
Corporate diversification and Ponzi finance

China Accounting
and Finance
Review

Min Bai

Waikato Management School, Waikato Management Division,
The University of Waikato, Hamilton, New Zealand

Dong Zhang

Zhengzhou University, Zhengzhou, China

Liu Yuan

Hunan University, Changsha, China

Yafeng Qin

Massey University Business School, Auckland, New Zealand, and

Jinping Zhao

Business School, Zhengzhou University, Zhengzhou, China

Received 10 March 2025

Revised 9 September 2025

25 January 2026

29 April 2026

Accepted 30 June 2026

Abstract

Purpose – This study aims to examine the conceptual link between corporate diversification and Ponzi finance, drawing on Minsky's financial instability hypothesis (FIH). While diversification is traditionally regarded as a strategy to mitigate risk, the analysis argues that diversification can paradoxically heighten financial fragility when firms expand beyond their core competencies. Specifically, diversification may reduce asset liquidity, increase reliance on debt financing and weaken profitability, thereby increasing the likelihood of firms engaging in Ponzi-type financial behaviors.

Design/methodology/approach – The empirical analysis is based on China's A-share-listed non-financial firms over the period from 2006 to 2020. We employ a logit regression model to examine the relationship between corporate diversification and the likelihood of engaging in Ponzi finance, while controlling for a range of factors identified in prior literature as potential determinants of firms' financing regimes. To deepen the analysis, we conducted mechanism tests to identify the channels through which diversification influences Ponzi financing. We further perform heterogeneity and robustness checks and investigate potential strategies to mitigate the adverse effects of diversification.

Findings – From a corporate governance perspective, the study shows that diversification increases financial risk, particularly exposure to Ponzi finance, by reducing transparency, weakening managerial oversight and encouraging inefficient capital allocation. However, firms with stronger institutional investor participation exhibit improved governance and are better positioned to reduce the adverse effects of diversification. Likewise, research and development (R&D) investment contributes positively to long-term financial sustainability. These results emphasize the critical role of governance mechanisms in managing diversification risks and provide practical implications for both firms and regulators seeking to align growth strategies with financial stability.

Research limitations/implications – This study suggests that policymakers and firms should strengthen corporate governance, enhance institutional investor oversight and promote R&D investment to mitigate the financial risks associated with excessive diversification and prevent the emergence of Ponzi finance, thereby fostering financial stability.

Practical implications – Managers should avoid aggressive, debt-fueled diversification beyond their core competencies. Regulators should monitor diversified firms' financing structures more closely, strengthen disclosure requirements and encourage long-term, innovation-focused investments to curb hidden financial fragility and enhance systemic stability.

Social implications – Corporate over-diversification can increase systemic financial fragility, heightening risks of defaults and economic instability that affect employment, savings and public welfare. Promoting responsible

© Min Bai, Dong Zhang, Liu Yuan, Yafeng Qin and Jinping Zhao. Published in *China Accounting and Finance Review*. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licenses/by/4.0/>



China Accounting and Finance Review
Emerald Publishing Limited
e-ISSN: 2307-3055
p-ISSN: 1029-807X
DOI 10.1108/CAFR-03-2025-0031

corporate strategies and robust oversight is crucial for protecting societal interests and maintaining trust in the financial system.

Originality/value – This study advances the literature by integrating Minsky’s FIH with the relationship between corporate diversification and governance. It highlights how excessive diversification creates governance challenges that can amplify financial fragility while demonstrating the mitigating effects of institutional investor oversight and R&D investment. The findings offer new insights into how firms and policymakers can balance the pursuit of growth with the imperative of financial discipline and stability.

Keywords Diversification, Ponzi finance, Financial risk, Financial instability hypothesis

Paper type Research article

1. Introduction

This study empirically examines the relationship between business strategies and financing regimes among China’s non-financial corporations, with a particular focus on diversification and its implications for Ponzi finance. Drawing on Minsky’s financial instability hypothesis (FIH), we conceptualize financial fragility as an endogenous outcome of firms’ investment and financing decisions. Minsky argues that when Ponzi-financed firms, whose operating revenues are insufficient to cover both interest and principal repayments and thus rely on asset sales or new borrowing to service existing debt, become widespread, systemic financial instability intensifies (Minsky, 1974, 1975, 2008).

China provides a particularly salient context in which to examine this mechanism. As of 2019, 45.22% of China’s A-share listed firms were classified as engaging in Ponzi finance (Wu, Chen, Wu, & Wang, 2021). Consistent with this trend, data from the Wind Economic Database show that defaulted corporate debt surged from RMB 31.2 billion in 2017 to RMB 148.3 billion in 2019. Such developments underscore that rising financial risk in China is closely tied to the accumulation of vulnerabilities at the firm level. Given the scale and persistence of Ponzi financing, understanding its microeconomic origins is essential both for improving corporate financial resilience and for informing macro-financial regulation.

The relevance of this question is further heightened by China’s distinctive institutional environment. Corporate financing behavior is shaped by a combination of state ownership, financing constraints in a hybrid banking system that blends formal credit with shadow banking and a political economy of lending in which credit allocation is often influenced by policy objectives. These features weaken market-based exit mechanisms and can sustain firms in fragile financing regimes for prolonged periods. As a result, firm-level strategic choices, particularly those that affect cash flow stability and refinancing needs, play a critical role in determining whether financial fragility is contained or amplified.

The growing literature recognizes that the interaction between corporate governance and business strategy has profound implications for firms’ financial outcomes. Business strategies such as diversification influence financing constraints, investment decisions and capital structure, thereby shaping firms’ financing regimes (Khanna & Palepu, 1997). Despite ongoing debates over its economic consequences, diversification is pervasive in China: by the end of 2019, nearly 60% of Chinese firms had diversified their operations (Yang & Zhang, 2022). Proponents argue that diversification can reduce risk and enhance firm value by fostering internal capital markets and smoothing cash flows (Arikan & Stulz, 2016). However, these benefits tend to diminish as diversification deepens, and excessive diversification may instead erode profitability and increase financial pressure (Aivazian, Qiu, & Rahaman, 2015).

Historical experience highlights the potential risks of aggressive diversification. Major financial crises, including the Asian financial crisis and the U.S. subprime mortgage crisis, were accompanied by severe distress among large, highly diversified firms, most notably the collapse of Lehman Brothers. In China, recent corporate failures, such as the debt default of the Evergrande Group, have similarly drawn attention to the role of overexpansion and inefficient diversification in amplifying financial vulnerability. Theoretical and empirical studies further document a “diversification discount,” whereby diversified firms are undervalued due to agency problems and information asymmetry (Shin & Stulz, 1998; Berger & Ofek, 1999;

Rajan, Servaes, & Zingales, 2000). Reflecting these concerns, the China Financial Stability Report (2019), issued by the People's Bank of China, identifies inefficient diversification as a key driver of rising corporate defaults and financial market instability.

Despite these insights, existing research has largely overlooked how diversification affects firms' financing regimes, particularly the likelihood of entering Ponzi finance (Nagarajan, Mohanty, & Khatua, 2023). This gap is especially consequential in China, where diversification strategies often interact with soft budget constraints for state-owned enterprises (SOEs), reliance on shadow banking channels for refinancing and policy-driven credit allocation that may delay market discipline. Against this backdrop, this study asks whether diversification as a central strategy for corporate expansion increases firms' propensity to engage in Ponzi finance, through which channels this effect operates and whether its adverse consequences can be mitigated.

Using a panel of China's non-financial A-share listed firms from 2006 to 2020, we document several key findings. First, diversification significantly increases the likelihood that firms engage in Ponzi financing. Second, mechanism analyses show that diversification exacerbates financial fragility by reducing asset liquidity, increasing repayment pressures associated with bank borrowing and weakening profitability. Third, this relationship is more pronounced in regions with higher levels of marketization and is significantly attenuated in sectors receiving strong policy support, highlighting the role of institutional context. Fourth, we find that the adverse effect of diversification on Ponzi finance can be mitigated by stronger external governance and internal capabilities, as reflected in higher institutional investor ownership and greater investment in research and development (R&D).

This study makes three primary contributions.

First, it extends the literature on Ponzi finance and Minsky's FIH by identifying corporate diversification as a firm-level strategic determinant of financing regimes. Existing empirical studies of Ponzi finance largely emphasize macroeconomic conditions, profitability, leverage, or business cycle studies (Foley, 2003; Arza & Español, 2008; Davis, de Souza, & Hernandez, 2019; Nishi, 2019), while overlooking how firms' strategic expansion choices shape financial fragility. By explicitly linking diversification to Ponzi finance, this paper provides novel micro-level evidence that complements and enriches Minsky's originally macro-oriented framework, particularly in the context of an emerging economy.

Second, the study contributes to the corporate diversification literature by reframing the diversification "discount" through the lens of financing regimes rather than firm value alone. Ponzi finance captures the joint interaction of operating performance, debt servicing capacity and refinancing dependence, offering a more integrated measure of financial vulnerability than traditional performance indicators (Minsky, 1974, 1975, 2008). This approach demonstrates that diversification can erode financial sustainability even when firms continue to grow in scale, thereby revealing a previously underexplored channel through which diversification affects macro-financial stability.

Third, and most importantly, the paper advances institutional theory in corporate finance by demonstrating how China's distinctive ownership structures, hybrid banking system and political economy of lending condition the diversification and fragility relationship. The findings show that diversification is more likely to lead to Ponzi finance precisely because institutional arrangements weaken liquidity discipline and delay market exit. At the same time, the study identifies mitigating forces such as institutional investor oversight and R&D investment that partially restore financial discipline by improving governance quality and strengthening firms' core competencies. These results provide policy-relevant insights into how financial stability can be enhanced not only through macro-prudential regulation but also through reforms targeting corporate governance and innovation incentives.

Third, the study moves beyond documenting financial fragility to explore potential mitigating mechanisms. By highlighting the roles of institutional investors and innovation investment, it offers policy-relevant insights into how external supervision and internal

management can curb excessive risk-taking and help prevent and resolve systemic financial instability.

The remainder of the paper is organized as follows. [Section 2](#) reviews the relevant literature and develops testable hypotheses. [Section 3](#) outlines the research design. [Section 4](#), instrumental variable, presents the empirical results and analysis, followed by robustness tests in [Section 5](#). [Section 6](#) provides additional analyses, and [Section 7](#) concludes.

2. Literature review and theoretical hypotheses

2.1 Review of literature related to Ponzi finance

[Minsky \(1974, 1975, 2008\)](#) developed the FIH to explain how financial fragility emerges endogenously from the interaction between real economic activity and financing behavior. Central to this framework is the concept of financial vulnerability, which classifies firms' financing regimes into three categories based on the relationship between operating cash inflows and debt-servicing obligations. Hedge finance denotes a conservative regime in which operating cash flows are sufficient to cover both interest and principal payments. Speculative finance describes a more expansionary and fragile regime in which firms can meet interest payments but must roll over the principal. Ponzi finance represents the most fragile regime, where operating cash flows are insufficient to cover even interest payments, forcing firms to rely on asset sales or new borrowing to service existing debt. When speculative and Ponzi finance become widespread, financial fragility accumulates and the likelihood of systemic instability increases ([Minsky, 2008](#)).

