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The Impact of Financial Derivatives on the Enterprise Value of Chinese Listed Companies: Moderating Effects of Managerial Characteristics

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Abstract: Corporate managers are the central figures of corporate activity who can control the strategic direction of companies. The company's use of financial derivatives can avoid risks and has an important impact on the value of the company. This study examines A-share listed firms in Shanghai over the period 2011–2020, uses an OLS panel and a moderating effects model, and investigates the impact of financial derivatives on firm value from the perspective of managers' characteristics. We find that financial derivatives can significantly increase the enterprise value of Chinese listed companies, while exchange rate derivatives have a stronger impact on enterprise value. We also find that the higher the proportion of managers who hold shares and have a financial background, the better the effect of firms using financial derivatives. These research results are of great significance to the application of financial derivatives and provide companies with risk management decisions after COVID-19.

Keywords: financial derivatives; hedging; enterprise value; manager characteristics

JEL Classification: D21; D46; G32

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1. Introduction

In the aftermath of the financial crisis, global economic growth has slowed, trade conflicts have increased, and protectionism and unilateralism have intensified. At the same time, the spread of the COVID-19 has further amplified fluctuations in interest rates, exchange rates, and commodity prices in the international financial market. Against the backdrop of increasing uncertainties in the international environment, China's internationalization has accelerated, and the market-oriented reform of interest rates and exchange rates has deepened further. The deepening influence has led to increased exposure to risks in the production and operation of Chinese enterprises, especially listed companies. As an important risk management tool for companies, derivatives have grown exponentially worldwide in recent decades (Grima and Thalassinos 2020). Derivatives have become an effective tool for top international companies to manage risks (Marzban et al. 2022).

The International Swaps and Derivatives Association (ISDA[1]) reports that 94% of the world's 500 largest companies are engaged in financial derivatives trading. As shown in Table 1, among Fortune 500 companies, those headquartered in the United Kingdom, France, Canada, the Netherlands, Japan, and Switzerland have reached 100% of derivatives use, while Chinese companies have the lowest share of derivatives use at only 62%. According to Futures Industry, the trading volume of financial derivatives worldwide reached 56.77 billion, which is also the highest in history.

Table 1. Country Usage of Financial Derivatives by Fortune 500 Companies.

Order	Nation	Number of Companies Using Financial Derivatives	Number of Companies That Do Not Use Financial Derivatives	Total Number of Companies	Utilization of Corporate Financial Derivatives
1	U.K.	34	0	34	100%
2	France	39	0	39	100%
3	Canada	14	0	14	100%
4	Netherlands	13	0	13	100%
5	Japan	64	0	64	100%
6	Switzerland	14	0	14	100%
7	Germany	36	1	37	97%
8	U.S.	140	13	153	92%
9	South Korea	13	2	15	87%
10	China	18	11	29	62%

The original intention of financial derivatives is to reduce the risks of exchange rates, interest rates, and commodity price fluctuations caused by changes in the external environment and to achieve hedging (Carbonneau 2021). However, in reality, derivatives are a "double-edged sword" that can become an instrument of risk hedging or a speculative instrument, leading to uncertain economic consequences of the use of derivatives (Buehler et al. 2019). In their capacity as corporate managers, corporate executives may have speculative psychology, commit operational errors in financial derivatives, and entrust agents to generate additional revenue (Campbell et al. 2010). These situations lead to large losses in the company's use of financial derivatives. Currently, international research on the use of derivatives is relatively rich. It mainly focuses on the reasons for using derivatives, the impact of derivatives on company risk, company value, and decision making by external stakeholders such as investors, analysts, auditors, etc. (Campello et al. 2011). Few scholars have studied the impact of financial derivatives on firm value from the perspective of managerial characteristics. Therefore, in view of the current economic turmoil in which derivatives are urgently needed for risk hedging, it is of great theoretical and practical significance to study the impact of the use of derivatives in Chinese listed companies from the perspective of managerial characteristics and ensure the healthy and sustainable development of the real economy.

In this study, we sample Chinese A-share listed firms from 2011 to 2020 and examine the impact of Chinese listed firms' use of derivatives on firm value using the OLS model. In addition, we show the robustness of the results using the dependent variable substitution and instrumental variable approach. Finally, using a moderating effect model, we investigate the role of managerial characteristics in the firm's hedging process. The innovations in this study are as follows: (1) We obtained data on financial derivatives of listed firms in China using Big Data text searches and manual extraction of annual financial reports. (2) All listed companies in China are used as a full sample to investigate the impact of financial derivatives on firm value. (3) Consider the moderating role of management background in the impact of financial derivatives on firm value. The conclusions of this article can guide companies to use financial derivatives and risk management controls correctly after COVID-19.

2. Literature Review and Research Hypotheses

2.1. Financial Derivatives and Enterprise Value

In general, the theory of listed companies to use financial derivatives for hedging is to relax the assumptions of the MM theory (Modigliani and Miller 1958). Under the assumption of perfect capital markets, the use of financial derivatives has no effect on firm value, stock returns, and investment decisions because shareholders can effectively hedge risks at the private level (Oktavia et al. 2019).

The assumption of a perfect market in the MM theory does not exist in the real economy. In fact, the value of firms is affected by taxes, transaction costs, agency costs, financial crisis

costs, and information asymmetry (Aretz and Bartram 2010). Current mainstream financial theory indicates that the use of derivative financial instruments to hedge risk by firms can achieve a corporate value premium by saving taxes, mitigating financial crises, and solving the problem of insufficient investment (Bachiller et al. 2021).

2.1.1. Reduce Business Risk

Financial derivatives, as an important risk management tool for the company, were originally intended to establish a hedging portfolio to reduce the risk of fluctuations in exchange rates, interest rates, and commodity prices caused by changes in the external environment, and to achieve hedging (Aretz et al. 2007). Risk control is the basis for the long-term development of an enterprise. Only by effectively identifying and preventing corporate risks in the process of business operation can the value of the company be enhanced by reducing the agency cost of the company, so that the company can develop for a long time (Colquitt and Hoyt 1997).

2.1.2. Reduce Expected Tax Revenue

From the perspective of debt, risk hedging can increase the debt capacity of the company, change the capital structure of the company, and the tax shield effect of debt financing can increase the value of the company (Nance et al. 1993; Grima and Thalassinos 2020). Since Chinese tax law stipulates that losses are offset later, the company loses the present value of the income tax refund. The relationship between the amount of income and the actual tax rate is convex. Therefore, the company will reduce the possibility of losses by hedging, thus reducing the tax burden (Asghar Butt et al. 2018).

