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Goodwill impairment, surplus management and company performance: Empirical evidence from Chinese A-shares

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Abstract

In recent years, the capital market has generated huge amounts of goodwill assets as a result of blind mergers and acquisitions (M&A), and goodwill "thunderbolts" have become commonplace, with a significant impact on company operations and performance. To examine whether companies have used surplus management to improve the impact of goodwill impairment on company performance in the context of period-end profit losses and profit declines, this study selected a sample of non-financial listed Chinese A-share companies from 2007 - 2021 and used STATA15 to test the impact of goodwill impairment on company performance under the moderating effect of period-end profit loss and profit slip. The findings show that goodwill impairment has a significant and negative effect on company performance in the current year and the following year. However, management can use surplus management methods to significantly reduce the impact of goodwill impairment on company performance when the company experiences profit losses. The negative impact of goodwill on the company's performance persists in the following year, regardless of whether the company experiences profit declines at the end of the period. The findings of the study validate the role of surplus management in companies with goodwill impairment under the new accounting standards and provide guidance on how to reduce the risks associated with goodwill impairment.

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1. Introduction

In recent years, with the transformation and upgrading of China's domestic eco-economic structure, the Chinese government has introduced a series of supporting policies to create a more liberal environment for M&A and restructuring of companies. This is aimed to address the inadequacy of listed companies relying solely on endogenous growth methods, and the pressure to adjust their industrial structure, as well as to add new vitality to China's capital market. For example, in 2014, the China Securities Regulatory Commission (CSRC) revised the Measures for the Administration of Takeovers of Listed Companies, resulting in lower thresholds for corporate mergers, acquisitions, and reorganization. More and more companies are enthusiastic about M&A restructuring, and M&A activities in China's capital market continue to heat up, showing a growing trend in both the number and scale of transactions (Tang & Han, 2018). In 2015, the Central Economic Work Conference clearly pointed out that "more mergers and reorganizations, less bankruptcy liquidation," and the policy guidance made the number of mergers and acquisitions of listed companies exceed 10,000 in the same year. The development of goodwill in capital markets is overwhelming. However, although the CSRC issued "Accounting Regulatory Risk Alert No. 8 - Goodwill Impairment" in 2018 to alert listed companies to the risk of goodwill impairment, in the same year, the CSRC and other relevant regulators issued policies one after another with the aim of encouraging M&As and restructuring of listed companies. In 2019, the CSRC amended the relevant rules and regulations to continue to relax the criteria for determining and calculating the period during which a company could be reorganized and listed. In 2020, the relevant departments of the CSRC issued policies to

encourage brokerage firms, funds, and other industry institutions to implement market-based M&A s and restructuring. The above policies indicate that the state prompts stakeholders to pay attention to goodwill impairment risk, while a series of relatively liberal policies are being introduced in close succession, all of which directly contribute to the acceleration of capital market reform. According to the China Stock Market & Accounting Research Database (CSMAR), by the end of 2021, the net book value of goodwill of A-share listed companies in China exceeded 1 trillion yuan for six consecutive years.

The potential risk of subsequent goodwill impairment should not be underestimated, as many companies in China have generated large amounts of goodwill assets behind the wave of mergers and acquisitions that are in full swing. Owing to the frequency of large goodwill impairment charges in recent years, most studies by scholars, the media, and regulators have focused on the impact of consolidated goodwill on firm performance, and few relevant studies have examined the impact of goodwill impairment on firm performance. In addition, the current accounting standards have some leeway for management's surplus management behavior, and after goodwill impairment occurs, the company's management has the incentive to manipulate surplus management to change the company's performance (Deng, 2019). To this end, this study selected Chinese A-share listed companies from 2007-2021 as the research sample to study the impact of goodwill impairment on the current performance of companies and the effect of surplus management on the relationship between goodwill impairment and company performance. Practical consideration of the impact of goodwill impairment on corporate growth plays an important role in protecting the results of corporate operations and in stabilizing and regulating the orderly development of the capital market. Theoretically, this study enriches the literature related to goodwill impairment on company performance and tests the practical results of goodwill impairment and surplus management on company performance under our current accounting standards. It can provide an effective reference for China's regulatory authorities for goodwill impairment risk control of capital market enterprises and can also provide a reference for corporate governance in the post-epidemic era.

