172*** | (−4.93) |
| Inverse Mills | 0.168 (0.72) | 0.127 (0.54) | 0.095 (0.41) |
| MacroGender   | −0.063 (−0.85) |
| MacroAge      | 0.047*** (17.40) |
| MacroEdu      | 0.178*** (6.70) |
| MacroTenure   | −0.114*** (−7.50) |
| Constant      | −8.462*** (−22.49) | −6.173*** (−6.46) | −6.047*** (−6.32) | −6.078*** (−6.36) |
| Controls      | Yes | Yes | Yes | Yes |
| Year/Ind Effects | Yes | Yes | Yes | Yes |
| N             | 21,124 | 21,124 | 21,124 | 21,124 |
| chi2          | 1,329 | 1,003 | 1,010 | 1,011 |
| R²            | 0.000 | 0.000 | 0.000 | 0.000 |
| R²_pseudo     | 0.054 | 0.116 | 0.116 | 0.117 |

Note: ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively, and the standard deviation of the coefficients is adjusted for annual-firm two-way Cluster.
indicate that in the context of the accumulation and outbreak of debt risks in China’s real and financial sectors recently, independent directors with macro vision can indeed play their advisory role and use their knowledge and experience to assist management in making more effective decisions, reduce the volatility of the company’s performance in the changing economic environment, and ultimately prevent the emergence of corporate debt default problems. In the context of the market-oriented reform of China’s bond financing mechanism, the challenges faced by the market have gradually
transitioned from pure interest rate risk to a situation where interest rate risk and default risk coexist. The research in this paper is precisely based on the potential role of independent directors with macro vision. The research in this paper coincides with a series of studies on the potential role of independent directors with macro vision from a combined macro and micro perspective, providing both new evidence on the advisory role of independent directors and additional factors influencing the debt default phenomenon.

Since the advisory role of independent directors is more often played through informal institutional channels, our study is not yet able to directly observe their influence on firm-specific decisions, and the reliability and professionalism of their interpretation of macro information is difficult to be observed quantitatively due to the individual differences of independent directors. Besides, the different professional backgrounds of independent directors may also have an impact on their insights and recommendations. All of these may interfere with our current research design. Summarily, the relevant shortcomings in this paper will help us make further attempts to explore these issues and thus open up new directions for the next research.

Disclosure statement

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