2.1.3. Reduce the Cost of Financial Distress

When a company faces insufficient operating cash flow to service its existing debt and is forced to take corrective action, it is said to be in financial distress (Opler and Titman 1994). The cost of financial distress and bankruptcy directly affects the value of the company. A company's use of financial derivatives can reduce financial distress or the likelihood of bankruptcy, thereby increasing the value of the company (Fok et al. 1997). In addition, a company's debt can increase the value of the company, and risk hedging can help a company service its debt to increase the value of the company (Bachiller et al. 2021).

2.1.4. Avoiding Underinvestment

The Avoiding Underinvestment Hypothesis argues that firms' external financing costs are high and that fluctuations in firm revenues lead to increased instability in internal retained earnings (Manconi et al. 2018). In this case, firms may abandon projects with positive net present value, leading to underinvestment (Campbell et al. 2019). All else being equal, companies with lower cash balances are more likely to use derivative financial instruments, thereby increasing firm value.

Based on the above discussion, this paper proposes the following assumptions:

Hypothesis 1 (H1). *Financial derivatives can enhance corporate value.*

2.2. Managerial Characteristics, Financial Derivatives and Enterprise Value

A manager, also known as a supervisor, is a person who performs management functions, and coordinates or directs others to perform specific tasks in an organization (Moradi et al. 2021). Due to information asymmetry and principal-agent cost issues, financial risk management has a decisive impact on corporate internal decision-making and future development strategies and further affects corporate value (Gong et al. 2021). Managers are the key human resources to create corporate value, and they also guide the direction of corporate decision-making (Salehi et al. 2022). Managerial characteristics refer to the personal characteristics of managers that have a decisive influence on leadership behavior in a given environment, such as personality characteristics, needs and motivations, past experiences,

etc. (Lambrecht and Myers 2017). Managers' intelligence, creativity, and management ability are conducive to the formulation and implementation of organizational goals and strategies (Chen 2013). Managers' self-supervision, affinity, and maturity are conducive to the formation of organizational synergy (Hoang and Hoxha 2016). In addition, factors such as power needs are conducive to the ultimate realization of organizational goals. The characteristics of managers currently studied by scholars include executive shareholding, executive compensation, overseas background, financial background, occupational background, gender ratio, and other characteristics (Lien 2022).

The theory of smooth expenditures holds that corporate managers make expenditure and investment and financing decisions to obtain as much rent as possible under the constraints of the capital market (Lambrecht and Myers 2012). The management team will use a combination of debt (leverage) and investment (capital expansion) to ensure that business spending goes smoothly (Hoang and Hoxha 2016). Managers carry out selective hedging according to their own characteristics, thereby increasing the company's use of foreign exchange derivatives and improving corporate value. The difference in executive compensation and the number of shares held will generate different levels of incentives for corporate executives, resulting in different enthusiasm for accomplishing corporate goals. Risk management through the use of financial derivatives will eventually lead to changes in corporate value (Giambona et al. 2018). At the same time, CEOs with MBA degrees and overseas backgrounds, and young CEOs may increase their management confidence (Boubaker et al. 2020). They will predict future exchange rate changes based on past exchange rate information, and then dynamically adjust the nominal amount of foreign exchange derivatives held by the company, showing stronger performance in speculative motives (Petry 2020). In addition, elite-educated CEOs are more likely to use derivatives to hedge their risks due to their high-risk management skills, and the use of derivatives also improves firm performance, while non-elite-educated CEOs have no significant impact on firm use of derivatives (Bartram 2019). In addition, many scholars have conducted empirical research from the perspective of executive power and financial ability. The greater the power of executives, the greater the cognitive bias caused by the lack of financial expertise and experience, so the moderating effect of financial derivatives on corporate value will be reduced. The more senior management teams with a financial background, the better the effect of companies using financial derivative companies (Hsiao and Tsai 2018).

Based on the above discussion, this paper proposes the following assumptions:

Hypothesis 2 (H2). *When an enterprise uses financial derivatives, the higher the executive compensation, the higher the firm's value.*

Hypothesis 3 (H3). *When an enterprise uses financial derivatives, the higher the shareholding ratio of executives, the higher the enterprise value.*

Hypothesis 4 (H4). *When an enterprise uses financial derivatives, the higher the proportion of managers with overseas backgrounds, the higher the enterprise value will be.*

Hypothesis 5 (H5). *When an enterprise uses financial derivatives, the higher the proportion of managers' financial background, the higher the enterprise value will be.*

3. Materials and Methods

3.1. Data Sources

Since 1 January 2007, listed companies in China have been required to disclose the derivative financial instruments used by companies in their financial statements. Only then can accurate data about the use of derivative financial instruments by enterprises be obtained in empirical research. In order to ensure the availability and completeness of data, this paper selected the data from 2011 to 2020 as the initial sample to study the use

of derivative financial instruments of listed companies in China. In order to exclude the influence of outliers on empirical results, the initial sample data were processed as follows:

First, we removed observations with incomplete information and missing data. Second, as ST[2] and *ST companies in the current year may have normative problems and their financial information may deviate greatly from the normal situation, we removed the samples of companies with ST and *ST logos in that year. Third, due to the particularity of the financial industry, we deleted companies belonging to the financial industry. Finally, to eliminate the influence of outliers, the paper applies a 1% tail indentation to all continuous variables. The annual reports of Chinese listed companies were downloaded one by one from the official website of CNINIF, and Python was used to search the use of financial derivatives by keywords. Other variables in the listed companies are annual continuous variables, which can be obtained by downloading, sorting and calculating from the database of CSMAR[3] and WIND[4]; 16,216 observation samples were finally obtained.

3.2. Variable Definitions

Dependent variable: The purpose of this study is to examine the effect of Chinese listed companies' use of financial derivatives on corporate value. Obviously, corporate value is the explained variable of this empirical research model. The most common proxy variables of company value are Tobin's Q, book-to-market value ratio, Economic Value Added (EVA), and comprehensive financial indicators constructed by individual financial indicators. Using Tobin's Q as a proxy for company value, this variable reflects the intrinsic relationship between company investment and its stock price. Compared with financial indicators, it is not easy to be manipulated, and it is more suitable for measuring the value of listed companies in developing countries. Therefore, this paper adopts Tobin's Q value (TQ) and book-to-market value ratio (MB) as proxy variables of enterprise value, which are commonly used at home and abroad.