The rest of the paper is organized as follows: Part II presents the literature review and research hypotheses; Part III describes the research design, including sample selection, variable selection, and model construction; and Part IV conducts the empirical tests, including baseline regression analysis, full-sample interaction effects, and group regression; and Part V presents the research conclusions and implications of this study.

2. Literature Review and Research Hypothesis

2.1. Goodwill Impairment and Company Performance

Goodwill is an asset that can bring excess earnings to a company and is one of the most important elements of a company's value (Sang, 2021). Goodwill imbalance is the portion of goodwill impaired after a business combination (Hu & Li, 2019). Goodwill impairment may lead to a negative market reaction and a linear relationship with company performance, with the company's share price and value decreasing as a result of the goodwill impairment (Wang, 2022). Goodwill impairment can also reduce a company's profitability, which is detrimental to its operations and growth (Huo & Zhang, 2021). It also has a shock impact on market investors, and the higher the Size of the impairment, the stronger the shock impact (Li, Shroff, Venkataraman, & Zhang, 2011). Goodwill impairment shows a significant negative relationship with company performance (Filip, Jeanjean, & Paugam, 2015). This study proposes the following hypothesis based on the "linear relationship" between goodwill impairment and firm performance.

Hypothesis 1, H1: Goodwill impairment has a negative impact on the performance of the enterprise in the current period.

Hypothesis 2, H2: Impairment of goodwill will have the same negative impact on the performance of the enterprise in the next period.

2.2. Goodwill Impairment, Surplus Management and Corporate Performance

Owing to the abstract nature of goodwill and the difficulty of measuring it, the study of goodwill has been controversial, and there are many problems. According to the requirements of China Accounting Standards 2007, China currently adopts the impairment test method for the subsequent measurement of consolidated goodwill, which involves many subjective estimates and more room for manipulation. Listed companies prefer to use goodwill impairment for earnings smoothing (Yi, 2019), especially when companies operate in an environment of high uncertainty. This is because managers can use the measurement flexibility of fair value to smooth out corporate earnings (Ghosh & Olsen, 2009) and reduce profit volatility (Dechow, Ge, & Schrand, 2010). The surplus management motivation for goodwill impairment is divided into five points: first, management's consideration to avoid the risk of debt default; second, if goodwill impairment is tied to executive compensation; third, management has sufficient incentive to avoid the risk of delisting; fourth, to consider the volatility of the listed company's share price; fifth, reputation management may lead management to underestimate the size of goodwill impairment due to personal reputation considerations (Ramanna & Watts, 2012). In general, surplus management is positively related to Chief Executive Officer (CEO) incentive compensation, but high-quality audits reduce the incentive for executive surplus management (Choi, Choi, & Sohn, 2018). The level of the narcissism of management can also affect a company's surplus management, as

CEOs who exhibit a high level of narcissism are more likely to engage in earnings management and influence financial decisions to compensate for their own performance (Ni, 2020).

Regarding the consequences of surplus management, there is a negative relationship between a company's expected excess earnings and its degree of surplus management (Lento, 2016). Olson's price and earnings model was used to examine the value relevance of goodwill impairment, and it was found that when a company is in the red, its goodwill impairment for the "big bath" motive does not reflect the true decline in profitability (Qu, Lu, & Zhang, 2017). Goodwill impairment can reduce the profitability of a company, and it may be due to a real decline in the company's performance rather than management's surplus management motive. This study argues that management reduces profits through surplus manipulation for purposes such as profit smoothing, loss avoidance, and large purges to convey to investors through financial statements that the company is growing steadily and to enhance consumer confidence, thus avoiding the excessive impact of goodwill impairment on company performance. Based on this, we propose the following hypothesis:

Hypothesis 3 (H3): The company ends the period with a loss in profit, and the impairment of goodwill further dampens the negative impact of goodwill impairment on the future operating performance of the company.

Hypothesis 4 (H4): The company's profit declines at the end of the period, and the provision for goodwill impairment further dampens the negative impact of goodwill impairment on the future operating performance of the company.

3. Data and Empirical Models

3.1. Data Resources

On January 1, 2007, Accounting Standards for Business Enterprises became effective, and goodwill was entered into the balance sheet as a separate asset item. Therefore, this study uses 2007--2021 Chinese A-share listed companies as the research sample. Meanwhile, the data in this study were screened according to the following procedures: (1) ST（Special Treatment and *ST companies were excluded; (2) listed companies classified as financial companies in accordance with the industry classification guidelines of the SFC's Industry Classification Guide-lines for Listed Companies (revised in 2012); (3) the sample with both the closing balance of goodwill and the amount of goodwill impairment loss incurred were excluded because such companies have no goodwill and do not require goodwill impairment; and (4) all samples with missing data were excluded. The final study of the impact of goodwill impairment on company performance in the current year used data from 4,139 sample companies, and the study of goodwill impairment on company performance in the following year used data from 3,412 sample companies. Data were obtained from the CSMAR database, and Stata 15.0 was used to process the data.

