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Analyzing the Impact of Corporate Hedging on Enterprise Valuation: Evidence from China

Bobur Nasriddinov
Sinbad Kurbonov
Kessellie Traore Mulbah
SILC Business School, Shanghai University, China

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Abstract

In a dynamic global financial landscape marked by unprecedented turbulence, driven notably by the COVID-19 pandemic, corporate hedging practices emerged as a critical tool for managing risks and preserving enterprise value (EV). This research investigated the intricate relationship between corporate hedging and EV, with a specific focus on Chinese-listed firms spanning the period from 2012 to 2023. Employing an extensive sample of 4,574 Chinese-listed firms, the study leveraged the Generalized Least Squares (GLS) model for its empirical analysis. The findings revealed a statistically significant positive impact of corporate hedging on enterprise value, validating the hypothesis that effective risk management strategies contributed to increased firm valuation. Furthermore, the study introduced crucial moderating variables (enterprise ownership and corporate governance index) and uncovered their effects on the relationship between hedging practices and EV. State-owned enterprises and firms with stronger corporate governance mechanisms exhibited a more pronounced positive association between hedging and EV. Overall, this research advanced theoretical frameworks and provided practical insights for corporate leaders, investors, and policymakers navigating the complexities of risk management in a rapidly evolving economic landscape.

Keywords: Corporate hedging, enterprise value, enterprise ownership, corporate governance, risk management

Introduction

The global financial landscape has experienced unprecedented turbulence in recent years, primarily driven by the outbreak of the COVID-19 pandemic (Hendrati et al., 2024). This period of economic uncertainty resulted in heightened volatility in interest rates, exchange rates, and commodity prices within the international financial markets (Yang et al., 2023). Managing risks has become a critical aspect of corporate strategy in this dynamic and complex financial environment.

Meanwhile, derivatives have witnessed an exponential surge in popularity worldwide over the last decade. As the economic landscape evolves and globalization intensifies, they have emerged as indispensable instruments for diverse firms to proactively manage and mitigate risks inherent in operational and financial activities (Sridhar, 2023). It should be noted that the deepening integration of China into the international economy has exposed domestic enterprises, particularly listed companies, to the above-mentioned risks (Xiang, 2022). Therefore, there is a pressing need to investigate how the utilization of derivatives, specifically corporate hedging practices, impacts the valuation of Chinese enterprises.

This research paper profoundly expands the realm of financial knowledge. At its core, it offers a comprehensive review that delves into theoretical frameworks and empirical evidence concerning the impact of the financial derivatives market on enterprise value (EV). The empirical analysis conducted in this research is rooted in the Generalized Least Squares (GLS) model, a robust statistical approach renowned for its effectiveness in handling heteroscedasticity and autocorrelation. By employing the GLS model, this research leverages its essential advantages to provide accurate and reliable insights into the relationship between corporate hedging practices and enterprise valuation.

Furthermore, this study goes beyond the conventional by considering the moderating effects of two pivotal factors: property ownership and corporate government index (CGI). These moderating variables introduce a layer of complexity and depth to the analysis, shedding light on how ownership dynamics and corporate governance structures may influence the interplay between hedging and enterprise value. Therefore, beyond academics, this research offers valuable insights to practitioners, including corporate leaders, investors, and senior managers.

Literature review

Theoretical framework and models

Financial derivatives represent a dynamic and critical facet of modern finance, continually evolving to address the complex risk landscape of global markets. Their origins can be traced back to the introduction of the "futures contract" by the Chicago Board of Trade in 1865 (Hull, 2022). Since then, derivatives have received much attention among scholars who aimed to investigate their impact on enterprise value. Modigliani and Miller (1958) were first to propose the M-M theory which postulated that the use of derivatives should not inherently create value or enhance financial or market performance. This viewpoint prompted extensive debates within the academic and financial groups, questioning the role of derivatives in corporate finance (Buriro et al., 2023).