Independent variables: The purpose of this study was to examine the impact of Chinese listed companies' use of derivatives on corporate value, so the explanatory variables are financial derivatives and the use of financial derivatives. After referring to other relevant literature, it was found that most scholars use dummy variables to represent. Therefore, this paper used the python method to retrieve the annual reports of listed companies in batches. If the annual report of the listed company in the manufacturing industry disclosed the use of derivatives, it was assigned a value of 1; if the derivatives were not disclosed, it was assigned a value of 0. In addition, according to further research on the types of derivatives used by listed manufacturing companies, dummy variables were used to replace foreign exchange derivatives, interest rate derivatives, and commodity derivatives. In addition, this paper takes the fair value change of corporate financial derivatives as a proxy variable for the degree of financial derivatives usage.

Moderator variables: The purpose of this study was to examine the moderating role of managerial characteristics in the impact of financial derivatives on corporate value. This article used executive compensation, executive shareholding, managers' overseas background, and financial background as moderator variables.

Control variables: In order to ensure the validity of the regression results, the control variables added in this paper were as follows: asset-liability ratio, current ratio, operating income growth rate, return on total assets, company size, and company establishment years. The specific variable codes and definitions are shown in Table 2.

Table 2. Variable Code and Measurement Method.

Variable Type	Variable Name	Title 3	Code	Measurement Method
Dependent variable	Enterprise value	Book to market ratio	MB	Market value/ending book value of total assets
		Tobin's Q	TQ	(Equity market value + net debt market value)/(Total output—Net intangible assets)
Independent variables	The fair value of financial derivatives		DERIV	The change in fair value of financial derivatives is logarithmic
	The use of financial derivatives		USE	Dummy variable, if financial derivatives were used in the observation year, has the value of 1; Otherwise, take 0
	Exchange rate financial derivatives		U1	Dummy variable (0, 1)
	Commodity financial derivatives		U2	Dummy variable (0, 1)
	Interest rate financial derivatives		U3	Dummy variable (0, 1)
Moderating variables	Proportion of executives with overseas background		SEA	Number of executives with overseas background/Total number of executives
	Proportion of executives with financial background		FINA	Number of executives with financial background/Total number of executives
	Executive shareholding ratio		HOLD	(Executive shareholding/total number of shares outstanding) * 100
	Executive compensation		PAY	The natural logarithm of the top three executives' compensation is taken
Control variables	Capital structure (Asset-liability ratio)		DEBT	Total liabilities/total assets
	Current ratio		CRAT	Current assets/current liabilities
	Growth rate of operating income		GROW	Current year operating income/previous year operating income − 1
	Return on total assets		ROA	Net profit/average balance of total assets
	company size		SIZE	Take the natural log of total assets
	Age of company establishment		AGE	2020-Year of establishment

Note: "*" represents multiplication, "/" stands for division, "−" stands for minus sign.

3.3. Model Design

In order to effectively explore the impact of financial derivatives on enterprise value, this paper constructed the following benchmark regression models:

$$TQ_{i,t}/MB_{i,t} = \partial + \beta_1 USE_{i,t} + \beta_2 \sum contry_{i,t} + industry + year + \varepsilon_{i,t} \quad (1)$$

Among them, i = 1, 2, 3, . . . , N, represents the individual enterprise; t = 1, 2, 3, . . . , T, represents the year; $contry_{i,t}$ represents the set of control variables; industry represents the industry in which the enterprise is located; year represents the year effect; $\varepsilon_{i,t}$ represents the residual term. $TQ_{i,t}/MB_{i,t}$ Indicates enterprise value (Tobin's Q and book-to-market ratio) and USE includes the use of financial derivatives and changes in fair value.

In order to study the moderating effect of executive characteristics in financial derivatives and enterprise value, the following moderating effect model is constructed by adding interaction terms.

$$TQ_{i,t}/MB_{i,t} = \partial + \beta_1 USE_{i,t} + \beta_2 USE * PAY_{i,t} + \beta_3 \sum contry_{i,t} + industry + year + \varepsilon_{i,t} \quad (2)$$

$$TQ_{i,t}/MB_{i,t} = \partial + \beta_1 USE_{i,t} + \beta_2 USE * HOLD_{i,t} + \beta_3 \sum contry_{i,t} + industry + year + \varepsilon_{i,t} \quad (3)$$

$$TQ_{i,t}/MB_{i,t} = \partial + \beta_1 USE_{i,t} + \beta_2 USE * SEA_{i,t} + \beta_3 \sum contry_{i,t} + industry + year + \varepsilon_{i,t} \quad (4)$$

$$TQ_{i,t}/MB_{i,t} = \partial + \beta_1 USE_{i,t} + \beta_2 USE * FINA_{i,t} + \beta_3 \sum contry_{i,t} + industry + year + \varepsilon_{i,t} \quad (5)$$

Among them, USE ∗ PAY represents the interaction between financial derivatives and executive compensation; USE ∗ HOLD represents the interaction between financial deriva-

tives and executives, shareholding; USE ∗ SEA represents the interaction between financial derivatives and managers' overseas background; USE ∗ FINA represents an interactive project of financial derivatives and managers' financial background; other codes are as defined above.

3.4. Descriptive Statistics and Correlation Analysis

Table 3 shows the descriptive statistics of the samples selected in this paper. From the point of view of control variables, the mean of Tobin's Q value is 2.007, and the mean of book-to-market value ratio is 0.518, indicating that the overall operating conditions of Chinese listed companies are relatively good.

Table 3. Descriptive Statistics for Variables.

Variables	N	Mean	sd	Min	Max
TQ	16,216	2.007	0.864	0	3.434
MB	16,216	0.518	0.254	0.009	1.854
USE	16,216	0.277	0.447	0	1
DERIV	4,248	16.86	2.974	5.203	24.73
U1	16,216	0.185	0.384	0	1
U2	16,216	0.092	0.273	0	1
U3	16,216	0.014	0.136	0	1
HOLD	16,216	0.164	0.216	0	3.197
PAY	16,216	14.41	0.729	4.956	18.34
SEA	16,216	0.072	0.141	0	1
FINA	16,216	0.609	0.129	0	1
CRAT	16,216	3.786	96.43	−143.0	12.22
SIZE	16,216	21.99	1.204	17.55	27.57
DEBT	16,216	0.394	0.246	0.007	13.71
ROA	16,216	0.056	0.065	−0.382	3.589
GROW	16,216	0.334	5.832	−0.997	665.5
AGE	16,216	22.16	5.174	9	63

From the results of the independent variables, the mean value of the dummy variable for the use of financial derivatives in China's listed companies was 0.277, indicating that the proportion of Chinese listed companies using financial derivatives was 27.77%. The average value of using exchange rate financial derivatives was 0.185, indicating that the proportion of Chinese listed companies using exchange rate financial derivatives was 18.5%. The average value of using commodity financial derivatives was 0.092, indicating that Chinese listed companies use commodity financial derivatives. The ratio was 9.2%. The average value of using interest rate financial derivatives was 0.014, indicating that the proportion of Chinese listed companies using interest rate financial derivatives was 1.4%. The minimum value of the dummy variables of financial derivatives was 0, and the maximum value was 1. The data proves that the differences between the three types of financial derivatives used by Chinese listed companies are relatively large. In addition, Chinese listed companies using financial derivatives for hedging practice is still in its infancy; the overall level is relatively low, and there is still a big gap compared with companies in developed countries.