The FIH provides a powerful analytical lens linking firms' investment and financing decisions in the real economy to macro-financial instability. Importantly, it implies that the aggregate stability of the financial system can be assessed through the distribution of firms across financing regimes. Although originally developed in the context of advanced capitalist economies, Minsky's framework is particularly relevant for economies characterized by structural distortions in credit allocation and strong interactions between the state and the financial system.

In the Chinese context, the applicability of Minsky's theory is not merely mechanical but institutionally grounded. China's corporate financing behavior is shaped by a distinctive combination of ownership structures, a hybrid banking system that blends formal and shadow finance and a political economy of lending in which credit allocation is influenced by policy objectives ([Allen, Qian, Tu, & Yu, 2019](#)). These features fundamentally alter both the incentives and constraints faced by firms and financial institutions, thereby conditioning the emergence and persistence of Ponzi finance.

First, from the perspective of ownership structure, SOEs play a critical role in China's economy. The assets generated through SOEs' diversification strategies, particularly those with low liquidity and poor profitability, are less likely to be recognized as non-performing in lending and valuation practices due to implicit government guarantees and their role in fulfilling policy mandates. This soft budget constraint weakens market-based discipline, obscures underlying liquidity risks and delays necessary restructuring or exit ([Jin, Wang, & Zhang, 2023](#)). As a result, fragile asset structures are sustained, and firms may remain in a Ponzi financing regime without triggering immediate financial distress.

Second, China's hybrid banking system further amplifies these dynamics. When diversified firms encounter tightening constraints in the formal banking sector, they frequently turn to shadow banking channels, which provide short-term, high-cost and structurally complex financing. Through mechanisms such as wealth management products and fund pools, shadow banking repackages long-term, risky assets into ostensibly liquid short-term instruments. This process creates an illusion of liquidity and sustains a refinancing cycle that is characteristic of Ponzi finance. However, when regulatory conditions tighten or market sentiment reverses, these fragile funding structures are prone to abrupt collapse, precipitating a "Minsky moment" marked by sudden liquidity shortages.

Third, from the perspective of the political economy of lending, bank credit allocation in China is often influenced by objectives such as local economic growth (Liang, Huang, Liang, & Li, 2024), industrial upgrading and social stability (Yang & Zhang, 2018). Consequently, credit continues to flow to firms that may be operationally inefficient due to over-diversification but are deemed “systemically important” or politically significant. In such cases, market-based exit mechanisms are suppressed and banks are frequently instructed to neither withdraw existing credit nor halt new lending. This practice directly contradicts the disciplinary logic envisioned in Minsky’s framework, whereby Ponzi units should be forced to deleverage or exit. Instead, financial fragility is preserved and propagated from the micro level to the macro-financial system, giving rise to what can be described as a state of “organized unsustainability.”

Against this backdrop, the FIH offers important guidance for understanding the accumulation of financial risk in China’s real economy, particularly under policy objectives aimed at deleveraging and preventing systemic financial crises. Nevertheless, Minsky’s original classification of financing regimes is qualitative and lacks a formal quantitative structure. Subsequent studies have sought to operationalize the concept through measurable indicators of cash flow, debt service and refinancing dependence (Foley, 2003; Arza & Español, 2008; Davis *et al.*, 2019; Nishi, 2019; Bai, Zhang, Bai, & Qin, 2025).

Despite the growing recognition of the FIH, empirical applications, especially at the firm level, remain limited (Nishi, 2019). Existing firm-level studies identify profitability, interest rates, capital structure, firm size, business cycles and crisis periods as important determinants of Ponzi finance (Nishi, 2019; Rozmainsky, Kovezina, & Klimenko, 2022; Budnevich Portales, Favreau Negront, & Pérez Caldentey, 2021). Evidence also suggests that smaller firms are more likely to enter Ponzi finance, while larger firms are more likely to transition from speculative to Ponzi regimes and that firms face a higher probability of exit after entering Ponzi finance (Davis *et al.*, 2019, 2023).

However, this literature has largely focused on firm characteristics rather than strategic decision-making. This omission is non-trivial. Corporate strategy determines not only the scale of investment but also the timing, risk profile and reversibility of cash flows, all of which are central to Minsky’s classification. In particular, diversification has the potential to fundamentally alter firms’ financing needs and refinancing dependence. Despite its importance, the role of diversification in driving Ponzi finance remains underexplored, especially in China’s institutional context, where diversification is often policy-driven and interacts with distorted credit allocation, potentially amplifying Minskyan dynamics of financial fragility. Addressing this gap is critical, given the implications of Ponzi financing for both firm-level sustainability and systemic financial risk.

2.2 Theoretical hypotheses development

In his formalization of the FIH, Hyman Minsky explicitly states that the fragility of the financial system is fundamentally rooted in the alignment between individual firms’ investment decisions and their financing regimes. He further posits that during periods of prolonged macroeconomic stability, firms endogenously and progressively shift from hedge finance toward speculative finance and ultimately into Ponzi finance. When a critical mass of firms simultaneously enters a Ponzi finance regime, the preconditions for a systemic macro-financial crisis are fully in place.

The core contribution of this study is to identify the specific operational decisions through which firms transition along this continuum from hedge finance to Ponzi finance. Our empirical analysis demonstrates that corporate diversification is the core decision-making channel linking prolonged macroeconomic stability to micro-level Ponzi financing. This constitutes the fundamental rationale for our adoption of the FIH framework, rather than merely replicating the well-established corporate finance literature that links poorly executed diversification to financial distress.

Our 2006–2020 sample period precisely captures two complete, canonical cycles in China's economy that align directly with the core paradox of the FIH – that stability breeds instability – by tracing the full progression from prolonged macroeconomic stability to systematic risk accumulation and ultimately to the materialization of financial fragility. This setting therefore offers a suitable empirical context for testing the theoretical predictions of the FIH.

The literature offers two competing perspectives on the economic consequences of diversification: the “diversification premium” view and the “diversification discount” view.

According to the premium view, diversification may reduce the likelihood of Ponzi finance through several channels. First, diversified firms may develop internal capital markets that improve resource allocation efficiency and lower financing costs (Arikan & Stulz, 2016). By reallocating funds across divisions with unsynchronized cash flows, firms can smooth internal financing, reduce dependence on external credit and divest underperforming units when internal funds are scarce (Subramaniam, Tang, Yue, & Zhou, 2011). This mechanism is particularly relevant in China, where capital markets are imperfect and many firms face binding external financing constraints. Second, diversification may generate operational synergies by sharing marketing networks, technologies and idle resources, thereby reducing costs and enhancing efficiency (Chandler, 1990; Miller & Yang, 2016). Third, diversification can stabilize earnings by spreading risk across different business segments, reducing cash flow volatility and the probability of financial distress (Amit & Livnat, 1988). In an environment characterized by high uncertainty and market imperfections, these stabilizing effects could lower firms' reliance on refinancing and reduce the probability of entering a Ponzi financing regime.

Based on this reasoning, we propose the following hypothesis:

H1a. Diversification reduces the likelihood that a firm engages in Ponzi finance.

While corporate diversification is conventionally framed as a risk-mitigation strategy in the extant literature, it can paradoxically exacerbate financial fragility when firms pursue expansion beyond their core competencies. Importantly, the negative effects we identify are not universal across all forms of diversification; rather, they arise primarily in cases of excessive or unrelated diversification, where firms operate outside the scope of their established capabilities.

An alternative strand of literature emphasizes the diversification discount, highlighting the costs, inefficiencies and financial risks associated with such expansion. Empirical evidence suggests that diversified firms often face higher debt financing costs and weaker profitability (Scharfstein & Stein, 2000; Doukas & Pantzalis, 2003), thereby undermining debt-servicing capacity and widening the gap between operating cash flows and financial obligations. In institutional environments characterized by weak investor protection and pronounced agency problems, diversification may be interpreted as a signal of managerial self-interest rather than value maximization (Aggarwal & Samwick, 2006). Consistent with this view, prior studies document a negative relationship between diversification intensity and managerial ownership, suggesting that diversification may reflect agency-driven expansion.

From a managerial capability perspective, diversification increases organizational complexity and coordination costs, potentially offsetting efficiency gains. Executives may lack the expertise to effectively manage multiple heterogeneous business segments, leading to inefficient investment decisions and rising administrative expenses (Liu & Bu, 2022).

Moreover, diversification typically requires substantial upfront capital outlay. The financing demands generated are qualitatively different from those associated with within-industry expansion. Unlike core business scaling, which leverages existing production capacity, supplier networks and organizational capabilities, diversification requires firms to enter unfamiliar industries and undertake industry-specific investments that are largely non-redeployable. These include expenditures on specialized fixed assets, regulatory approvals,

supply chains, distribution systems, technologies and human capital, resulting in higher sunk costs and greater capital irreversibility.

In addition, diversification disperses limited resources across multiple heterogeneous segments, reducing capital efficiency. While core business expansion benefits from economies of scale and incremental investment, diversified segments often operate below efficient scale and require independent resource allocation, thereby lowering returns per unit of capital. At the same time, new business activities typically involve longer gestation periods and greater uncertainty, creating a temporal mismatch between cash inflows and investment outlays. This mismatch increases reliance on external financing and intensifies refinancing pressure.

Diversification also exacerbates information asymmetry between firms and external capital providers, raising perceived risk and financing costs. As a result, diversified firms may face constraints in accessing long-term, low-cost debt and instead rely more heavily on short-term or rollover financing, increasing liquidity risk and debt-servicing pressure. Furthermore, when cash flows from core operations are diverted to support underperforming segments, firms may resort to additional external borrowing to sustain expansion, further increasing future debt burdens (Doukas & Pantzalis, 2003).

Internal capital markets may also function inefficiently. Divisions may exaggerate growth prospects to secure a larger share of limited internal resources, distorting capital allocation and undermining overall firm efficiency (Eisfeldt & Rampini, 2008). In such settings, resources may be allocated to projects with negative net present value or to failing segments at the expense of profitable ones, further eroding cash flow generation (Scharfstein & Stein, 2000). In China's institutional environment – characterized by soft budget constraints, policy-driven lending and shadow banking – these inefficiencies can be sustained through continuous refinancing, thereby increasing the likelihood of Ponzi finance rather than triggering timely exit.

Taken together, these arguments suggest that diversification in China may exacerbate financial vulnerability by weakening cash flow discipline and increasing reliance on refinancing, especially under conditions of distorted credit allocation. Accordingly, we propose the competing hypothesis:

H1b. Diversification increases the likelihood of a business falling into Ponzi finance.