Subsequent studies rejected the M-M theory and found that risk management increases the value of companies due to specific market imperfections. Guay and Kothari (2001) identified and divided them into four categories: financial distress costs, costly external financing, asymmetry in tax costs, and the cost of managerial risk aversion. Moreover, many papers further illuminated the effectiveness of financial derivatives in mitigating firm risks. By smoothing earnings and cash flows, derivatives reduce capital costs, enabling firms to navigate financial challenges and uncertainties more effectively (Campbell et al., 2019) (Su et al., 2022). Consequently, this risk reduction can have a substantial impact on EV.

Empirical studies and research advancements

While the theoretical discourse surrounding the relationship between corporate hedging and enterprise value has been extensive in the last decade, empirical studies that offer concrete insights into this relationship remain relatively scarce. Two noteworthy research papers, authored by Buriro et al. (2023) and Yang et al. (2023), stand out in the literature for their empirical analyses, shedding light on the positive impact of corporate hedging on enterprise value.

In their respective studies, Buriro et al. (2023) and Yang et al. (2023) both approach the evaluation of enterprise value through the lens of Tobin's Q variable. However, their treatment of corporate hedging differs significantly. Buriro et al. (2023) measured the gain or loss associated with hedging activities for a specific year. Their methodology provides a detailed examination of the outcomes of corporate hedging efforts. It is important to note that this study, while insightful, has a relatively limited sample size, which may affect the generalizability of its findings.

On the other hand, Yang et al. (2023) employ a different but equally valid approach. They introduce a binary dummy variable, taking on values of

1 for firms that engage in hedging and 0 for those that do not. This approach simplifies the evaluation of hedging practices but offers a broader perspective by considering the presence or absence of hedging activities. However, it should be acknowledged that their study employs a book-to-market value for robustness testing, a choice that may raise questions about the accuracy and appropriateness of this measure for capturing the full impact of corporate hedging.

Research gap and study relevance

Despite extensive theoretical and emerging empirical research on corporate hedging and firm value, gaps remain. Existing studies primarily focus on developed economies, overlooking emerging markets like China with its rapidly evolving economic landscape and unique corporate ownership structures. The interplay between state-owned and non-state-owned enterprises and hedging strategy effectiveness is underexplored. Moreover, the moderating role of corporate governance in the hedging-firm value relationship has received limited attention, despite governance mechanisms' growing global prominence.

This study addresses these gaps by comprehensively analyzing how corporate hedging impacts enterprise value for Chinese listed firms. Employing robust methodologies like the Generalized Least Squares model and introducing moderators like ownership and governance index, provides nuanced insights into this relationship. Ultimately, it contributes to the literature and offers practical implications for corporate decision-makers, investors, and policymakers managing risk in today's dynamic financial landscape.

Research hypotheses

Corporate Hedging and Enterprise Value

Corporate hedging has emerged as a critical component of risk management for firms operating in today’s dynamic and volatile markets. The fundamental premise behind hedging is to shield a company from the four imperfections presented by Guay and Kothari (2001). First of all, when a company encounters a situation where its operational cash flow is inadequate to cover its existing debt obligations and necessitates remedial measures, it enters a state commonly referred to as financial distress (Tron, 1994). The repercussions of financial distress and the potential of bankruptcy directly impact the enterprise value. Hedging allows companies to preserve liquidity, ensuring they maintain sufficient working capital even during challenging economic conditions (Sugiarto et al., 2023).

Secondly, effective corporate hedging can also alleviate the need for costly external financing, which often accompanies volatile financial

environments. By stabilizing cash flows and minimizing the impact of market volatility, hedging reduces a company's reliance on external capital (Merkert & Swidan, 2019). This decrease in dependence results in cost reductions, which consequently increases the EV.

Thirdly, corporate hedging can be structured in a tax-efficient manner to address asymmetry in tax costs related to gains and losses from financial instruments (Grima et al., 2020). Companies can strategically select hedging instruments and strategies that align with their tax position, reducing tax liabilities (Merkert & Swidan, 2019). Additionally, firms may employ derivatives strategically to offset tax liabilities arising from other sources of income (Grima et al., 2020). This tax optimization ensures that companies can minimize the asymmetry in tax costs and manage their overall tax position more effectively.