3.2. Variable Measurement

(1) Dependent variable: the dependent variable in this study is firm performance, specifically net asset margin (ROA) as used in the previous research (Cavero Rubio, Amoros Martinez, & Collazo Mazon, 2021; Han, Tang, & Tang, 2021). The following period's company performance is also taken into consideration as (T+1) ROA.

(2) Independent variable: The independent variable in this study is goodwill impairment (GIV), which is measured by the ratio of goodwill incurred to assets at the end of a period, as done in previous studies (Han et al., 2021).

(3) Control variables: This study draws on the existing research literature to select the control variables as follows: the variables related to capital structure, growth, and corporate governance characteristics. These variables include head office Size (Size), Debt ratio (Debt), asset growth (AG), operating income growth rate (RG), and net cash flow from operations to total assets (CFO). In addition, this study controls for Industry and Year.

(4) Moderating and grouping variables: The loss status (loss) and profit decline status (Slip) at the end of the period are used as moderating variables.

Table 1. Name and meaning of main variables.

Meaning of variables	Variable names	Variable definitions
Dependent variable	ROA (Return on assets)	Net income/total assets average balance
Explanatory variable	GIV (Goodwill impairment volume)	(Net goodwill at the end of the period - Net goodwill at the beginning of the period)/Total assets
Control variables	Size (Asset size)	Natural logarithm of total assets
	AG（Asset growth)	(Closing assets - Opening assets)/Opening assets
	RG (Revenue growth)	(Ending operating revenue - Opening operating revenue)/Opening operating revenue
	Debt (Debt situation)	Liabilities / Assets
	CFO (Operating cash flow)	Net cash flow from operations/total assets
Control, moderation and grouping variables	Loss (Profit loss status)	Virtual variable, negative profit at the end of the year is recorded as 1, otherwise, it is 0
	Slip (Profit slip status)	Virtual variable, the decline in the firm's year-end profit is recorded as 1, otherwise it is 0

Table 1 shows the variable names of the dependent, explanatory, control, and moderating variables, along with the formulas for calculating the values of each variable in this paper.

The descriptive statistics of the relevant variables show that the maximum value of the goodwill impairment indicator of the sample companies is 1.405, the minimum value is -0.282, and the mean value is 0.033. The standard deviation is 0.094, which is greater than 0.05, indicating that goodwill impairment varies greatly among companies. The minimum ROA for company performance in the current period is -4.946, the maximum is 0.526, and the standard deviation is 0.158. The minimum ROA for company performance in the next period (T+1) is -4.782, the maximum is 0.433, and the standard deviation is 0.161. These statistics show that all companies have a large difference between their current and next period company performance and their values are widely distributed. Similarly, the descriptive statistics for the other explanatory variables also suggest that there are significant differences in the specific situation of each company and that the sample has research value. The descriptive statistics for the selected variables are shown in Table 2.

Table 2. Descriptive statistics.

Variables	(1)	(2)	(3)	(4)	(5)
	N	Mean	Standard deviation	Min.	Max.
GIV	4,139	0.033	0.094	-0.282	1.405
ROA	4,139	-0.001	0.158	-4.946	0.526
Size	4,139	9.850	0.600	8.267	12.40
AG	4,139	0.072	0.245	-0.896	3.062
RG	4,139	0.110	0.449	-2.733	17.32
Debt	4,139	0.472	0.214	0.010	3.919
CFO	4,139	0.046	0.067	-0.372	0.516
Loss	4,139	0.209	0.407	0	1
Slip	4,139	0.484	0.500	0	1
(T+1)ROA	3,412	0.002	0.161	-4.782	0.433

3.3. Model Specification

The purpose of this study is to test the effect of goodwill impairment on the performance of the company in the current and next periods. To achieve this, the study constructs two regression equations. The first equation, called the baseline regression Equation 1, is used to test the effect of goodwill impairment without adding control variables. The second equation, called Equation 2, is used to demonstrate the effect of goodwill impairment on the performance of the company while controlling for other variables.