3. Research design

3.1 Sample selection and data sources

This study uses non-financial firms listed on China's A-share market over the period 2006–2020 as the research sample. We apply the following screening criteria. First, firms in the financial sector are excluded due to their fundamentally different balance sheet structures and regulatory environments. Second, observations with missing values for key variables are removed. Third, firms designated as ST or *ST are excluded, as these firms are subject to special treatment due to abnormal financial conditions that may bias the identification of financing regimes. After applying these filters, the final sample consisted of 30,315 firm-year observations.

Financial and accounting data were obtained from the WIND database and the China Stock Market and Accounting Research database. To mitigate the influence of extreme values, all continuous variables were winsorized at the 1st and 99th percentiles.

3.2 Model design and variable definition

3.2.1 Model design. To test Hypotheses H1a and H1b, we follow Nishi (2019) and Davis *et al.* (2019) in classifying firms according to their financing regimes and construct a binary dependent variable, Ponzi, to indicate whether a firm operates under a Ponzi financing regime.

Specifically, *Ponzi* equals 1 if a firm is identified as Ponzi-financed in a given year and 0 otherwise.

Given the binary nature of the dependent variable, we employ a logit model to examine the effect of corporate diversification on the probability of engaging in Ponzi finance. Consistent with the theoretical framework, all explanatory variables are measured contemporaneously. This specification captures the immediate association between diversification strategy and financing behavior while reducing concerns that firms diversify solely in response to prior-period financial distress (such as Ponzi status in $t-1$).

The baseline empirical specification is as follows:

$$Ponzi_{i,t} = \alpha_0 + \alpha_1 Div_{i,t} + \alpha_2 Controls_{i,t} + \sum Industry + \sum Year + \varepsilon_{i,t} \quad (1)$$

If [H1a](#) holds, the coefficient of diversification (*Div*) is expected to be significantly less than zero, indicating that diversification reduces the likelihood of an enterprise engaging in Ponzi finance. Conversely, if [H1b](#) holds, the coefficient of diversification (*Div*) is expected to be significantly greater than zero, suggesting that diversification increases the likelihood of an enterprise adopting Ponzi finance.

3.2.2 Variable definitions. Dependent variable: Ponzi finance (*Ponzi*). Following [Nishi \(2019\)](#) and [Davis et al. \(2019\)](#) and taking into account China's semi-mandatory dividend policy, we classify each sample firm into one of three financing regimes: (1) Hedge finance, if net operating cash flow – (current investment expenses + current debt payable + current interest + current dividend) ≥ 0 ; (2) speculative finance, if the above conditions are not met but (net operating cash flow + opening cash stock) – (current debt payable + current interest + current dividend) ≥ 0 ; (3) Ponzi finance, if (net cash flow from operations + opening cash stock) – (current debt payable + current interest + current dividend) < 0 , i.e. the net cash flow from operations plus the opening cash stock of the enterprise for the year is insufficient to pay off the enterprise's debt, interest and dividends for the year [\[1\]](#). For each firm i in each year t , *Ponzi* equals 1 if the firm is categorized as Ponzi-financed and 0 otherwise.

To reflect institutional features of China's capital market, we include dividend payments in the empirical identification of Ponzi finance. While dividends are formally discretionary, regulatory requirements introduced by the China Securities Regulatory Commission since 2006 impose minimum payout conditions for firms seeking equity refinancing, effectively rendering dividends a quasi-mandatory cash outflow for listed firms. In this context, firms may continue distributing dividends to preserve refinancing access and market credibility, even when internal cash flows are insufficient. Therefore, including dividends allows us to capture the effective cash flow pressure faced by firms. Importantly, firms that suspend dividends to prioritize debt repayment are not classified as Ponzi-financed. Instead, classification occurs only when firms rely on external financing to meet both debt obligations and these quasi-mandatory payouts. This adjustment aligns with the spirit of Minsky's framework by identifying firms that depend on refinancing to sustain ongoing cash commitments.

Independent variable: diversification index (*Div*). Diversification is measured using four methods: (1) Herfindahl index of revenue (*Dyh_hhi*): $Dyh_HHI = \sum_{i=1}^n p_i^2$, where p_i is the share of revenue from industry i relative to the firm's total main business revenue. This measure of diversification is widely used in the prior literature, including [Asif and Akhter \(2019\)](#), [Yiğit and Tür \(2012\)](#) and [Jiang and Han \(2018\)](#), among others. A higher Herfindahl–Hirschman Index (*HHI*) indicates lower diversification. To improve interpretability, we use the inverse of *HHI* as the primary proxy for diversification (*Div*), providing a monotonic and intuitive measure of diversification intensity. For robustness checks, we also employ the following three alternative proxies: (2) business count method (*Dyh_n*), calculated as the number of industries in which a firm generates at least 10% of its main business revenue. (3) Income entropy index (*Dyh_entro*): $h_entro = \sum_{i=1}^n p_i \ln \frac{1}{p_i}$, where p_i is defined as above. This

provides an alternative measure of income diversification. (4) Diversification Dummy (*Dyh_dum*): A dummy variable that equals 1 if a firm is diversified in a given year and 0 otherwise.

Control variables: To comprehensively analyze the factors influencing an enterprise's susceptibility to Ponzi finance, we incorporate the following control variables, derived from prior literature or deemed relevant to firms' financing regimes: (1) firm size (*Size*): Larger firms may exhibit distinctive financial dynamics and prior studies document that firm size affects the probability of entering the Ponzi regime (Nishi, 2019; Rozmainsky *et al.*, 2022). (2) Firm age (*Age*): Financial behavior may differ between younger and more established firms, making firm age an important control. (3) Firm growth (*Tobinq*): Tobin's *q* serves as a proxy for firm growth by capturing investment opportunities and market performance. (4) Fixed asset share (*Tan*): The proportion of fixed assets helps assess their impact on financial stability. (5) Chief executive officer (CEO) duality (*Dual*). This variable controls for the influence of CEO duality, where one individual serves simultaneously as CEO and board chair, potentially affecting financial decision-making. (6) Equity concentration (*Top1*): The ownership concentration among top shareholders may shape governance and financial strategies. (7) Leverage (*Lev*): The asset-liability ratio (liabilities/total assets) reflects the firm's financial structure and debt burden. (8) Board size (*Board*): Board composition, proxied by board size, may influence governance and strategic decisions. (9) Market-to-book ratio (*MB*): This variable captures the market's valuation of the firm relative to its book value.

Table 1 provides detailed definitions and constructions of all variables.

4. Empirical results and analysis

4.1 Descriptive statistics

Table 2 reports the descriptive statistics of all variables [2]. The mean value of *Dyh_dum* is 0.602, indicating that 60.2% of the firms in the sample are diversified. The mean values of *Dyh_entro* and *Div* were 0.367 and -0.794 , respectively, with standard deviations of 0.434

Table 1. Variable definitions and descriptions

Variable name	Symbol	Variable definition and construction
<i>Dependent variable</i>		
Ponzi finance	<i>Ponzi</i>	Dummy variable equal to 1 for Ponzi finance firms and 0 otherwise
<i>Independent variable</i>		
Diversification	<i>Div</i>	$Div = -Dyh_hhi = -\sum_{i=1}^n p_i^2$
<i>Control variables</i>		
Firm size	<i>Size</i>	Natural logarithm of the enterprise's total assets at the end of the year
Firm age	<i>Age</i>	Natural logarithm of the number of years the business has been in existence
Firm growth	<i>Tobinq</i>	(Market value of equity + book value of liabilities at year-end)/Total assets at year-end
Fixed asset share	<i>Tan</i>	Net fixed assets/total assets at the end of the year
CEO duality	<i>Dual</i>	1 for Chairman and Managing Director combined, 0 otherwise
Equity concentration	<i>Top1</i>	Percentage of shareholding of the largest shareholder
Asset-liability ratio	<i>Lev</i>	Total liabilities/total assets at the end of the year
Board size	<i>Board</i>	Number of board members
Market-to-account ratio	<i>MB</i>	Total market value/owner's equity at the end of the year
Industry	<i>Industry</i>	Industry dummy variables
Year	<i>Year</i>	Annual dummy variables

Note(s): This table presents the names, symbols, definitions and construction of the dependent, independent and control variables used in the study

Table 2. Descriptive statistics

Variables	Observations	Mean	Standard deviation	Minimum	Median	Maximum
<i>Ponzi</i>	30,315	0.395	0.489	0.000	0.000	1.000
<i>Dyh_dum</i>	30,315	0.602	0.490	0.000	1.000	1.000
<i>Dyh_n</i>	30,315	1.535	0.787	1.000	1.000	6.000
<i>Dyh_entro</i>	30,315	0.367	0.434	0.000	0.163	1.582
<i>Div</i>	30,315	−0.794	0.242	−1.000	−0.930	−0.239
<i>Size</i>	30,315	22.03	1.261	19.750	21.850	26.000
<i>Age</i>	30,315	2.795	0.387	0.000	2.833	4.143
<i>Tobinq</i>	30,315	2.021	1.277	0.877	1.607	8.496
<i>Tan</i>	30,315	0.218	0.163	0.002	0.185	0.710
<i>Dual</i>	30,315	0.271	0.444	0.000	0.000	1.000
<i>Top1</i>	30,315	34.920	14.750	9.230	32.800	74.300
<i>Lev</i>	30,315	0.425	0.207	0.051	0.419	0.890
<i>Board</i>	30,315	8.650	1.742	0.000	9.000	19.000
<i>MB</i>	30,315	0.620	0.241	0.118	0.622	1.140

Note(s): This table reports the descriptive statistics of all the variables, including the number of observations, mean, standard deviation, minimum, median and maximum values

and 0.242. This suggests that the level of diversification among firms is generally low but highly dispersed. The variable *Dyh_n* measures the number of industries in which a firm derives at least 10% of its main business revenue. Its mean is 1.535, with a minimum of 1, a maximum of 6 and a median of 1. This indicates that although most companies operate across industries, their revenue sources remain relatively concentrated and not every industry contributes significantly to cash flow. Overall, 39.5% of the sample firms were classified as Ponzi-financed.

As a preliminary check of the relationship between diversification and financing regimes, we separate the sample into diversified and specialized firms and compare their financing status and other characteristics. The univariate test shows that 45.3% of diversified firms are Ponzi-financed, compared to only 30.8% of specialized firms. The difference in means is statistically significant at the 1% level, suggesting that diversified firms are more likely to engage in Ponzi finance.