Lastly, hedging also contributes to addressing the cost of managerial risk aversion. Managers are often cautious about undertaking projects with significant risks, as these risks can impact their personal wealth and job security (Milidonis & Stathopoulos, 2014). Corporate hedging allows managers to manage risk without necessarily avoiding potentially profitable investment opportunities. Managers may be more willing to pursue value-enhancing projects when they have a mechanism to hedge against associated risks. This alignment of interests ensures that managers focus on strategies that maximize enterprise value while protecting their financial well-being.

In summary, corporate hedging offers the promise of stability, predictability, and lower capital costs, all of which can contribute to enhanced firm value. However, it also presents challenges in the form of associated costs and the potential for losses. Striking the right balance between risk management and profit optimization is a complex task, and the effectiveness of hedging strategies may vary depending on industry dynamics and economic conditions.

Hypothesis 1: Corporate hedging increases enterprise value.

Moderating Role of Enterprise Ownership

Regarding China, it is preferable to divide businesses into state-owned (SOEs) and nonstate-owned entities (non-SOEs). State-owned enterprises play a distinct role in the corporate landscape, particularly in the context of corporate hedging and its impact on enterprise value. These entities, often under government ownership or control, possess unique characteristics that can influence the relationship between hedging strategies and a firm's overall value.

SOEs typically enjoy access to substantial resources, financial stability, and strategic advantages stemming from government backing

(Dang, Nguyen & Taghizadeh-Hesary, 2021). This heightened resource base can significantly bolster their risk management capacity. When it comes to corporate hedging, this advantage becomes apparent. SOEs can implement more extensive and sophisticated hedging strategies, encompassing a broader spectrum of financial instruments and risk exposures. This enhanced risk management capacity allows them to effectively navigate market uncertainties and economic fluctuations, mitigating potential adverse impacts on EV.

Another point to note is that the presence of SOEs in the marketplace can also contribute to overall market stability (Cardinale, 2021). These entities, often seen as anchors of stability due to government support, can help mitigate extreme market fluctuations. A stable market environment is conducive to the successful implementation of hedging strategies, as it reduces the likelihood of abrupt and adverse market events negatively affecting a firm's EV.

Conversely, non-SOEs frequently demonstrate a strategic orientation that places significant emphasis on the long-term sustainability of their operations (Xie et al., 2023). Their business strategies prioritize the enduring viability of their endeavors. This strategic alignment harmonizes seamlessly with the core objectives of corporate hedging, which seeks to safeguard and enhance a firm's value over an extended time horizon. Consequently, non-SOEs' commitment to long-term value creation complements the objectives of hedging strategies, further reinforcing the potential positive impact on EV.

Hypothesis 2: Enterprise ownership positively moderates the relationship between corporate hedging and enterprise value.

Moderating Role of Corporate Governance

Corporate governance practices are synonymous with enhanced risk oversight and transparency (Landi et al., 2022). Boards of directors and audit committees, essential components of effective corporate governance, are tasked with diligently monitoring a firm's risk exposure and the strategies employed to manage it. When it comes to corporate hedging, these oversight bodies play a crucial role in ensuring that hedging strategies are aligned with the firm's risk appetite and strategic objectives.

In addition, agency costs, resulting from the separation of ownership and management, can have a significant impact on a firm's financial decisions and value. Effective corporate governance mechanisms, such as active shareholder engagement, serve as checks and balances to mitigate agency costs (Al-Gamrh et al., 2020). When applied to corporate hedging, these mechanisms help ensure that hedging decisions are made with the

primary goal of enhancing firm value rather than serving personal interests. This, in turn, reinforces the potential positive impact of hedging on EV.

Hypothesis 3: Corporate governance positively moderates the relationship between corporate hedging and enterprise value.