In terms of moderating variables, the mean of executive compensation was 14.41, the mean of executives' shareholding was 0.164, the mean of overseas management background was 0.072, and the mean of manager's financial background was 0.609. It shows that the executive compensation of Chinese listed companies was higher, the executives hold less shares, the proportion of management team with overseas background was 7.2%, and the proportion with financial background was 6.09%.

From the results of the control variables, the average value of the asset-liability ratio was 0.394; the minimum value was 0.007 and the maximum value was 13.71. The average value of company size was 21.99; the minimum value was 17.55 and the maximum value was 27.57, indicating that the scale of Chinese listed companies is dominated by

large enterprises, with a small proportion of small and medium-sized enterprises. The standard deviation of the independent variable data can also indicate the asset-liability ratio, and company size of Chinese listed companies. There is a big difference in executive compensation. According to the results in Table 4, the average value of the current ratio was 3.786, indicating that the overall short-term solvency of Chinese listed companies is not high. The average effective tax rate was 0.153, the average return on total assets was 0.056, the average growth capability was 0.334, and the average company establishment period was 22.16 years.

Table 4. Correlation Between Variables.

	DEBT	SIZE	PAY	CRAT	HOLD	ROA	CASHF	GROW	AGE
DEBT	1								
SIZE	0.505 ***	1							
PAY	0.089 ***	0.462 ***	1						
CRAT	−0.039 ***	−0.022 ***	−0.023 ***	1					
HOLD	−0.304 ***	−0.342 ***	−0.107 ***	0.002	1				
ROA	−0.377 ***	−0.060 ***	0.217 ***	0.001	0.167 ***	1			
CASHF	−0.134 ***	0.076 ***	0.233 ***	−0.01	−0.011	0.432 ***	1		
GROW	0.052 ***	0.048 ***	−0.015 *	0.004	−0.012	0.043 ***	0.005	1	
AGE	0.154 ***	0.127 ***	0.033 ***	0.007	−0.284 ***	−0.066 ***	0.016 **	0.001	1

Note: * means significant at 10% level, ** means significant at 5% level, and *** means significant at 1% level.

4. Results

4.1. Multiple Regression Analysis

This empirical study uses STATA15.1 software to operate the research sample data. Since the number of financial derivatives used by listed companies is different every year, the data in the paper are unbalanced panel data. The results of the Hausman test are: Prob>chi2 = 0.0000, and the regression results that control year and industry effects are more significant. Therefore, this paper chooses the fixed effect model, controls the annual effect and the industry effect, and finally conducts the regression of the results.

This section tests hypothesis H1 based on model (1) and the results are shown in Table 5. Columns 1 and 3 represent the regression results of the dummy variables used in financial derivatives on Tobin's Q value and book-to-market ratio, and columns 2 and 4 represent the regression results of the degree of financial derivatives on Tobin's Q value and book-to-market ratio. The regression coefficient of the financial derivative dummy variable (USE) to Tobin's Q value (TQ) was 0.008, and it was significant at the 1% level, and the regression coefficient of financial derivative dummy variable (USE) to book-to-market ratio (MB) was 0.008, and was significant at the 5% level, indicating that the use of financial derivatives has a significant positive impact on enterprise value. The regression coefficient of the degree of financial derivatives (DERIV) to Tobin's Q value (TQ) was 0.026, and it was significant at the 1% level, and the regression coefficient of the degree of financial derivatives (DERIV) to the book-to-market ratio (MB) was 0.001, and was significant at the 5% level, indicating that the degree of use of financial derivatives has a significant positive impact on enterprise value. From the regression results of dummy variables and continuous variables of financial derivatives, the impact of financial derivatives on enterprise value is significantly positive, which verifies H1.

From the control variables: asset-liability ratio, company size, operating income growth rate, cash flow ratio and the company's establishment years have a significant positive impact on enterprise value. The impact of ROA on firm value is significantly negative. The effect of the liquidity ratio on firm value is not significant.

Table 5. Benchmark Regression Results of the Impact of Financial Derivatives on Enterprise Value.

	(1)	(2)	(3)	(4)
Variables	**TQ**	**TQ**	**MB**	**MB**
USE	0.141 ***		0.008 **	
	(20.01)		(2.06)	
DERIV		0.026 ***		0.001 **
		(12.30)		(2.14)
DEBT	0.292 ***	0.120 **	−0.154 ***	−0.108 ***
	(10.37)	(2.10)	(−10.15)	(−3.06)
SIZE	0.345 ***	0.311 ***	0.098 ***	0.093 ***
	(54.19)	(24.46)	(28.41)	(11.85)
CRAT	−0.000	−0.001 **	0.000	−0.000
	(−0.65)	(−2.25)	(0.38)	(−0.58)
ROA	−1.500 ***	−0.715 ***	−0.862 ***	−0.789 ***
	(−20.43)	(−6.20)	(−21.72)	(−11.08)
CASHF	0.816 ***	0.590 ***	0.178 ***	0.112 **
	(18.03)	(7.34)	(7.27)	(2.25)
GROWTH	0.007 ***	0.000	0.003 ***	0.003 ***
	(6.33)	(0.35)	(4.45)	(3.32)
AGE	0.021 ***	0.149 ***	0.192 ***	0.121 ***
	(6.01)	(5.27)	(3.23)	(3.12)
Constant	−8.137 ***	−6.966 ***	−1.192 ***	−1.152 ***
	(−69.30)	(−31.50)	(−18.79)	(−8.43)
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	16,216	4248	16,216	4248
F test	0.000	0.000	0.000	0.000
Adj_R2	0.570	0.520	0.197	0.336
F	1886	337.4	200.6	41.41

Note: ** means significant at 5% level, and *** means significant at 1% level. The significance test t-value is shown in parentheses.