With respect to other firm characteristics, diversified firms exhibit significantly higher mean values of firm size (*Size*), firm age (*Age*), board size (*Board*) and the market-to-book ratio (*MB*) compared with specialized firms. However, their asset-liability ratio (*Lev*) is also higher. In contrast, diversified firms report lower mean values for firm growth (*Tobinq*), fixed asset share (*Tan*), CEO duality (*Dual*) and equity concentration (*Top1*). These findings suggest that diversification may not provide significant benefits for business development or governance.

4.2 Multiple regression analysis

Table 3, Panel A, reports the regression results examining the impact of corporate diversification on Ponzi finance. In column (1), we include only control variables that may affect Ponzi finance, while in column (2) we further control for year and industry effects. The coefficients of diversification (*Div*) are consistently positive and significant at the 1% level, indicating that diversification increases the likelihood of a firm engaging in Ponzi finance. The marginal effects from the logit model in column (3) suggest that, holding other variables constant, a one-standard-deviation increase in diversification raises the probability of a firm resorting to Ponzi finance by approximately 7.5%, significant at the 1% level.

Table 3. Baseline regression

	Full sample (1)	(2)	Marginal effects (3)
<i>Panel A: Contemporaneous regression, where all independent variables are measured within the same year as the dependent variable</i>			
<i>Div_t</i>	0.710*** (10.91)	0.599*** (8.68)	0.075*** (8.72)
<i>Size_t</i>	−0.138*** (−8.29)	−0.099*** (−5.29)	−0.012*** (−5.30)
<i>Age_t</i>	−0.187*** (−4.24)	−0.008 (−0.15)	−0.001 (−0.15)
<i>Tobinq_t</i>	−0.014 (−0.55)	−0.012 (−0.45)	−0.001 (−0.45)
<i>Tan_t</i>	3.444*** (33.19)	3.390*** (27.56)	0.426*** (28.83)
<i>Dual_t</i>	0.005 (0.14)	0.106*** (2.72)	0.013*** (2.72)
<i>Top1_t</i>	−0.007*** (−6.36)	−0.010*** (−8.54)	−0.001*** (−8.58)
<i>Lev_t</i>	9.713*** (80.04)	9.651*** (74.26)	1.214*** (123.01)
<i>Board_t</i>	−0.001 (−0.07)	−0.019* (−1.89)	−0.002* (−1.89)
<i>MB_t</i>	0.649*** (5.05)	0.961*** (6.77)	0.121*** (6.79)
<i>Constant</i>	−1.638*** (−4.76)	−2.039*** (−5.04)	
<i>Industry</i>	No	Yes	Yes
<i>Year</i>	No	Yes	Yes
<i>N</i>	30,315	30,315	30,315
<i>Pseudo_R²</i>	0.385	0.413	0.413
<i>Panel B: Lagged regression, where all the independent variables are measured using a one year lag relative to the dependent variable</i>			
<i>Div_{t−1}</i>	0.745*** (10.40)	0.602*** (7.92)	0.076*** (7.95)
<i>Size_{t−1}</i>	−0.126*** (−6.75)	−0.082*** (−3.98)	−0.010*** (−3.99)
<i>Lnage_{t−1}</i>	−0.083 (−1.62)	0.108* (1.79)	0.014* (1.79)
<i>Tobinq_{t−1}</i>	−0.022 (−0.79)	−0.021 (−0.73)	−0.003 (−0.73)
<i>Tan_{t−1}</i>	3.618*** (31.22)	3.507*** (25.54)	0.442*** (26.77)
<i>Dual_{t−1}</i>	−0.023 (−0.56)	0.081* (1.87)	0.010* (1.87)
<i>Top1_{t−1}</i>	−0.008*** (−6.40)	−0.011*** (−8.35)	−0.001*** (−8.39)
<i>Lev_{t−1}</i>	10.035*** (72.69)	10.018*** (67.75)	1.262*** (113.59)
<i>Board_{t−1}</i>	−0.006 (−0.59)	−0.028*** (−2.59)	−0.004*** (−2.59)
<i>MB_{t−1}</i>	0.479*** (3.37)	0.744*** (4.76)	0.094*** (4.77)
<i>Constant</i>	−2.184*** (−5.60)	−1.472*** (−3.18)	

(continued)

Table 3. Continued

	Full sample (1)	(2)	Marginal effects (3)
Industry	No	Yes	Yes
Year	No	Yes	Yes
N	24,995	24,995	24,995
Pseudo_R ²	0.386	0.414	0.414

Note(s): This table reports the results from the regression $Ponzi_i = \alpha_0 + \alpha_1 Div_i + \alpha_2 Controls_i + \sum Industry + \sum Year + \varepsilon_i$, where in in column (1), we control only for variables that may affect Ponzi finance, and in column (2) we further consider year and industry effects. The symbols *, ** and *** represent significance at the 10%, 5% and 1% levels, respectively

Overall, diversification exhibits a “discount effect.” Specifically, the internal capital markets formed by diversified Chinese corporations do not strengthen their financing regimes. Instead, higher debt costs and lower profitability associated with diversification generate a mismatch between operating cash inflows and debt obligations, ultimately increasing the likelihood of firms resorting to Ponzi finance.

Regarding the control variables, the coefficients of *Tan*, *Lev* and *MB* are significantly positive, whereas those of *size*, *age* and *top 1* are significantly negative. This suggests that firms with higher fixed asset shares, higher leverage and higher market-to-book ratios are more prone to Ponzi finance. Conversely, larger, older firms and those with more concentrated ownership are less likely to adopt Ponzi finance.

It is possible that the relationship between diversification and Ponzi finance does not occur contemporaneously but rather with a temporal lag. To account for this possibility and to more rigorously examine the causal relationship between diversification and Ponzi finance, we re-estimate the regressions using lagged independent variables. This approach captures the delay between corporate decisions and their subsequent financial consequences. We employ the one-period lagged degree of diversification as our core explanatory variable in the baseline specifications. This identification design preliminarily mitigates reverse causality concerns via the fundamental principle of temporal precedence in causal inference: a firm’s core operating losses and financial distress in the current period cannot retroactively influence its diversification decisions taken in the previous period. This design therefore preliminarily rules out the reverse narrative that diversification is a response to prior financial distress, rather than its cause. The results, presented in Panel B of Table 3, remain both quantitatively and qualitatively consistent with those of the contemporaneous regressions.

4.3 Mechanism test

The evidence indicates that diversification increases the likelihood of an enterprise resorting to Ponzi finance. However, the underlying mechanisms through which this occurs remain unclear. To address this gap, we investigate the transmission mechanisms linking diversification to the adoption of Ponzi finance. All test results are presented in Table 4, with contemporaneous regressions reported in Panel A and lagged regressions in Panel B.

Noting that a firm’s Ponzi financing is largely tied to its financial condition and that the three core dimensions of corporate financial analysis – asset liquidity, debt size and profitability – exert a direct impact on a firm’s survival and development, while other agency problems or institutional behaviors are more implicitly reflected in financial outcomes, this paper accordingly identifies asset liquidity, debt size and profitability as mediating variables.

We first test the liquidity mechanism. Diversified firms often hold fewer current assets to reduce holding costs and rely on internal financing. However, if diversification and expansion

Table 4. Mechanism tests

	Baseline regression (1) <i>Ponzi</i>	Asset liquidity (2) <i>Liq</i>	(3) <i>Ponzi</i>	Bank borrowings (4) <i>Loan</i>	(5) <i>Ponzi</i>	Profitability level (6) <i>Roa</i>	(7) <i>Ponzi</i>
<i>Panel A: Contemporaneous regression, where all independent variables are measured within the same year as the dependent variable</i>							
<i>Div</i>	0.599*** (8.68)	−0.710*** (−14.67)	0.292*** (3.77)	0.024*** (10.53)	0.414*** (5.79)	−0.017*** (−13.00)	0.547*** (7.89)
<i>Liq</i>			−3.459*** (−54.08)				
<i>Loan</i>					5.963*** (34.23)		
<i>Roa</i>							−3.957*** (−11.96)
<i>Size</i>	−0.099*** (−5.29)	−0.052*** (−4.12)	−0.130*** (−6.53)	−0.004*** (−6.44)	−0.060*** (−3.12)	0.018*** (50.36)	−0.037*** (−1.88)
<i>Age</i>	−0.008 (−0.15)	−0.220*** (−6.23)	−0.286*** (−4.83)	−0.004** (−2.44)	0.043 (0.80)	−0.002** (−2.46)	−0.013 (−0.26)
<i>Tobinq</i>	−0.012 (−0.45)	0.036*** (7.16)	−0.005 (−0.60)	−0.005 (−6.29)	0.050* (1.93)	−0.002*** (−4.71)	−0.026 (−0.99)
<i>Tan</i>	3.390*** (27.56)	−2.881*** (−34.36)	−0.315** (−2.20)	0.169*** (41.91)	2.459*** (19.09)	−0.034*** (−15.06)	3.277*** (26.56)
<i>Dual</i>	0.106*** (2.72)	0.160*** (6.04)	0.134*** (3.02)	0.007*** (5.88)	0.075* (1.86)	0.002*** (3.43)	0.117*** (2.98)
<i>Top1</i>	−0.010*** (−8.54)	0.002** (2.53)	−0.008*** (−6.09)	−0.001*** (−15.63)	−0.006*** (−5.11)	0.000*** (22.40)	−0.008*** (−6.86)
<i>Lev</i>	9.651*** (74.26)	−7.105*** (−106.88)	3.669*** (22.89)	0.508*** (155.52)	6.895*** (46.91)	−0.141*** (−77.18)	9.182*** (68.21)
<i>Board</i>	−0.019* (−1.89)	−0.005 (−0.73)	−0.006 (−0.54)	−0.001*** (−3.44)	−0.012 (−1.13)	0.001*** (4.99)	−0.015 (−1.51)
<i>MB</i>	0.961*** (6.77)	0.683*** (9.97)	1.316*** (11.73)	0.032*** (6.86)	0.908*** (6.29)	−0.071*** (−27.35)	0.660*** (4.56)
<i>Constant</i>	−2.039*** (−5.04)	6.298*** (23.31)	5.225*** (11.60)	0.046*** (3.44)	−3.331*** (−7.92)	−0.264*** (−35.45)	−2.879*** (−6.96)
<i>Industry</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Year</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	30,315	30,314	30,314	30,315	30,315	30,315	30,315
<i>Pseudo_R²</i>	0.413	0.433	0.527	0.613	0.444	0.264	0.416

Panel B: Lagged regression, where all the independent variables are measured using one year lag relative to the dependent variable