Methods

Sample selection

This research paper is founded upon an extensive sample comprising 4,574 Chinese-listed firms, spanning the years from 2012 to 2023. Notably, companies that had their issued stocks subjected to delisting risk warnings or any form of preferential treatment by China's Securities Regulatory Commission were intentionally excluded from the sample. This exclusion criterion was implemented to ensure the inclusion of firms characterized by stable financial performance, thereby mitigating the potential influence of outliers on analytical outcomes. Furthermore, organizations with incomplete or missing financial data were also systematically excluded, thus guaranteeing the data's completeness and reliability.

To conduct this analysis, I gathered information on firm performance from the China Stock Market and Accounting Research (CSMAR) database, renowned for its meticulousness and credibility in providing comprehensive financial and market data for all listed companies in China. The widespread reliance on the CSMAR database in empirical research concerning Chinese firms underscores its accuracy and dependability as a primary data source. Consequently, this paper's findings are anchored in the database which assures the highest level of precision.

Overall, this study's expansive sample encompasses a remarkable 30,773 firm-year observations, spanning a decade from 2012 to 2022. This substantial sample size not only fortifies statistical power but also empowers us to conduct a rigorous and in-depth analysis of the intricate relationship between hedging and EV. Furthermore, the longitudinal nature of this sample equips us with the unique capability to discern temporal shifts in the hedging amount over time, providing invaluable insights into my research area within the specific context of China.

Variables definition

The dependent variable in this paper is TobinQ. It is a widely recognized financial measure used to assess the relationship between a firm's market value and its replacement cost or book value. In addition, Tobin's Q represents how efficiently a company utilizes its assets which is highly relevant taking into consideration corporate hedging practices. Tobin's Q greater than 1 suggests that the market values the firm's assets higher than their accounting value, indicating potential growth opportunities and positive

market sentiment. Conversely, Tobin's Q less than 1 may indicate that the market values the assets lower than their accounting value, possibly suggesting undervaluation or inefficient asset utilization.

The HedgeAmount is a crucial independent variable in this study, representing the financial gain or loss resulting from a firm's hedging activities during a specific year. Its positive values indicate gains resulting from successful hedging operations, while negative values suggest losses incurred due to ineffectual or adverse market movements.

The first moderating variable is Enterprise Ownership (SOE) which is dummy. SOEs are companies that are either fully or partially owned and controlled by the government. They often enjoy unique characteristics and benefits associated with government backing, such as access to substantial resources, financial stability, and strategic advantages. In the context of the research, the SOE serves as a critical moderator to assess how state ownership influences the relationship between corporate hedging and enterprise value.

The second moderating variable is the Corporate Government Index (CGI) which continuously ranges between 0 and 1. The CGI measures the quality and effectiveness of corporate governance practices within a firm. It evaluates risk oversight, transparency, and adherence to legal governance principles. A higher CGI value indicates stronger corporate governance practices, while a lower value suggests weaker governance structures. In the context of this research, the CGI variable serves as another crucial moderator. It helps gauge how the quality of corporate governance influences the relationship between corporate hedging and enterprise value.

Control variables are important to account for factors that may influence the connection between the explained and explanatory variables. Company Size is a control variable representing a firm's scale or magnitude. In this study, it is anticipated to have a negative relationship with enterprise value. This expectation arises from the notion that larger companies, which typically have more substantial resources and greater financial complexities, may find it more challenging to predict the future value of a higher amount of hedged funds. As a result, their hedging practices may negatively impact EV. Debt-to-Asset Ratio is another control variable that is equal to year-end total debt divided by year-end total assets. It should also have a negative relationship because a greater proportion of debt in a company's capital structure may increase its financial risks.

At the same time, enterprises with higher numbers of Return on Assets, Operating Income Growth Rate, Cash Flow Ratio, and Monthly Average Excess Turnover Rate are expected to have a positive relationship between the hedged amount and enterprise value. The variable Years from Listing measures the number of years a company has been publicly listed. A

positive relationship is predicted between this variable and enterprise value. Firms with a longer history in the public domain may have accumulated more experience and expertise in conducting successful hedges. As a result, they are expected to positively influence EV.