Table 6 presents the regression results of the impact of different types of financial derivatives on enterprise value. Column 1, column 2, and column 3 represent the regression results of exchange rate financial derivatives, commodity financial derivatives, and interest rate financial derivatives on Tobin's Q value, and columns 2 and 4 represent exchange rate financial derivatives and commodity financial derivatives; the regression results of derivatives and interest rate financial derivatives were on book-to-market ratios. The regression coefficient of the dummy variable (U1) of exchange rate financial derivatives to Tobin's Q value (TQ) was 0.147, and it was significant at the 1% level; the regression coefficient to the book-to-market ratio (MB) was 0.110, and it was significant at the 1% level, indicating that the impact of the use of exchange rate financial derivatives on the enterprise value was significantly positive. The regression coefficient of the dummy variable (U2) of commodity financial derivatives on Tobin's Q value (TQ) was 0.029, and it was significant at the 1% level; the regression coefficient on the book-to-market ratio (MB) was 0.024, and it was significant at the 5% level, indicating that the impact of the use of commodity financial derivatives on enterprise value was significantly positive. The regression coefficient of the dummy variable (U3) of interest rate financial derivatives to Tobin's Q value (TQ) was 0.005, and the regression coefficient to the book-to-market ratio (MB) was 0.024. The coefficients all passed the significance test, indicating that the use of commodity financial derivatives has a significantly positive impact on the company's value. The above results once again prove the establishment of H1. From the regression results of different types of financial derivatives, the impact of exchange rate financial derivatives on enterprise value is more significant.

Table 6. The Regression Results of the Impact of Different Types of Financial Derivatives on Enterprise Value.

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	**TQ**	**TQ**	**TQ**	**MB**	**MB**	**MB**
U1	0.147 ***			0.110 ***		
	(3.49)			(2.82)		
U2		0.029 ***			0.024 **	
		(2.77)			(2.14)	
U3			0.005			0.007
			(0.67)			(0.001)
Control variable	YES	YES	YES	YES	YES	YES
Constant	11.707 ***	8.587 ***	9.767 ***	9.727 ***	16.586 ***	13.234 ***
	(19.76)	(7.15)	(8.93)	(14.62)	(25.48)	(21.32)
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Observations	16,216	16,216	16,216	16,216	16,216	16,216
F test	0.000	0.000	0.000	0.000	0.000	0.000
Adj_R2	0.449	0.462	0.112	0.126	0.064	0.032
F	89.34	48.32	49.31	58.23	47.20	65.32

Note: ** means significant at 5% level, and *** means significant at 1% level. The significance test t-value is shown in parentheses.

4.2. Robustness Test

In order to verify the robustness of the regression results, this paper adopts several methods commonly used at home and abroad to test the robustness and alleviate the endogeneity problem. The main methods include Substitution of Dependent Variables and Instrumental Variables (2SLS).

1. Replace the dependent variable

By referring to other literature, this paper adopted the second calculation method of book-to-market ratio to measure enterprise value:

$$\text{MB2} = \frac{\text{share holders' equity}}{\text{company's market value}}$$

The results of the robustness test for substitution of dependent variables are shown in Table 7. The results show that the impact of financial derivatives on enterprise value is significantly positive, and the above benchmark regression results are robust. Therefore, H1 is verified again.

Table 7. Robustness Tests for Replacing Dependent Variables.

	(1)	(2)
Variables	**MB2**	**MB2**
USE	0.029 ***	
	(8.00)	
DERIV		0.003 **
		(2.11)
Control variable	YES	YES
Constant	−1.727 ***	−1.616 ***
	(−28.27)	(−12.05)
Industry FE	YES	YES
Year FE	YES	YES
Observations	16,216	4248
Adj_R2	0.207	0.243
F	370.9	67.68

Note: ** means significant at 5% level, and *** means significant at 1% level. The significance test t-value is shown in parentheses.

2. Instrumental variable method

First of all, the higher the value of an enterprise, the more elements and the stronger the ability it may have to use financial derivatives for risk management. As a result, there may be a reverse causality problem in which enterprise value in turn affects financial derivatives. Secondly, the empirical method cannot avoid the problem of omission bias. Although this paper adds a large number of control variables, it is possible to omit relevant variables and cause endogeneity problems. Therefore, this paper further employs instrumental variables to address possible endogeneity issues. In order to reduce the endogeneity problem caused by two-way causality and omission bias, this paper adds a one-period lag of financial derivatives (L.USE, L.DERIV) into the regression model as an instrumental variable, and uses two-stage least square (2SLS) to estimate its value. Impact on enterprise value to mitigate endogeneity problems caused by reverse causality.

Tables 8 and 9 report the instrumental variable test results of dummy variables for financial derivatives. From the regression results of the first stage, it can be seen that there is a significant positive relationship between the explanatory variables lagging one stage and the core explanatory variables of this paper, and the F statistics of the first stage are 227.90 and 60.34, which are much larger than 10, indicating that there is no weak instrumental variable problem. The results of columns (2) and (3) show that after the introduction of instrumental variables, the use of financial derivatives has a positive impact on enterprise value, and there is a significant positive promotion between the use of financial derivatives and enterprise value. Therefore, the robustness of the regression results is proved again.

Table 8. Regression Results of the Instrumental Variable Method of Dummy Variables for Financial Derivatives.

2sls	**First Stage**	**Second Stage**	**Second Stage**
Variables	**USE**	**TQ**	**MB**
L.USE	0.312 ***		
	(31.13)		
USE		0.178 ***	0.003 **
		(8.96)	(2.04)
Control variable	YES	YES	YES
Constant	−3.291 ***	−1.203 ***	−1.222 ***
	(−19.52)	(−8.82)	(−26.09)
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	16,216	16,216	16,216
Adj_R2	0.163	0.405	0.351
F	227.0		

Note: ** means significant at 5% level, and *** means significant at 1% level. The significance test t-value is shown in parentheses.

Table 9. Regression Results of Continuous Variable Instrumental Variable Method for Financial Derivatives.

	First Stage	**Second Stage**	**Second Stage**
Variables	**DERIV**	**TQ**	**MB**
L.DERIV	0.373 ***		
	(14.82)		
DERIV		0.001 **	0.002
		(2.26)	(0.95)
Control variable	YES	YES	YES
Constant	−23.735 ***	0.157	−0.837 ***
	(−8.40)	(0.64)	(−8.93)
Observations	4248	4248	4248
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
Adj_R2	0.283	0.340	0.367
F	60.34		

Note: ** means significant at 5% level, and *** means significant at 1% level. The significance test t-value is shown in parentheses.