<i>Div_{t−1}</i>	0.602*** (7.92)	−0.641*** (−8.31)	0.283*** (3.72)	0.021*** (8.28)	0.439*** (5.57)	−0.016*** (−10.88)	0.547*** (7.16)
<i>Liq_{t−1}</i>			−2.155*** (−40.25)				
<i>Loan_{t−1}</i>					6.080*** (31.60)		
<i>Roa_{t−1}</i>							−4.261*** (−11.71)
<i>Size_{t−1}</i>	−0.082*** (−3.98)	0.014 (0.70)	−0.078*** (−3.89)	−0.005*** (−7.20)	−0.036* (−1.69)	0.019*** (50.17)	−0.009 (−0.41)
<i>Lnage_{t−1}</i>	0.108* (1.79)	0.105* (1.90)	−0.191*** (−3.35)	−0.005** (−2.34)	0.180*** (2.89)	−0.001 (−0.80)	0.112* (1.85)
<i>Tobinq_{t−1}</i>	−0.021 (−0.73)	0.076*** (6.06)	0.002 (0.17)	−0.003*** (−4.17)	0.033 (1.14)	−0.001 (−1.11)	−0.031 (−1.06)

(continued)

Table 4. Continued

	Baseline regression (1) <i>Ponzi</i>	Asset liquidity (2) <i>Liq</i>	(3) <i>Ponzi</i>	Bank borrowings (4) <i>Loan</i>	(5) <i>Ponzi</i>	Profitability level (6) <i>Roa</i>	(7) <i>Ponzi</i>
<i>Tan</i> _{<i>t</i>-1}	3.507*** (25.54)	-2.614*** (-19.48)	0.766*** (5.42)	0.169*** (37.75)	2.566*** (17.87)	-0.029*** (-11.63)	3.399*** (24.69)
<i>Dual</i> _{<i>t</i>-1}	0.081* (1.87)	0.183*** (4.31)	0.104** (2.37)	0.008*** (5.71)	0.037 (0.82)	0.001* (1.76)	0.087** (2.00)
<i>Top1</i> _{<i>t</i>-1}	-0.011*** (-8.35)	-0.000 (-0.05)	-0.007*** (-5.67)	-0.001*** (-14.95)	-0.007*** (-5.06)	0.000*** (18.84)	-0.009*** (-6.82)
<i>Lev</i> _{<i>t</i>-1}	10.018*** (67.75)	-6.854*** (-60.96)	3.336*** (20.66)	0.521*** (142.45)	7.163*** (42.91)	-0.141*** (-68.50)	9.515*** (62.35)
<i>Board</i> _{<i>t</i>-1}	-0.028*** (-2.59)	-0.023** (-2.09)	-0.008 (-0.72)	-0.001*** (-3.31)	-0.021* (-1.90)	0.001*** (4.30)	-0.025** (-2.26)
<i>MB</i> _{<i>t</i>-1}	0.744*** (4.76)	0.639*** (5.27)	0.805*** (6.92)	0.035*** (6.89)	0.656*** (4.11)	-0.074*** (-25.81)	0.414*** (2.59)
<i>Constant</i>	-1.472*** (-3.18)	3.868*** (8.83)	3.505*** (7.85)	0.057*** (3.86)	-2.953*** (-6.13)	-0.314*** (-37.50)	-2.599*** (-5.45)
<i>Industry</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Year</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	24,995	24,994	24,995	24,995	24,995	24,995	24,995
<i>Pseudo_R</i> ²	0.414	0.229	0.420	0.610	0.446	0.266	0.418

Note(s): This table reports the regression results testing the underlying mechanisms through which diversification affects the Ponzi financing decisions of firms. Column (1) presents the baseline regression results. Columns (2) and (3) present the regression results testing the relationship between asset liquidity, diversification and the likelihood of engaging in Ponzi finance. Columns (4) and (5) present the regression results testing the relationship between bank borrowings, diversification and the likelihood of engaging in Ponzi finance. Columns (6) and (7) present the regression results testing the relationship between profitability, diversification and the likelihood of engaging in Ponzi finance. The symbols *, ** and *** represent significance at the 10%, 5% and 1% levels, respectively

fail to generate the expected returns, firms may be unable to produce sufficient operating cash flows to meet their obligations. We test this mechanism by examining the relationship between diversification and asset liquidity and between asset liquidity and Ponzi finance. Consistent with prior studies, we measure asset liquidity as the quick ratio (*Liq*). Columns (2) and (3) of Table 4 show that diversification significantly reduces asset liquidity at the 1% level and reduced liquidity in turn significantly increases the likelihood of Ponzi finance. Moreover, the coefficient of diversification declines to 0.292 after including *Liq* in the baseline regression, suggesting that asset liquidity partially mediates the relationship between diversification and Ponzi finance.

Second, with respect to debt size, executives, particularly overly optimistic ones, are often reluctant to discontinue poorly performing business units, as doing so would signal underperformance and harm reputations. To maintain operations and expand investment, diversified firms tend to increase borrowing even as financing costs rise. Prior research shows that diversification can enhance borrowing capacity through financial synergies, which further facilitates reliance on debt financing (Nagarajan *et al.*, 2023). At the same time, complex business structures may obscure true debt positions, making it difficult for banks to accurately assess credit risk. In some cases, prior repayment histories encourage banks to extend loans mechanically, despite deteriorating fundamentals. This behavior leads to greater reliance on debt financing, especially short-term borrowing, which raises repayment pressure (Doukas & Pantzalis, 2003). When projected earnings fall short, repayment burdens accumulate, raising the risk of Ponzi finance. To test this mechanism, we measure bank borrowing (*loan*) as

(short-term borrowings + long-term borrowings + non-current liabilities due within one year)/total assets. Columns (4) and (5) of Table 4 show that diversification significantly increases bank borrowing at the 1% level and higher borrowing in turn significantly raises the likelihood of Ponzi finance. Including Loan reduces the diversification coefficient to 0.414, indicating that bank borrowing is another transmission channel linking diversification to Ponzi finance.

Finally, diversification could affect the financing regime of a firm by influencing its profitability. As firms expand, subunits may conceal financial information to secure resources, reducing the head office's control over segment decisions. This can increase financial risk and reduce overall performance (Rajan *et al.*, 2000). In the Chinese context, such dynamics may leave firms with insufficient funds to service debt obligations, pushing them toward Ponzi finance. We measure profitability using the return on assets (*Roa*). Columns (6) and (7) of Table 4 show that diversification is significantly negatively associated with profitability, while lower profitability significantly increases the likelihood of Ponzi finance, both at the 1% level. The coefficient of diversification declines to 0.547 after controlling for *Roa*, suggesting that profitability also partially mediates the effect of diversification on Ponzi finance.

To better capture the causal dynamics, we re-estimate all regressions using one-year lagged independent variables. The results, reported in Panel B, are consistent with those in Panel A. Overall, diversification does not contribute to financial stability. Instead, it reduces asset liquidity, increases reliance on bank borrowing and weakens profitability. These effects increase the risk that firms will struggle to meet debt obligations on time, thereby increasing the likelihood of resorting to Ponzi finance.

4.4 Heterogeneity analysis

The previous analysis suggests that diversification increases the likelihood of a company engaging in Ponzi financing. However, it is essential to examine whether this effect varies across industries with different market characteristics. To this end, we also explore how contextual factors influence the link between diversification and Ponzi finance.

First, we examine the role of industrial policy support. The level of government backing in a firm's operating industry significantly affects its diversification and operational outcomes. Firms in policy-supported industries have better access to financial resources and investment opportunities, particularly through long-term loans, as well as government subsidies and tax incentives. This "resource advantage" incentivizes firms to diversify proactively, enhancing performance and reducing business risk. In addition, policy-supported firms attract greater media attention and investor interest. Government oversight over capital usage further strengthens diversified performance.

In conclusion, among policy-supported firms, government subsidies reduce enterprises' reliance on diversified financing, while strict regulation limits the potential for Ponzi financing. Together, these factors weaken the effect of corporate diversification on Ponzi financing in such firms.

In line with the five-year industry development plans [3] during the sample period, industries explicitly encouraged and supported are classified as receiving policy support. We introduce a dummy variable, industrial policy support (*IP*), based on the 2001 industry classification for listed companies and interact it with diversification in our regression model. The coefficient of this interaction term indicates whether policy support influences the relationship between diversification and Ponzi finance. As shown in Table 5, the interaction term is significantly negative, suggesting that industrial policy support mitigates the adverse effect of diversification on Ponzi finance, consistent with the theoretical analysis.

The second factor considered is the level of marketization. A firm's diversification performance is shaped not only by its internal characteristics but also by the broader market environment (Hoskisson & Hitt, 1990). Prior research indicates that diversification enhances productivity and firm value, especially when external capital markets are underdeveloped or

Table 5. Heterogeneity analysis

	Industrial policy <i>Ponzi</i>	Marketization level <i>Ponzi</i>
<i>Div</i>	0.766*** (7.98)	0.600*** (8.69)
<i>IP</i>	−0.570*** (−4.89)	
<i>IP</i> × <i>Div</i>	−0.324** (−2.39)	
<i>Market</i>		−0.011 (−1.10)
<i>Market</i> × <i>Div</i>		0.060* (1.77)
<i>Size</i>	−0.102*** (−5.47)	−0.098*** (−5.26)
<i>Age</i>	−0.011 (−0.21)	−0.010 (−0.19)
<i>Tobinq</i>	−0.015 (−0.57)	−0.015 (−0.55)
<i>Tan</i>	3.358*** (27.24)	3.380*** (27.35)
<i>Dual</i>	0.109*** (2.80)	0.109*** (2.79)
<i>Top1</i>	−0.010*** (−8.84)	−0.010*** (−8.54)
<i>Lev</i>	9.681*** (74.26)	9.648*** (74.15)
<i>Board</i>	−0.019* (−1.88)	−0.019* (−1.96)
<i>MB</i>	0.922*** (6.47)	0.945*** (6.64)
<i>Constant</i>	−1.768*** (−4.31)	−1.933*** (−4.69)
<i>Industry</i>	Yes	Yes
<i>Year</i>	Yes	Yes
<i>N</i>	30,315	30,315
<i>Pseudo_R</i> ²	0.414	0.413

Note(s): This table presents the results of tests examining how industrial characteristics affect the relationship between diversification and Ponzi finance. The characteristics examined are industrial policy support (measured by the dummy variable *IP*, equal to 1 if the industry is classified as receiving high policy support, and 0 otherwise), and the level of marketization (measured by the marketization index constructed by Wang et al. (2021)). The symbols *, **, and *** represent significance at the 10%, 5% and 1% levels, respectively

internal capital is limited. In less marketized regions, underdeveloped financial systems, distorted factors and high transaction costs constrain specialized sector growth (Oliver, 1997). In such contexts, diversification substitutes for imperfect external markets by developing internal capital markets and reducing transaction costs (Khanna & Tice, 2001; Montgomery, 1994).

However, as marketization increases and resources are allocated more efficiently according to market mechanisms, the substitutive role of diversification gradually diminishes (Stein, 2002). To scrutinize the influence of an enterprise’s location and marketization level on the relationship between diversification and Ponzi finance, we use the marketization index (*market*) constructed by Wang, Hu, and Fan (2021). This index captures five dimensions of regional market development, each providing insights into specific facets of marketization [4].