The summary of all variables as well as their definitions can be found in Table 1.

Table 1. Variable definition

Variables	Symbol	Operational Definition
Tobin's Q	TobinQ	(Market value of tradable shares + Number of non-tradable shares × Net assets per share + Book value of liabilities) / Total assets
Hedged Amount	HedgeAmount	(Gain or loss from hedge in a particular year) / 1 million
Company Size	Size	ln (Total assets by the end of the year)
Debt-to-Asset Ratio	Lev	Year-end total debt / Year-end total assets
Return on Assets	ROA	Net income / Average total assets
Operating Income Growth Rate	Growth	Business income of the year / Business income of the previous year - 1
Cash Flow Ratio	Cashflow	Operating cash flow / Total assets
Earnings per Share	EPS	(Net earnings - Preferred dividends) / Weighted average number of common shares outstanding
Monthly Average Excess Turnover Rate	Dturn	The average monthly stock turnover rate of the current year - The average monthly stock turnover rate of the previous year
Enterprise Ownership	SOE	State-owned or State-owned Holding = 1, Others = 0
Corporate Government Index	CGI	Numerical measure of company's quality towards corporate governance practices and structures
Shareholding Ratio of Largest Shareholder	Top1	Shares held by the largest shareholder / Total shares
Years from the date of listing	ListAge	ln (current year - the year when the company was listed)

Research models

To examine the impact of corporate hedging (*HedgeAmount*) on enterprise value (*TobinQ*), this paper focuses on regression analysis using the following econometric model:

$$TobinQ_{,t} = \beta_0 + \beta_1 * HedgeAmount_{,t} + \beta_2 * X_{i,t} + \varepsilon_{i,t}$$

Where:

- $X_{i,t}$ denotes a vector of control variables;
- $\varepsilon_{i,t}$ represents the error term, capturing unexplained variation in the enterprise value.

As it was mentioned before, the choice of employing the Generalized Least Squares (*GLS*) model for panel data analysis in this research is driven by its effectiveness in handling certain statistical issues commonly

encountered in empirical studies. Panel data, which combines cross-sectional and time-series data, often exhibits two key challenges: heteroscedasticity and autocorrelation. This approach enhances the validity of the findings and contributes to the robustness of the empirical analysis.

Results

Descriptive statistics

Starting with TobinQ, a metric representing enterprise value, we observe notable variability within the dataset. With values spanning from a minimum of 0.8024 to a maximum of 17.7288 and a mean of 2.0832, it becomes apparent that this variable contains outliers. These outliers may warrant exclusion to enhance the reliability of subsequent analyses.

Upon introducing the HedgeDummy variable into our examination, it becomes evident that only 43.18% of the companies in our sample engage in hedging activities. This finding underscores the importance of including this variable in robustness tests to ensure the integrity of our mainline regression results.

As to control variables, the average Size of firms, as measured by the natural logarithm of total assets, is 22.1769, with a standard deviation of 1.2998. The maximum value of Size is 26.4297, while the lowest value is 19.5245, indicating that our sample comprises slightly more small-sized companies. The average debt-to-assets ratio (Lev) is 0.4163, ranging from 0.0349 to 0.9246 which highlights that the companies in the sample are using moderate levels of debt to finance their operations. The average ROA is 0.0411 which means that, on average, the firms in our sample generate a profit of 4 cents for every yuan of assets they own. However, the minimum value of -0.3982 suggests that some companies in the sample have negative profits, while the maximum value of 0.2539 indicates that some firms are more efficient.