4.3. Analysis of the Moderating Effect of Manager Characteristics

Excellent executives will become the driving force for the progress of the enterprise, promote the progress of risk management, and effectively predict and avoid enterprise risks, so as to make the improvement of enterprise value more obvious, while bad managers will make the enterprise stagnate, are constantly retreating, with no risk management. Secondly, because high-quality risk management can guide enterprises to more scientific and reasonable predictions to deal with risks, it is appropriate to choose more suitable executives to give correct guidance to the enterprise, thereby positively contributing to the value of the enterprise.

In order to expand the research breadth, this paper appropriately relaxes the research premise and considers the moderating role of managerial characteristics in the impact of financial derivatives on enterprise value. The following four aspects are further analyzed: (1) To examine the moderating effect of executive compensation on the impact of financial derivatives on enterprise value. (2) Investigate the moderating role of executives' shareholding in the impact of financial derivatives on enterprise value. (3) Investigate the moderating role of managers' overseas background in the impact of financial derivatives on enterprise value. (4) To examine the moderating role of managers' financial background in the impact of financial derivatives on enterprise value.

4.3.1. The Moderating Role of Executive Compensation in the Impact of Financial Derivatives on Enterprise Value

Table 10 reflects the moderating effect of executive compensation on the impact of financial derivatives on firm value. It can be seen from column (1) that the regression coefficient of the use of financial derivatives (USE) on Tobin's Q value (TQ) was 0.947, and it was significant at the 1% level. The regression coefficient of the interaction term of executive compensation and financial derivatives (USE_PAY) on Tobin's Q value (TQ) was −0.055, and it was significant at the 1% level. It shows that when the company uses derivative financial instruments, the company will reduce the Tobin's Q value by 0.055 units for each unit of executive compensation. It can be seen from column (2) that the regression coefficient of the use of financial derivatives (USE) on the book-to-market ratio (MB) was 0.304, and it was significant at the 1% level. The regression coefficient of the interaction term of executive compensation and financial derivatives (USE_PAY) on the book-to-market ratio (MB) was −0.020, and it was significant at the 1% level. It shows that when the company uses derivative financial instruments, the company will reduce the company premium by 0.020 units for each additional unit of executive compensation. It shows that there is a significant positive promotion between the use of financial derivatives and corporate value, but executive compensation significantly inhibits the role of financial derivatives in enhancing corporate value.

Table 10. Empirical Regression Results of the Moderating Effect of Executive Compensation.

	(1)	(2)
Variables	**TQ**	**MB**
USE	0.947 ***	0.304 ***
	(7.10)	(4.27)
USE_PAY	−0.055 ***	−0.020 ***
	(−5.99)	(−4.19)
Control variable	YES	YES
Industry FE	YES	YES
Year FE	YES	YES
Constant	−8.450 ***	−1.273 ***
	(−67.09)	(−18.89)
Observations	16,216	16,216
Adj_R2	0.560	0.121
F	1813	196.2

Note: *** means significant at 1% level. The significance test t-value is shown in parentheses.

The above data show that the moderating effect of executive compensation is negative, therefore, H2 does not hold. The specific reason is that executive compensation incentives may lead to principal-agent problems. Executive compensation reduces the kinetic energy of managers' tools, and managers, as actual operators of financial derivatives, may seek their own interests through the process of hedging. When the personal interests of executives are greater than the interests of the company, the effect of corporate hedging will be weakened.

4.3.2. The Moderating Role of Executive Shareholding in the Impact of Financial Derivatives on Enterprise Value

Table 11 reflects the moderating effect of executive shareholding on the impact of financial derivatives on firm value. It can be seen from column (1) that the regression coefficient of the use of financial derivatives (USE) on Tobin's Q value (TQ) was 0.125, and it was significant at the 1% level. The regression coefficient of the interaction term (USE_HOLD) between executives' shareholdings and financial derivatives on Tobin's Q value (TQ) was 0.274, and it was significant at the 1% level. It shows that when the company uses derivative financial instruments, the company will increase Tobin's Q value by 0.274 units for each additional unit of the executive's shareholding. It can be seen from column (2) that the regression coefficient of the use of financial derivatives (USE) on the book-to-market ratio (MB) was 0.008, and it was significant at the 10% level. The regression coefficient of the interaction term (USE_HOLD) of executive stockholdings and financial derivatives on the book-to-market ratio (MB) was 0.036, and it was significant at the 5% level. It shows that when a company uses derivative financial instruments, the company will increase its corporate premium by 0.036 units for each additional unit held by executives. It shows that the use of financial derivatives has a significant positive role in promoting corporate value, and executives' shareholding significantly promotes the role of financial derivatives in enhancing corporate value.

The above data shows that the moderating effect of executive shareholding is significantly positive, therefore, H3 is established. When the management holds more shares in the company, its own interests and the company's interests form a strong connection. In order to obtain more benefits, the management will definitely increase the level of effort, and actively adopt hedging methods to increase the company's future cash flow and enhance corporate value. In addition, when the management's shareholding ratio is relatively high, the personal income generated by its self-interested activities cannot make up for the losses suffered by the company, so it can effectively alleviate the agency problem and improve the use effect of derivative financial instruments, enhancing the enterprise value.

Table 11. Empirical Regression Results of the Moderating Effect of Executive Stock Ownership.

	(1)	(2)
Variables	**TQ**	**MB**
USE	0.125 ***	0.008 *
	(13.83)	(1.78)
USE_HOLD	0.274 ***	0.036 **
	(8.20)	(2.12)
Control variable	YES	YES
Industry FE	YES	YES
Year FE	YES	YES
Constant	−9.477 ***	−0.937 ***
	(−78.94)	(−15.24)
Observations	16,216	16,216
Adj_R2	0.514	0.108
F	1690	194.0

Note: * means significant at 10% level, ** means significant at 5% level, and *** means significant at 1% level. The significance test t-value is shown in parentheses.

4.3.3. The Moderating Role of Managers' Overseas Background on the Impact of Financial Derivatives on Enterprise Value

Table 12 reflects the moderating effect of managers' overseas background on the impact of financial derivatives on firm value. It can be seen from column (1) that the regression coefficient of the use of financial derivatives (USE) on the Tobin's Q value (TQ) was 0.164, and it was significant at the 1% level. The regression coefficient of the interaction term (USE_SEA) of managers' overseas background and financial derivatives on Tobin's Q value (TQ) was −0.02, but it did not pass the significance test. It can be seen from column (2) that the regression coefficient of the use of financial derivatives (USE) on the book-to-market ratio (MB) was 0.006, but it did not pass the significance test. The regression coefficient of the interaction term (USE_SEA) of the manager's overseas background and financial derivatives on the book-to-market ratio (MB) was −0.026, but it did not pass the significance test. It shows that the use of financial derivatives has a significant positive role in promoting enterprise value, but the manager's overseas background inhibits the role of financial derivatives in enhancing enterprise value.