We include market and its interaction with diversification ($Market \times Div$) in the baseline regression to examine how marketization moderates the relationship between diversification and Ponzi finance. The results in Table 5 show a significantly positive coefficient for the interaction term, indicating that higher marketization strengthens the positive effect of diversification on Ponzi finance, which is in line with our expectations.

5. Robustness tests

To further validate the reliability of our regression results, we conducted several robustness tests to address potential concerns that may affect our findings.

First, to address potential endogeneity concerns in the model, we follow Fisman and Svensson (2007) and employ the average diversification level of firms within the same industry and region (*Div_mean*) as an IV.

In addition, to further address the potential reverse causality between corporate diversification strategies and Ponzi financing activities, we employ an alternative IV to strengthen causal identification. Specifically, we use the pre-sample (2000–2005) average diversification level at the industry–province level (*Div_Pre_mean*). This instrument also satisfies the two key validity requirements. First, owing to the path-dependent nature of corporate strategy, historical industry–province diversification is strongly correlated with firms' contemporaneous diversification choices, satisfying the relevance condition. Second, these pre-determined historical patterns precede the emergence of the Ponzi financing phenomenon examined in this study and are therefore unlikely to directly affect firms' current Ponzi financing decisions, satisfying the exclusion restriction.

Div_Pre_mean also helps address the endogeneity concerns as the baseline instrument. It mitigates reverse causality and captures persistent industry- and region-specific factors such as technological conditions and financial policy environments and thus alleviates omitted variable bias. The weak instrument test yields a p-value of 0.0000, indicating that *Div_Pre_mean* comfortably passes the weak instrument test at the 1% significance level. Accordingly, we re-estimate the model using *Div_Pre_mean* as an alternative instrument within a 2SLS framework, with the results reported in Columns (3) and (4) of Panel A in Table 6. The first-stage results show that *Div_Pre_mean* is positively and significantly associated with diversification at the 1% level. In the second stage, the fitted value of diversification remains positively and significantly related to Ponzi financing, further reinforcing our main results.

Although we employ an IV approach to mitigate potential endogeneity concerns, we acknowledge that the relationship between diversified operations and Ponzi financing may still be affected by unobserved factors. In particular, existing empirical research designs face inherent limitations in fully disentangling the influence of managerial characteristics on both diversification decisions and financing behavior. Moreover, within the complex landscape of corporate decision-making, the extent to which diversification causally leads to Ponzi financing may be contingent upon moderating factors such as industry characteristics, macroeconomic conditions and institutional environments. The presence of these interacting influences further complicates causal identification. Future research could therefore adopt more refined quasi-natural experimental designs to strengthen causal inference regarding the relationship between corporate diversification and Ponzi financing.

Second, to address the potential concerns that there are systematic differences between diversified and non-diversified corporations, we use propensity score matching to reconstruct the sample. We first calculate the propensity matching score for each of the firms based on the control variables. Then, for each diversified firm, we find the 1:1 matching specialized firm with the nearest propensity score to construct the matching sample. The regression results presented in column (5) of Panel A in Table 6 show that the positive correlation between diversification and Ponzi finance persists.

Third, we further include industry-by-year interaction fixed effects to absorb potential shocks from industry-specific technological changes or regional financial policies that could

Table 6. Robustness tests

	(1) IV1 <i>Div</i>	(2) <i>Ponzi</i>	(3) IV2 <i>Div</i>	(4) <i>Ponzi</i>	(5) 1:1 PSM <i>Ponzi</i>	(6) Interaction test <i>Ponzi</i>
<i>Panel A</i>						
<i>Div_mean</i>	0.977*** (131.38)					
<i>Div_Pre_mean</i>			0.066*** (7.71)			
<i>Div</i>		0.223*** (3.43)		0.986*** (5.86)	0.599*** (4.83)	0.070*** (4.52)
<i>Size</i>	0.013*** (10.59)	−0.049*** (−4.56)	0.020*** (11.68)	−0.028*** (−3.14)	−0.179*** (−4.89)	−0.004 (−0.83)
<i>Age</i>	0.035*** (10.39)	0.011 (0.38)	0.068*** (14.75)	−0.100*** (−3.27)	−0.14 (−1.40)	0 (−0.27)
<i>Tobinq</i>	−0.004** (−2.57)	−0.005 (−0.35)	−0.001** (−2.21)	−0.013** (−2.35)	0.018 (0.4)	0.001 (0.44)
<i>Tan</i>	−0.056*** (−7.03)	1.865*** (27.09)	−0.112*** (−10.23)	1.939*** (25.60)	4.356*** (18.19)	0.441*** (14.99)
<i>Dual</i>	−0.004 (−1.49)	0.058*** (2.61)	−0.004 (−1.07)	0.046* (1.88)	0.043 (0.61)	0.016** (2.24)
<i>Top1</i>	−0.001*** (−8.56)	−0.006*** (−8.85)	−0.001*** (−10.96)	−0.005*** (−6.75)	−0.005** (−2.38)	−0.001*** (−5.03)
<i>Lev</i>	0.037*** (5.62)	5.492*** (80.46)	0.046*** (5.26)	5.157*** (56.89)	10.028*** (42.04)	1.297*** (51.05)
<i>Board</i>	−0.001** (−1.97)	−0.011* (−1.88)	−0.000 (−0.40)	−0.022*** (−3.55)	−0.031 (−1.62)	−0.003 (−1.38)
<i>MB</i>	−0.001 (−0.14)	0.560*** (6.99)	0.009 (0.97)	0.438*** (6.74)	1.187*** (4.41)	0.165*** (8.46)
<i>Constant</i>	−0.327*** (−12.06)	−1.433*** (−5.98)	−1.258*** (−37.62)	−1.184 (.)	−0.914 (−1.19)	−0.003 (−1.38)
<i>Industry</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Year</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	30,315	30,315	24,448	24,448	14,855	30,315
<i>R²/Pseudo_R²</i>	0.414	0.414	0.0804	0.462	0.414	0.436
	(1)	(2)	(3)	(4)	(5)	
	Alternative diversification measures				Shorter	
	<i>Ponzi</i>	<i>Ponzi</i>	<i>Ponzi</i>	Ologit model	sample	
				<i>FM</i>	period	
					<i>Ponzi</i>	
<i>Panel B</i>						
<i>Dyh_dum</i>	0.228*** (6.43)					
<i>Dyh_entro</i>		0.323*** (8.38)				
<i>Dyh_n</i>			0.151*** (7.26)			
<i>Div</i>				0.388*** (7.08)	0.572*** (7.19)	
<i>Size</i>	−0.095*** (−5.09)	−0.100*** (−5.37)	−0.094*** (−5.04)	0.005 (0.34)	−0.105*** (−4.78)	
<i>Lnage</i>	−0.004 (−0.07)	−0.005 (−0.11)	0.007 (0.14)	−0.020 (−0.50)	−0.041 (−0.69)	

(continued)

(continued)

Table 6. Continued

	(1)	(2)	(3)	(4)	(5)
	Alternative diversification measures			Ologit model	Shorter sample period
	<i>Ponzi</i>	<i>Ponzi</i>	<i>Ponzi</i>	<i>FM</i>	<i>Ponzi</i>
<i>Tobinq</i>	−0.010 (−0.38)	−0.012 (−0.44)	−0.014 (−0.53)	−0.044** (−2.50)	−0.002 (−0.08)
<i>Tan</i>	3.357*** (27.36)	3.386*** (27.54)	3.368*** (27.42)	2.707*** (26.66)	3.300*** (23.12)
<i>Dual</i>	0.106*** (2.72)	0.105*** (2.69)	0.105*** (2.70)	0.187*** (6.35)	0.082* (1.85)
<i>Top1</i>	−0.010*** (−8.65)	−0.010*** (−8.54)	−0.010*** (−8.75)	−0.005*** (−5.72)	−0.011*** (−8.30)
<i>Lev</i>	9.628*** (74.19)	9.653*** (74.27)	9.658*** (74.32)	7.776*** (81.36)	9.729*** (64.89)
<i>Board</i>	−0.021*** (−2.14)	−0.019* (−1.93)	−0.019*** (−1.96)	−0.021*** (−2.60)	−0.011 (−0.93)
<i>MB</i>	0.979*** (6.90)	0.959*** (6.75)	0.949*** (6.69)	0.583*** (5.29)	0.918*** (5.60)
<i>Constant</i>	−2.680*** (−6.78)	−2.591*** (−6.54)	−2.837*** (−7.18)		−1.309*** (−2.68)
<i>Industry</i>	Yes	Yes	Yes	Yes	Yes
<i>Year</i>	Yes	Yes	Yes	Yes	Yes
<i>N</i>	30,315	30,315	30,315	30,315	23,188
<i>Pseudo_R²</i>	0.412	0.413	0.412	0.286	0.412

Note(s): This table presents the results from the robustness tests. In Panel A, Columns (1), (2), (3) and (4) report the two-stage least square regression results, where *Div_mean*, or *Div_Pre_mean* are the average levels of diversification among firms in the same industry and region, either contemporaneously, or during the pre-sample period of 2000–2005, which are used as instrumental variables. Column (5) reports the regression results for the propensity score-matched sample. Column (6) presents the results with industry-by-year interaction effects. In Panel B, Columns (1) through (3) report the results using alternative diversification proxies are used. Column (4) presents the regression results from the Ologit model where the dependent variable is an ordered multinomial variable. Column (5) reports the results for the sample period excluding the 2008 financial crisis and the COVID-19 pandemic. The symbols *, ** and *** represent significance at the 10%, 5% and 1% levels, respectively

simultaneously affect both diversification and Ponzi financing, thereby mitigating omitted-variable bias. The results are reported in Column (6) of Panel A, Table 6. The coefficient of diversification (*Div*) remains positive and statistically significant after controlling for these industry-year interactions, indicating that our earlier findings are not driven by common shocks at the industry or year level.

Fourth, we use three alternative proxies to measure diversification: a dummy variable indicating whether an enterprise is diversified or not (*Dyh_dum*), the income entropy index (*Dyh_entro*) and the number of industries a firm is diversified across (*Dyh_n*). Columns (1)–(3) of Panel B in Table 6 show the test results. We can see that all the diversification proxies are significantly positively correlated with Ponzi, confirming that the effect is robust to the measure of diversification.

Fifth, to rule out potential model specification errors that could lead to biased regression results, we re-ran the regression using the ordered logit (*Ologit*) model. The dependent variable of the Ologit model is an ordered variable indicating the financing regime of the firm, valued as 1 for hedge finance, 2 for speculative finance and 3 for Ponzi finance. The regression results in column (4) in Panel B of Table 6 show that diversification still leads to deterioration in the financing regime, consistent with prior results.