The average operating income growth rate (Growth) is 0.1712, indicating that the firms in our sample have experienced positive growth over time. However, the range of Growth is quite large, varying from -0.6597 to 4.3304, suggesting some firms are struggling to achieve it. The range of Cashflow varies from -0.1965 to 0.2568, indicating that some firms generate more positive operational cash flow than others, contributing to their financial stability. On average, the EPS in our dataset is 0.6006, with a standard deviation of 1.0357. EPS reflects a company's profitability by showing how much profit is allocated to each outstanding share of common stock. The range of EPS is wide, from -7.3900 to 41.7600, implying significant variability in profitability across the sample companies.

What is more, it can be observed that on average, 31.69% of the companies in our dataset are state-owned enterprises (SOE). Additionally,

the largest shareholder owns, on average, 34% of the shares (Top1), indicating that the ownership structure of these companies is quite concentrated.

Table 2. Descriptive statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
TobinQ	30,211	2.0832	1.4662	0.8024	17.7288
HedgeAmount	29,444	0.0255	0.3875	-18.5442	14.6782
HedgeDummy	29,444	0.4318	0.4953	0	1
Size	30,773	22.1769	1.2998	19.5245	26.4297
Lev	30,773	0.4163	0.2068	0.0349	0.9246
ROA	30,772	0.0411	0.0691	-0.3982	0.2539
Growth	30,760	0.1712	0.4276	-0.6597	4.3304
Cashflow	30,773	0.0468	0.0685	-0.1965	0.2568
EPS	29,444	0.6006	1.0357	-7.3900	41.7600
Dturn	28,337	-0.1135	0.5182	-2.7567	1.5854
SOE	30,773	0.3169	0.4653	0	1
CGI	30,732	0.3705	0.2860	0.0062	1
Top1	30,733	0.3405	0.1474	0.0813	0.7578
ListAge	30,773	2.0327	0.9449	0	3.3673

Mainline regressions

In Table 3, the results of the mainline regression based on the GLS model are presented. The first column illustrates a regression where TobinQ serves as the dependent variable, and HedgeAmount acts as the independent variable. In the second column, this regression is expanded to include additional interactions with various control variables.

The coefficients associated with the independent variable indicate the change in the dependent variable when the independent variable shifts by one unit while keeping all other control variables constant. Notably, the analysis reveals a statistically significant and positive effect of 1% on the HedgeAmount variable on enterprise value. The estimated coefficient for HedgeAmount stands at 0.026, suggesting that companies with higher amounts of hedged funds tend to experience an increase in their enterprise value. This finding aligns with Hypothesis 1 of the study. It is important to emphasize that all other control variables exhibit statistical significance at the 1% level.

Table 3. Mainline regression

Variables	TobinQ	TobinQ
HedgeAmount	0.0157***	0.0264***
	(0.00468)	(0.00441)
Size		-0.436***
		(0.0174)

Lev		-0.102*
		(0.0918)
ROA		2.545***
		(0.186)
Cashflow		0.531***
		(0.163)
Growth		0.0421*
		(0.0223)
EPS		0.134***
		(0.0112)
Dturn		0.188***
		(0.0199)
CGI		-0.219***
		(0.0658)
SOE		-0.165***
		(0.0445)
Top1		-1.148***
		(0.146)
ListAge		0.166***
		(0.0275)
Constant	1.725***	11.37***
	(0.0734)	(0.338)
N	28,941	26,666
Firm Fixed Effect	Yes	Yes
Year Fixed Effect	Yes	Yes

Note: t statistics in parentheses, * p < .1, ** p < .05, *** p < .01

Robustness Test

Robustness tests are important for any research because they help ensure regression results' validity. For this purpose, the explanatory variable is replaced with HedgeDummy. This substitution is not merely an exercise in methodological diversity but rather a strategic move aimed at probing deeper into the dynamics at play. While HedgeAmount quantifies the actual financial impact of hedging activities, HedgeDummy takes a binary approach, classifying companies into hedgers and non-hedgers.