The above data show that the moderating effect of managers' overseas background is negative and insignificant, so H4 does not hold. It may be because the characteristics of China's economic development are different from those of other foreign countries. When there are more people with overseas backgrounds in the management team, the use of financial derivatives will increase significantly. Foreign experience in the use of financial derivatives may not be in line with the development of Chinese listed companies. Managers with overseas backgrounds will be more radical in the idea of using financial derivatives, and internal supervision will become looser. Therefore, the moderating effect of managers' overseas backgrounds is not significant.

Table 12. Empirical Regression Results of the Moderating Effect of Mnagers' Overseas Background.

	(1)	(2)
Variables	**TQ**	**MB**
USE	0.164 ***	0.006
	(20.20)	(1.35)
USE_SEA	−0.002	−0.026
	(−0.06)	(−1.23)
Control variable	YES	YES
Industry FE	YES	YES
Year FE	YES	YES
Constant	−9.281 ***	−0.988 ***
	(−78.46)	(−16.36)
Observations	16,216	16,216
Adj_R2	0.507	0.112
F	1683	206.1

Note *** means significant at 1% level. The significance test t-value is shown in parentheses.

4.3.4. The Moderating Role of Managers' Financial Background in the Impact of Financial Derivatives on Enterprise Value

Table 13 reflects the moderating effect of managers' financial background on the impact of financial derivatives on firm value. It can be seen from column (1) that the regression coefficient of the use of financial derivatives (USE) on the Tobin's Q value (TQ) was 0.170, and it was significant at the 1% level. The regression coefficient of the interaction term between managers' financial background and financial derivatives (USE_FINA) on Tobin's Q value (TQ) was 0.086, and it was significant at the 5% level. It shows that when a company uses derivative financial instruments, the company will increase the Tobin's Q value by 0.086 units for each increase in the proportion of the management team with financial background. It can be seen from column (2) that the regression coefficient of the use of financial derivatives (USE) on the book-to-market ratio (MB) was 0.001, but it did not pass the significance test. The regression coefficient of the interaction term between managers'

financial background and financial derivatives (USE_FINA) on the book-to-market ratio (MB) was 0.075, and it was significant at the 1% level. It shows that when a company uses derivative financial instruments, the company will increase its corporate premium by 0.075 units for each additional percentage of the management team with financial background. Overall, there is a significant positive promotion between the use of financial derivatives and corporate value, and the manager's financial background significantly promotes the role of financial derivatives in enhancing corporate value.

The above data show that the moderating effect of the manager's financial background is significantly positive, so H5 holds. When a larger proportion of the management team has a financial background, the enterprise will use more knowledge and ability to make decisions on the use of financial derivatives. The financial background covers financial derivatives trading venues. The management team will improve the convenience of obtaining resources and improve the use process and mechanism of financial derivatives. Therefore, executives with a financial background can more professionally help enterprises to carry out risk management, improve the enterprise risk management system, and enhance the use effect of derivative financial instruments, thereby promoting enterprise value.

Table 13. Empirical Regression Results of the Moderating Effect of Managers' Financial Backgrounds.

	(1)	(2)
Variables	**TQ**	**MB**
USE	0.170 ***	0.001
	(21.51)	(0.29)
USE_FINA	0.086 **	0.075 ***
	(2.02)	(3.45)
Control variable	YES	YES
Industry FE	YES	YES
Year FE	YES	YES
Constant	−9.286 ***	−0.979 ***
	(−78.59)	(−16.24)
Observations	16,216	16,216
Adj_R2	0.507	0.219
F	1684	207.4

Note: ** means significant at 5% level, and *** means significant at 1% level. The significance test t-value is shown in parentheses.

5. Conclusions

Due to factors such as information asymmetry and agency costs, risk management has a decisive impact on the internal decision-making and management of an enterprise, thereby affecting the value of the enterprise. Managers are the key human resources to create corporate value, and they also guide the direction of corporate decision-making. Enterprises choose executives with correct characteristics, which can run risk management throughout the entire process of enterprise management, thereby promoting the construction of enterprise risk management systems. The better the effect of enterprise risk management, the higher the enterprise value. With the increasing attention of scholars on the relationship between executive characteristics, financial derivatives, and enterprise value, it reflects the importance of executive characteristics and risk management to enterprise value. Therefore, by analyzing the relevant data of Chinese listed companies from 2011 to 2020, we conducted in-depth research on the correlation between executive characteristics, financial derivatives, and corporate value, and the results were as follows: financial derivatives can significantly improve corporate value, and the results are still significant after robustness testing and alleviation of endogenous problems. From the perspective of the types of financial derivatives, exchange rate derivatives have a more significant impact on enterprise value. The moderating effect test proved that the moderating effect of executive shareholding and manager's financial background was significantly

positive, the moderating effect of executive compensation was significantly negative, and the moderating effect of manager's overseas background was not significant. It shows that when the company uses financial derivatives, has a higher the ratio of managers' financial backgrounds, and senior executive ownership, the higher the corporate value. In contrast, the higher the executive compensation, the lower the corporate value.

Based on the above empirical conclusions, this paper puts forward the following suggestions: First, China should speed up the improvement of the financial derivatives market and regulatory mechanism. Trading venues will increase the types of derivatives and open up various options and structured products to meet the needs of corporate hedging. Second, Chinese listed companies should optimize the internal structure of the senior management team. Compared with executive compensation incentives, the company should give managers share incentives, so that talented people can collaborate on the basis of achieving common goals and create more valuable things for the company. In the process of risk management, companies should select executives with financial backgrounds to maintain the relative professionalism of the senior management team. Finally, Chinese listed companies should improve their internal governance structure and improve their governance level. The company strengthens the training of employees on the use of financial derivatives, improves the internal supervision system, improves the application level of derivative financial instruments, and truly plays the role of derivative financial instruments in enhancing corporate value. The research conclusions can provide guidance for the risk management of enterprises and the selection of executive characteristics, and at the same time provide theoretical methods for enterprises to survive the COVID-19 pandemic.

We use dummy variables because the information on the use of derivative financial products disclosed by Chinese-listed companies in their annual reports was incomplete. In addition, the company's use of financial derivatives for speculation will not appear in the annual report. Therefore, the statistical methods of derivative financial instruments in empirical research have certain limitations. With the development of China's financial market, the content of corporate information disclosure will become more accurate. As data become more available, our future research focus will improve research on various types of financial derivatives.