Finally, our sample period includes the 2008 financial crisis and the COVID-19 pandemic. Both events involved economic instability that could have prompted corporations to undertake usual actions in response to these crises, which may potentially bias our findings regarding the relationship between firm behavior and the financing regimes. We hence exclude these two periods from our sample and rerun the regression over the period of 2010–2019. The results are reported in Column (5) of Panel B, [Table 6](#). The coefficient of diversification remains positive and statistically significant, confirming the robustness of our findings.

6. Further analysis

Having established the positive link between diversification and the likelihood of engaging in Ponzi finance, it is crucial to explore strategies to mitigate this effect to maintain a healthy and stable economy. Reducing inefficient diversification and improving resource allocation are key to lowering the likelihood of Ponzi finance. In this section, we examine two potential channels: external governance and internal R&D investment.

The first channel involves an increase in institutional investor holdings. Institutional investor holdings play a critical role in mitigating the principal-agent problem by addressing information asymmetries and aligning the interests of managers and shareholders. Managers may pursue diversification if the private benefits outweigh costs, even when such actions do not enhance corporate value ([Aggarwal & Samwick, 2006](#)).

Moreover, institutional investors serve as an important external governance mechanism, contributing to enhancing corporate value by actively participating in corporate governance, overseeing and disciplining management and curbing self-serving actions. Existing research suggests that institutional investors adhere to the regulatory function outlined in principal-agent theory. This limits diversification due to “insider control” and reduces the discounting effect of diversification, particularly when institutional investors hold the majority of shares ([Hartzell, Sun, & Titman, 2014](#)).

To test this mechanism, we included an interaction term between institutional holdings and diversification ($Ins \times Div$) in our baseline regression. Results in [Table 7](#) show a significantly negative coefficient on the interaction term, indicating that higher institutional ownership effectively mitigates the adverse impact of diversification on the likelihood of engaging in Ponzi finance.

The second channel involves R&D investment. The inefficiency of corporate diversification is partially attributed to the resource dilution resulting from non-relevant diversification, making it challenging to generate competitive synergies ([Villalonga, 2004](#)). Many Chinese corporations lacking core technologies diversify into unfamiliar domains, exacerbating the “discount effect.” Diversification and expansion may also incentivize management to build extensive corporate empires, leading to misuse of free cash flow, particularly in regions with weak judicial protection for minority shareholders ([Stein, 1997](#); [Ahn & Denis, 2004](#); [Bigelli & Mengoli, 2004](#)).

Therefore, constraining free cash flow and increasing R&D investment can discourage unwise diversification. To test this, we introduce an interaction term between R&D investment and diversification ($RD \times Div$) into the baseline regression. As shown in [Table 7](#), the coefficient of this interaction is significantly negative, suggesting that higher R&D investment can partially mitigate the likelihood of corporations resorting to Ponzi finance.

7. Conclusion

Corporate diversification has long attracted attention in both theory and practice due to its significant implications for firm growth. This study examines the impact of diversification on corporate Ponzi finance behavior, the underlying mechanisms and heterogeneity effects, drawing on Minsky’s FIH. We also explore strategies to mitigate the link between diversification and Ponzi finance.

Table 7. Mechanisms to mitigate diversification leading to Ponzi finance

	Institutional investor holdings <i>Ponzi</i>	R&D investment <i>Ponzi</i>
Div_{t-1}	0.612*** (8.02)	0.469*** (5.96)
Ins_{t-1}	-0.005*** (-4.50)	
$Ins_{t-1} \times Div_{t-1}$	-0.006* (-1.76)	
RD_{t-1}		-19.889*** (-13.62)
$RD_{t-1} \times div_{t-1}$		-17.283*** (-3.47)
$Size_{t-1}$	-0.046** (-2.08)	-0.076*** (-3.63)
$Lnage_{t-1}$	0.134** (2.22)	0.033 (0.55)
$Tobinq_{t-1}$	-0.012 (-0.42)	-0.033 (-1.11)
Tan_{t-1}	3.540*** (25.70)	3.419*** (24.76)
$Dual_{t-1}$	0.059 (1.35)	0.101** (2.31)
$Top1_{t-1}$	-0.007*** (-4.82)	-0.011*** (-8.24)
Lev_{t-1}	10.012*** (67.66)	9.970*** (67.10)
$Board_{t-1}$	-0.023** (-2.13)	-0.025** (-2.29)
MB_{t-1}	0.692*** (4.41)	0.468*** (2.95)
<i>Constant</i>	-2.228*** (-4.52)	-1.487*** (-3.19)
<i>Year</i>	Yes	Yes
<i>Industry</i>	Yes	Yes
<i>N</i>	24,995	24,995
<i>Pseudo_R²</i>	0.414	0.420

Note(s): This table tests whether and how institutional investor holdings (Ins) and research and development (R&D) can help mitigate the adverse effect of diversification on Ponzi finance. The symbols *, **, and *** represent significance at the 10%, 5% and 1% levels, respectively

Our main findings suggest that (1) diversification increases the likelihood of corporations engaging in Ponzi finance, a trend substantiated through extensive robustness tests, and (2) mechanism analysis reveals that diversification adversely affects asset liquidity and profitability while increasing reliance on bank borrowing. This elevated debt risk, in turn, amplifies the likelihood of corporations resorting to Ponzi finance. (3) Cross-sectional analysis at the industry level indicates that supportive policies weaken the association between diversification and Ponzi finance. In contrast, firms in highly marketized regions are more susceptible to Ponzi finance. (4) Mitigation mechanism tests suggest that firms can reduce the adverse effects of diversification by increasing institutional investor holdings, which strengthens management supervision and limits self-serving behavior. Furthermore, investment in research and development (R&D) helps enhance competitive capability,

reduce resource dispersion from inefficient diversification and mitigate the impact of diversification on Ponzi finance.

The findings of this study have important implications for theory, corporate governance research, managerial practice and financial regulation. From a theoretical perspective, the results extend Minsky's FIH by demonstrating that financial fragility is not only driven by macroeconomic cycles or balance sheet leverage but also by firm-level strategic choices. Specifically, corporate diversification systematically affects financing regimes. This highlights the need for future analyses to incorporate corporate strategy as a micro-foundation of financial instability. For the corporate governance literature, the evidence that diversification increases the likelihood of Ponzi finance underscores the governance risks embedded in complex organizational structures, particularly in environments characterized by weak external discipline. The mitigating role of institutional investors suggests that effective external monitoring can partially restore financial discipline, offering a concrete mechanism through which governance quality shapes financial stability. From a managerial perspective, the results caution against aggressive or non-core diversification strategies that rely heavily on debt refinancing, especially under conditions of distorted credit allocation. Managers should recognize that diversification may weaken liquidity, erode profitability and increase refinancing dependence, thereby exposing firms to hidden financial fragility even when they do not exhibit short-term distress. Finally, the findings have clear regulatory and policy implications. Because Ponzi finance poses systemic risks, regulators should move beyond firm-level solvency indicators and pay closer attention to how diversification interacts with financing structures, particularly in systems characterized by shadow banking and soft budget constraints. Strengthening disclosure requirements for diversified firms, improving the pricing of credit risk and encouraging long-term, innovation-oriented investment may help curb the accumulation of firm-level fragility and enhance macro-financial stability.

While the data sample in this study encompasses corporate data over an extended time horizon, certain limitations remain. Specifically, the sample is predominantly drawn from Chinese firms, which may not fully capture the global corporate landscape. Factors such as financial market structures, legal environments and corporate cultures differ across countries and regions, all of which are likely to influence the mechanism by which corporate diversification operates on Ponzi financing. Consequently, future research could extend the sample scope to incorporate corporate data from more countries and regions, thereby examining the generalizability of the conclusions of this study.

Notes

1. Where opening cash stock = opening monetary funds + opening financial assets held for trading + opening non-current assets due within one year; current debt payable = (short-term borrowings + financial liabilities held for trading + derivative financial liabilities + non-current liabilities due within one year) + (bills payable + accounts payable + various other payables + other current liabilities) – (bills receivable + accounts receivable + other receivables + other current assets).
2. To ensure the stationarity of all the main variables, we conduct unit root tests for each of them. The results, available upon request, show that all variables have statistically significant p -values and P_m values at the 1% level, confirming that the series are stationary.
3. China's Five-Year Plan is a comprehensive policy blueprint released by the government every five years to guide China's economic and social development.
4. The five components measure: (1) the government-market relationship; (2) the development of the non-state-owned economy; (3) the development of the product and factor market; (4) the development of market intermediaries and (5) the legal environment. Each of these components is constructed from 17 fundamental indicators and is assigned appropriate weights through comprehensive calculations. The weights are determined to capture the relative importance of each constituent indicator.