By employing HedgeDummy as an alternative explanatory variable, we broaden our scope of inquiry. It ensures that our analysis captures not only the quantitative influence of the amount of hedging but also the broader implications of corporate hedging practices on enterprise value. In essence, it allows us to explore whether mere engagement in hedging significantly

affects enterprise value regardless of the amount. As can be seen in Table 4, the effect of HedgeDummy is positive and significant at 1% which is consistent with Hypothesis 1.

Table 4. Robustness check

	TobinQ
HedgeDummy	0.0148***
	(0.0195)
Size	-0.765***
	(0.0180)
Lev	0.694***
	(0.0742)
ROA	2.215***
	(0.147)
Growth	0.0305*
	(0.0167)
Cashflow	0.519***
	(0.123)
EPS	0.199***
	(0.0131)
Dturn	0.170***
	(0.0147)
SOE	-0.281***
	(0.0505)
CGI	-0.100*
	(0.0575)
Top1	-0.748***
	(0.148)
ListAge	0.737***
	(0.0280)
Constant	17.45***
	(0.364)
Observations	26,666
R-squared	0.105

Heterogeneity test

In this study, we conducted heterogeneity tests to explore how different factors such as firm ownership and corporate governance moderate the relationship between hedging amount and enterprise value (TobinQ). These tests allow us to delve deeper into the impact of hedging on firm value and understand whether this relationship varies across different types of companies.

The results, as presented in Table 5, provide valuable insights into the moderating role of ownership type, differentiating between state-owned and

non-state-owned enterprises. For SOEs, the coefficient of HedgeAmount is estimated at 0.0330 with a significance level of 1%. This suggests that, on average, a one-unit increase in HedgeAmount is associated with a 0.0330 increase in TobinQ for state-owned enterprises. These findings indicate that corporate hedging has a statistically significant positive effect on enterprise value among SOEs. Similarly, for non-SOEs, the coefficient of HedgeAmount is estimated at 0.0186, with a significance level of 1%. It highlights that corporate hedging is associated with enhanced enterprise value across the board, regardless of ownership type which accepts Hypothesis 2.

Table 5. Heterogeneity test: SOE versus Non-SOE

	SOE TobinQ	Non-SOE TobinQ
HedgeAmount	0.0330***	0.0186***
	(0.00595)	(0.00576)
Size	-0.462***	-0.454***
	(0.0240)	(0.0235)
Lev	0.166*	0.0395
	(0.136)	(0.117)
ROA	1.399***	2.741***
	(0.331)	(0.228)
Cashflow	0.0633	0.828***
	(0.218)	(0.217)
Growth	-0.0256	0.0872***
	(0.0304)	(0.0296)
EPS	0.239***	0.108***
	(0.0186)	(0.0138)
Dturn	0.246***	0.161***
	(0.0350)	(0.0243)
CGI	0.156	-0.361***
	(0.0984)	(0.0844)
Top1	-0.359*	-1.509***
	(0.209)	(0.191)
ListAge	-0.0190	0.207***
	(0.0442)	(0.0345)
Constant	12.01***	11.75***
	(0.466)	(0.465)
N	8,009	18,657
Firm Fixed Effect	Yes	Yes
Year Fixed Effect	Yes	Yes

To investigate the moderating impact of corporate governance on the relationship between hedging and EV, I categorized companies into two groups: those with “less CGI” and those with “more CGI.” Specifically, firms with CGI values below the sample average were categorized as “less CGI.” Based on the results of Table 6, it can be observed that the coefficient of HedgeAmount is positive but not statistically significant. This suggests that in firms with lower levels of corporate governance, the relationship between hedging amount and enterprise value is not statistically robust.

In contrast, for firms with “More CGI,” the coefficient of HedgeAmount is estimated at 0.0148 with a significance level of 5%. Therefore, firms with stronger corporate governance mechanisms in place are more likely to benefit from their hedging activities, resulting in increased enterprise value (supports Hypothesis 3).