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Notes

1 International Swaps and Derivatives Association (ISDA) website. (https://www.isda.org/) accessed on 1 July 2022.

2 Listed companies with ST means Special Treatment, It means that the listed company is operating in a bad state.

3 China Stock Market Accounting Research: (https://www.gtarsc.com/) accessed on 15 July 2022.

4 Wind Ip Network Database: (https://www.wind.com.cn/) accessed on 15 July 2022.

References

Aretz, Kevin, and Söhnke M. Bartram. 2010. Corporate hedging and shareholder value. *Journal of Financial Research* 33: 317–71. [CrossRef]

Aretz, Kevin, Söhnke M. Bartram, and Gunter Dufey. 2007. Why hedge? Rationales for corporate hedging and value implications. *The Journal of Risk Finance* 8: 434–49. [CrossRef]

Asghar Butt, Affaf, Main Sajid Nazir, Hamera Arshad, and Aamer Shahzad. 2018. Corporate derivatives and ownership concentration: Empirical evidence of non-financial firms listed on Pakistan stock exchange. *Journal of Risk and Financial Management* 11: 33. [CrossRef]

Bachiller, Patricia, Sabri Boubaker, and Salma Mefteh-Wali. 2021. Financial derivatives and firm value: What have we learned? *Finance Research Letters* 39: 101573. [CrossRef]

Bartram, Söhnke M. 2019. Corporate hedging and speculation with derivatives. *Journal of Corporate Finance* 57: 9–34. [CrossRef]

Boubaker, Sabri, Ephraim Clark, and Salma Mefteh-Wali. 2020. Does the CEO elite education affect firm hedging policies? *The Quarterly Review of Economics and Finance* 77: 340–54. [CrossRef]

Buehler, Hans, Lukas Gonon, Josef Teichmann, and Ben Wood. 2019. Deep hedging. *Quantitative Finance* 19: 1271–91. [CrossRef]

Campbell, John L., Landon M. Mauler, and Spencer R. Pierce. 2019. A review of derivatives research in accounting and suggestions for future work. *Journal of Accounting Literature* 42: 44–60. [CrossRef]

Campbell, John Y., Karine Serfaty-De Medeiros, and Luis M. Viceira. 2010. Global currency hedging. *The Journal of Finance* 65: 87–121. [CrossRef]

Campello, Murillo, Chen Lin, Yue Ma, and Hong Zou. 2011. The real and financial implications of corporate hedging. *The Journal of Finance* 66: 1615–47. [CrossRef]

Carbonneau, Alexandre. 2021. Deep hedging of long-term financial derivatives. *Insurance: Mathematics and Economics* 99: 327–40. [CrossRef]

Chen, Ming-Yuan. 2013. Adjustments in managerial ownership and changes in firm value. *International Review of Economics & Finance* 25: 1–12. [CrossRef]

Colquitt, L. Lee, and Robert E. Hoyt. 1997. Determinants of corporate hedging behavior: Evidence from the life insurance industry. *Journal of RISK and insurance* 64: 649–71. [CrossRef]

Fok, Robert C. W., Carolyn Carroll, and Ming C. Chiou. 1997. Determinants of corporate hedging and derivatives: A revisit. *Journal of Economics and Business* 49: 569–85. [CrossRef]

Giambona, Erasmo, John R. Graham, Campbell R. Harvey, and Gordon M. Bodnar. 2018. The theory and practice of corporate risk management: Evidence from the field. *Financial Management* 47: 783–832. [CrossRef]

Gong, Yujing, Cheng Yan, and Kung-Cheng Ho. 2021. The effect of managerial ability on corporate social responsibility and firm value in the energy industry. *Corporate Social Responsibility and Environmental Management* 28: 581–94. [CrossRef]

Grima, Simon, and Eleftherios I. Thalassinos. 2020. *Financial Derivatives: A Blessing or a Curse?* Bingley: Emerald Group Publishing.

Hoang, Edward C., and Indrit Hoxha. 2016. Corporate payout smoothing: A variance decomposition approach. *Journal of Empirical Finance* 35: 1–13. [CrossRef]

Hsiao, Yu-Jen, and Wei-Che Tsai. 2018. Financial literacy and participation in the derivatives markets. *Journal of Banking & Finance* 88: 15–29. [CrossRef]

Lambrecht, Bart M., and Stewart C. Myers. 2012. A Lintner model of payout and managerial rents. *The Journal of Finance* 67: 1761–810. [CrossRef]

Lambrecht, Bart M., and Stewart C. Myers. 2017. The dynamics of investment, payout and debt. *The Review of Financial Studies* 30: 3759–800. [CrossRef]

Lien, Tran Thi Hong. 2022. Financial Derivatives: Generals, Board Roles and Scandals. In *Board Directors, Financial Derivatives, and Corporate Governance: The Case of Vietnam*. Singapore: Springer, pp. 53–71. [CrossRef]

Manconi, Alberto, Massimo Massa, and Lei Zhang. 2018. The informational role of corporate hedging. *Management Science* 64: 3843–67. [CrossRef]

Marzban, Saeed, Erick Delage, and Jonathan Yu-Meng Li. 2022. Equal risk pricing and hedging of financial derivatives with convex risk measures. *Quantitative Finance* 22: 47–73. [CrossRef]

Modigliani, Franco, and Merton H. Miller. 1958. The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review* 48: 261–97. Available online: http://www.jstor.org/stable/1809766 (accessed on 12 October 2021).

Moradi, Mahdi, Andrea Appolloni, Grzegorz Zimon, Hossein Tarighi, and Maede Kamali. 2021. Macroeconomic factors and stock price crash risk: Do managers withhold bad news in the crisis-ridden Iran market? *Sustainability* 13: 3688. [CrossRef]

Nance, Deana R., Clifford W. Smith Jr., and Charles W. Smithson. 1993. On the determinants of corporate hedging. *The Journal of Finance* 48: 267–84. [CrossRef]

Oktavia, Oktavia, Sylvia Veronica Siregar, Ratna Wardhani, and Ning Rahayu. 2019. The role of country tax environment on the relationship between financial derivatives and tax avoidance. *Asian Journal of Accounting Research* 4: 70–94. [CrossRef]

Opler, Tim C., and Sheridan Titman. 1994. Financial distress and corporate performance. *The Journal of Finance* 49: 1015–40. [CrossRef]

Petry, Johannes. 2020. Financialization with Chinese characteristics? Exchanges, control and capital markets in authoritarian capitalism. *Economy and Society* 49: 213–38. [CrossRef]
Salehi, Mahdi, Grzegorz Zimon, and Maryam Seifzadeh. 2022. The Effect of Management Characteristics on Audit Report Readability. *Economies* 10: 12. [CrossRef]

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