References

- Aggarwal, R. K., & Samwick, A. A. (2006). Empire-builders and shirkers: Investment, firm performance, and managerial incentives. *Journal of Corporate Finance*, 12(3), 489–515. doi: [10.1016/j.jcorpfin.2006.01.001](https://doi.org/10.1016/j.jcorpfin.2006.01.001).
- Ahn, S., & Denis, D. J. (2004). Internal capital markets and investment policy: Evidence from corporate spinoffs. *Journal of Financial Economics*, 71(3), 489–516. doi: [10.1016/s0304-405x\(03\)00165-x](https://doi.org/10.1016/s0304-405x(03)00165-x).
- Aivazian, V. A., Qiu, J., & Rahaman, M. M. (2015). Bank loan contracting and corporate diversification: Does organizational structure matter to lenders? *Journal of Financial Intermediation*, 24(2), 252–282. doi: [10.1016/j.jfi.2015.02.002](https://doi.org/10.1016/j.jfi.2015.02.002).
- Allen, F., Qian, Y., Tu, G., & Yu, F. (2019). Entrusted loans: A close look at China's shadow banking system. *Journal of Financial Economics*, 133(1), 18–41. doi: [10.1016/j.jfineco.2019.01.006](https://doi.org/10.1016/j.jfineco.2019.01.006).
- Amit, R., & Livnat, J. (1988). Diversification and the risk-return trade-off. *Academy of Management Journal*, 31(1), 154–166. doi: [10.2307/256502](https://doi.org/10.2307/256502).
- Arikan, A. M., & Stulz, R. M. (2016). Corporate acquisitions, diversification, and the firm's life cycle. *The Journal of Finance*, 71(1), 139–194. doi: [10.1111/jofi.12362](https://doi.org/10.1111/jofi.12362).
- Arza, V., & Español, P. (2008). Les liaisons dangereuses: A Minskyan approach to the relation of credit and investment in Argentina during the 1990s. *Cambridge Journal of Economics*, 32(5), 739–759. doi: [10.1093/cje/ben007](https://doi.org/10.1093/cje/ben007).
- Asif, R., & Akhter, W. (2019). Exploring the influence of revenue diversification on financial performance in the banking industry: A systematic literature review. *Qualitative Research in Financial Markets*, 11(3), 305–327. doi: [10.1108/qrfm-04-2018-0057](https://doi.org/10.1108/qrfm-04-2018-0057).
- Bai, M., Zhang, D., Bai, H., & Qin, Y. (2025). Internal and external managerial challenges of Ponzi financing in China. *International Journal of Managerial Finance*, 21(4), 1086–1111. doi: [10.1108/ijmf-01-2025-0005](https://doi.org/10.1108/ijmf-01-2025-0005).
- Berger, P. G., & Ofek, E. (1999). Causes and effects of corporate refocusing programs. *The Review of Financial Studies*, 12(2), 311–345. doi: [10.1093/rfs/12.2.311](https://doi.org/10.1093/rfs/12.2.311).
- Bigelli, M., & Mengoli, S. (2004). Sub-optimal acquisition decisions under a majority shareholder system. *Journal of Management and Governance*, 8(4), 373–405. doi: [10.1007/s10997-004-4896-2](https://doi.org/10.1007/s10997-004-4896-2).
- Budnevich Portales, C., Favreau Negront, N., & Pérez Caldentey, E. (2021). Chile's thrust towards financial fragility. *Investigación Económica*, 80(315), 81–106. doi: [10.22201/fe.01851667p.2021.315.77041](https://doi.org/10.22201/fe.01851667p.2021.315.77041).
- Chandler, A. D. (1990). *Scale and scope: The dynamics of industrial capitalism*. Cambridge, MA: Harvard University Press.
- Davis, L. E., de Souza, J., & Hernandez, G. (2019). An empirical analysis of Minsky regimes in the US economy. *Cambridge Journal of Economics*, 43(3), 541–583. doi: [10.1093/cje/bey061](https://doi.org/10.1093/cje/bey061).
- Davis, L. E., de Souza, J., & Hernandez, G. (2023). Listing, delisting, and financial norms: A quantile decomposition of firm balance sheets. *Journal of Evolutionary Economics*, 33(4), 1–44. doi: [10.1007/s00191-023-00815-9](https://doi.org/10.1007/s00191-023-00815-9).
- Doukas, J. A., & Pantzalis, C. (2003). Geographic diversification and agency costs of debt of multinational firms. *Journal of Corporate Finance*, 9(1), 59–92. doi: [10.1016/s0929-1199\(01\)00056-6](https://doi.org/10.1016/s0929-1199(01)00056-6).
- Eisfeldt, A. L., & Rampini, A. A. (2008). Managerial incentives, capital reallocation, and the business cycle. *Journal of Financial Economics*, 87(1), 177–199. doi: [10.1016/j.jfineco.2006.11.007](https://doi.org/10.1016/j.jfineco.2006.11.007).
- Fisman, R., & Svensson, J. (2007). Are corruption and taxation really harmful to growth? Firm level evidence. *Journal of Development Economics*, 83(1), 63–75. doi: [10.1016/j.jdeveco.2005.09.009](https://doi.org/10.1016/j.jdeveco.2005.09.009).
- Foley, D. (2003). Financial fragility in developing economies. In A. K., Dutt, & J., Ross (Eds) *Development Economics and Structuralist Macroeconomics* (pp. 157–168). Cheltenham: Edward Elgar.

- Hartzell, J. C., Sun, L., & Titman, S. (2014). Institutional investors as monitors of corporate diversification decisions: Evidence from real estate investment trusts. *Journal of Corporate Finance*, 25, 61–72. doi: [10.1016/j.jcorpfin.2013.10.006](https://doi.org/10.1016/j.jcorpfin.2013.10.006).
- Hoskisson, R. E., & Hitt, M. (1990). Antecedents and performance outcomes of diversification: A review and critique of theoretical perspectives. *Journal of Management*, 16(2), 461–509. doi: [10.1177/014920639001600210](https://doi.org/10.1177/014920639001600210).
- Jiang, H., & Han, L. (2018). Does income diversification benefit the sustainable development of Chinese listed banks? Analysis based on entropy and the Herfindahl–Hirschman index. *Entropy*, 20(4), 255. doi: [10.3390/e20040255](https://doi.org/10.3390/e20040255).
- Jin, S., Wang, W., & Zhang, Z. (2023). The real effects of implicit government guarantee: Evidence from Chinese state-owned enterprise defaults. *Management Science*, 69(6), 3650–3674. doi: [10.1287/mnsc.2022.4483](https://doi.org/10.1287/mnsc.2022.4483).
- Khanna, T., & Palepu, K. (1997). World view: Why focused strategies may be wrong for emerging markets. *Harvard Business Review*, 75(4), 41.
- Khanna, N., & Tice, S. (2001). The bright side of internal capital markets. *The Journal of Finance*, 56(4), 1489–1528. doi: [10.1111/0022-1082.00377](https://doi.org/10.1111/0022-1082.00377).
- Liang, Q., Huang, J., Liang, M., & Li, J. (2024). Economic growth targets and bank risk exposure: Evidence from China. *Economic Modelling*, 135, 106702. doi: [10.1016/j.econmod.2024.106702](https://doi.org/10.1016/j.econmod.2024.106702).
- Liu, H., & Bu, X. (2022). Is debt default of private enterprises internally driven? An analysis from the perspectives of short-term loans for long-term investment and diversification. *Journal of Financial Research*, 3, 79–95.
- Miller, D. J., & Yang, H. (2016). The dynamics of diversification: Market entry and exit by public and private firms: The dynamics of diversification: Market entry and exit. *Strategic Management Journal*, 37(11), 2323–2345. doi: [10.1002/smj.2568](https://doi.org/10.1002/smj.2568).
- Minsky, H. P. (1974). The modeling of financial instability: An introduction. *Modeling and Simulation*, 5, 267–272.
- Minsky, H. P. (1975). Financial resources in a fragile financial environment. *Challenge*, 3(18), 6–13. doi: [10.1080/05775132.1975.11470124](https://doi.org/10.1080/05775132.1975.11470124).
- Minsky, H. P. (2008). *Stabilizing an unstable economy*. New York: McGraw-Hill Education.
- Montgomery, C. A. (1994). Corporate diversification. *The Journal of Economic Perspectives*, 8(3), 163–178. doi: [10.1257/jep.8.3.163](https://doi.org/10.1257/jep.8.3.163).
- Nagarajan, V., Mohanty, P., & Khatua, A. (2023). Financing effects of corporate diversification: A review. *Review of Managerial Science*, 17(7), 2555–2585. doi: [10.1007/s11846-022-00604-x](https://doi.org/10.1007/s11846-022-00604-x).
- Nishi, H. (2019). An empirical contribution to Minsky's financial fragility: Evidence from non-financial sectors in Japan. *Cambridge Journal of Economics*, 43(3), 585–622. doi: [10.1093/cje/bey031](https://doi.org/10.1093/cje/bey031).
- Oliver, C. (1997). Sustainable competitive advantage: Combining institutional and resource-based views. *Strategic Management Journal*, 18(9), 697–713. doi: [10.1002/\(sici\)1097-0266\(199710\)18:9<697::aid-smj909>3.0.co;2-c](https://doi.org/10.1002/(sici)1097-0266(199710)18:9<697::aid-smj909>3.0.co;2-c).
- Rajan, R., Servaes, H., & Zingales, L. (2000). The cost of diversification the diversification discount and inefficient investment. *The Journal of Finance*, 55(1), 35–80. doi: [10.1111/0022-1082.00200](https://doi.org/10.1111/0022-1082.00200).
- Rozmainisky, I., Kovezina, Y., & Klimenko, A. (2022). An empirical application of the financial instability hypothesis based on data from the Dutch non-financial private sector. *Journal of Post Keynesian Economics*, 45(2), 281–300. doi: [10.1080/01603477.2021.1993072](https://doi.org/10.1080/01603477.2021.1993072).
- Scharfstein, D. S., & Stein, J. C. (2000). The dark side of internal capital markets: Divisional rent-seeking and inefficient investment. *The Journal of Finance*, 55(6), 2537–2564. doi: [10.1111/0022-1082.00299](https://doi.org/10.1111/0022-1082.00299).
- Shin, H. H., & Stulz, R. M. (1998). Are internal capital markets efficient? *The Quarterly Journal of Economics*, 113(2), 531–552. doi: [10.1162/003355398555676](https://doi.org/10.1162/003355398555676).

- Stein, J. C. (1997). Internal capital markets and the competition for corporate resources. *The Journal of Finance*, 52(1), 111–133. doi: [10.1111/j.1540-6261.1997.tb03810.x](https://doi.org/10.1111/j.1540-6261.1997.tb03810.x).
- Stein, J. C. (2002). Information production and capital allocation: Decentralized versus hierarchical firms. *The Journal of Finance*, 57(5), 1891–1921. doi: [10.1111/0022-1082.00483](https://doi.org/10.1111/0022-1082.00483).
- Subramaniam, V., Tang, T. T., Yue, H., & Zhou, X. (2011). Firm structure and corporate cash holdings. *Journal of Corporate Finance*, 17(3), 759–773. doi: [10.1016/j.jcorpfin.2010.06.002](https://doi.org/10.1016/j.jcorpfin.2010.06.002).
- Villalonga, B. (2004). Diversification discount or premium? New evidence from the business information tracking series. *The Journal of Finance*, 59(2), 479–506. doi: [10.1111/j.1540-6261.2004.00640.x](https://doi.org/10.1111/j.1540-6261.2004.00640.x).
- Wang, X. L., Hu, L., & Fan, G. (2021). *Report on China's provincial marketization index*. Beijing: Social Sciences Academic Press.
- Wu, S., Chen, Y., Wu, Y., & Wang, J. (2021). Corporate financing models, financial market security, and their dynamic characteristics. *China Industrial Economics*, (8), 37–55.
- Yang, X., & Zhang, Z. (2018). How does strategic difference affect corporate cash holdings. *Journal of Guizhou University of Finance and Economics*, 03, 41–53.
- Yang, X., & Zhang, J. (2022). Chain shareholders and corporate diversification: Accelerating expansion or focusing on core business. *Modern Finance and Economics (Journal of Tianjin University of Finance and Economics)*, 42(05), 36–55.
- Yiğit, İ., & Tür, Ş. (2012). Relationship between diversification strategy applications and organizational performance according to Herfindahl index criteria. *Procedia – Social and Behavioral Sciences*, 58, 118–127. doi: [10.1016/j.sbspro.2012.09.985](https://doi.org/10.1016/j.sbspro.2012.09.985).

Further reading

- Berger, P. G., & Ofek, E. (1995). Diversification's effect on firm value. *Journal of Financial Economics*, 37(1), 39–65. doi: [10.1016/0304-405x\(94\)00798-6](https://doi.org/10.1016/0304-405x(94)00798-6).

Corresponding author

Dong Zhang can be contacted at: zhdong2004@163.com