Table 6. Heterogeneity test: Corporate Governance

	Less CGI TobinQ	More CGI TobinQ
HedgeAmount	0.00563	0.0148**
	(0.00673)	(0.00749)
Size	-0.447***	-0.737***
	(0.0430)	(0.0471)
Lev	0.726***	0.665***
	(0.171)	(0.182)
ROA	2.559***	1.834***
	(0.310)	(0.269)
Cashflow	0.157*	0.247**
	(0.230)	(0.260)
Growth	-0.0175	0.0326*
	(0.0312)	(0.0339)
EPS	0.133***	0.141***
	(0.0225)	(0.0274)
Dturn	0.211***	0.157***
	(0.0296)	(0.0297)
SOE	-0.480***	-0.302***
	(0.147)	(0.109)
Top1	-0.971***	-1.158**
	(0.284)	(0.468)
ListAge	0.358***	0.652***
	(0.0689)	(0.0669)
Constant	11.22***	16.93***
	(0.879)	(0.991)
N	15,295	11,371
Firm Fixed Effect	Yes	Yes
Year Fixed Effect	Yes	Yes

Discussion

The findings of this study corroborate and extend previous research on the positive impact of corporate hedging on enterprise value. In line with the studies by Buriro et al. (2023) and Yang et al. (2023), our results indicate a statistically significant positive relationship between corporate hedging practices and firm valuation, as measured by Tobin's Q.

Consistent with the theoretical framework proposed by Guay and Kothari (2001), hedging activities mitigate the four key market imperfections faced by firms: financial distress costs, costly external financing, asymmetry in tax costs, and costs associated with managerial risk aversion. By stabilizing cash flows and reducing earnings volatility, hedging enables firms to navigate financial challenges more effectively, thereby enhancing their enterprise value (Campbell et al., 2019; Su et al., 2022).

Our findings regarding the moderating role of enterprise ownership contribute to the existing literature by highlighting the differential impact of hedging strategies on state-owned enterprises (SOEs) and non-SOEs. The results suggest that SOEs, owing to their access to substantial resources and government backing (Dang et al., 2021; Cardinale, 2021), may be better positioned to implement extensive hedging strategies, thereby reaping greater benefits in terms of enterprise valuation. Conversely, non-SOEs' commitment to long-term sustainability (Xie et al., 2023) aligns well with the objectives of hedging, leading to positive effects on firm value.

Furthermore, our analysis of the moderating role of corporate governance aligns with the arguments put forth by Landi et al. (2022) and Al-Gamrh et al. (2020). Firms with stronger corporate governance mechanisms, as indicated by higher CGI scores, exhibit a more pronounced positive relationship between hedging and enterprise value. Effective governance practices, such as risk oversight and mitigation of agency costs, ensure that hedging decisions are made with the primary goal of enhancing firm value, thereby reinforcing the positive impact of hedging strategies.

While our study contributes to the existing literature, it is essential to acknowledge its limitations. First, the study focuses solely on Chinese-listed firms, potentially limiting the generalizability of the findings to other geographic contexts. Additionally, the study employs a specific measure of corporate hedging (gain or loss from hedging activities) and enterprise value (Tobin's Q), which may not capture all aspects of these multidimensional constructs. Future research could explore alternative measures and methodologies to validate and extend the current findings.

Conclusion

This study increases our understanding of the dynamics between credit rating adjustments and bond pricing within the Chinese bond market.

It shows the critical role of specific types of credit rating adjustments and their differentiated impacts on bond spreads, providing valuable insights for theoretical financial models and practical market applications.

Policymakers and financial analysts are advised to consider these findings when crafting regulatory and investment strategies, ensuring that they are well-suited to the evolving dynamics of Chinese and global financial markets. This study suggests that more nuanced approaches considering different CRAs can lead to more stable and predictable financial markets.

Future research should extend this analysis to other emerging markets to validate the universality of these findings and explore their applicability to different regulatory and economic environments. Investigating the long-term effects of credit rating adjustments on market stability and economic development will be particularly valuable. This continued exploration will enrich our global understanding of financial markets and help develop more resilient financial systems worldwide.

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