$$\mathrm{ROA}_{t,t+1} = \alpha_0 + \alpha_1 \mathrm{GIV}_t + \alpha_2 \sum \mathrm{Industry} + \alpha_3 \sum \mathrm{Year} + \varepsilon_t \quad (1)$$

$$\mathrm{ROA}_{t,t+1} = \gamma_0 + \gamma_1 \mathrm{GIV}_t + \gamma_2 \mathrm{Size}_t + \gamma_3 \mathrm{AG}_t + \gamma_4 \mathrm{RG}_t + \gamma_5 \mathrm{Debt}_t + \gamma_6 \mathrm{CFO}_t + \gamma_7 \sum \mathrm{Industry} + \gamma_8 \sum \mathrm{Year} + \varepsilon_t \quad (2)$$

To test the role of ending profit loss in goodwill impairment and next-period firm performance, we established Equation 3 with the ending profit loss status (Loss) as a control variable in order to test the effect of Loss on ROA. Then, we established Equation 4 to test whether Loss plays a moderating effect in goodwill impairment and firm performance by using Loss as a moderating variable. If the coefficient β_3 of the interaction term $\mathrm{GIV}_t \times \mathrm{Loss}_t$ is significantly positive, it indicates that the company's ending profit is lossy, and the impairment of goodwill will further enhance the future operating performance of the company.

$$\mathrm{ROA}_{t+1} = \lambda_0 + \lambda_1 \mathrm{GIV}_t + \lambda_2 \mathrm{Loss}_t + \lambda_3 \mathrm{Size}_t + \lambda_4 \mathrm{AG}_t + \lambda_5 \mathrm{RG}_t + \lambda_6 \mathrm{Debt}_t + \lambda_7 \mathrm{CFO}_t + \lambda_8 \sum \mathrm{Industry} + \lambda_9 \sum \mathrm{Year} + \varepsilon_t \quad (3)$$

$$\mathrm{ROA}_{t+1} = \beta_0 + \beta_1 \mathrm{GIV}_t + \beta_2 \mathrm{Loss}_t + \beta_3 \mathrm{GIV}_t \times \mathrm{Loss}_t + \beta_4 \mathrm{Size}_t + \beta_5 \mathrm{AG}_t + \beta_6 \mathrm{RG}_t + \beta_7 \mathrm{Debt}_t + \beta_8 \mathrm{CFO}_t + \beta_9 \sum \mathrm{Industry} + \beta_{10} \sum \mathrm{Year} + \varepsilon_t \quad (4)$$

To further examine the role of ending profit decline in the relationship between goodwill impairment and the performance of the firm in the next period, the following tests were conducted using the status of slump of ending profit decline (Slip) as both a control variable and moderating variable. Firstly, Equation 5, was established with Slip as a control variable to test its effects on ROA. Then, Equation 6 was established with Slip as a moderating variable to test whether it has a moderating effect on the relationship between goodwill impairment and firm performance. Among them, coefficient θ_3 of the interaction term $\mathrm{GIV}_t \times \mathrm{Slip}_t$ is significantly positive, indicating that the company's profit decline at the end of the period, and the provision for goodwill impairment will further improve the company's operating performance in the future.

$$\mathrm{ROA}_{t+1} = \kappa_0 + \kappa_1 \mathrm{GIV}_t + \kappa_2 \mathrm{Slip}_t + \kappa_3 \mathrm{Size}_t + \kappa_4 \mathrm{AG}_t + \kappa_5 \mathrm{RG}_t + \kappa_6 \mathrm{Debt}_t + \kappa_7 \mathrm{CFO}_t + \kappa_8 \sum \mathrm{Industry} + \kappa_9 \sum \mathrm{Year} + \varepsilon_t \quad (5)$$

$$\mathrm{ROA}_{t+1} = \theta_0 + \theta_1 \mathrm{GIV}_t + \theta_2 \mathrm{Slip}_t + \theta_3 \mathrm{GIV}_t \times \mathrm{Slip}_t + \theta_4 \mathrm{Size}_t + \theta_5 \mathrm{AG}_t + \theta_6 \mathrm{RG}_t + \theta_7 \mathrm{Debt}_t + \theta_8 \mathrm{CFO}_t + \theta_9 \sum \mathrm{Industry} + \theta_{10} \sum \mathrm{Year} + \varepsilon_t \quad (6)$$

Table 3. Correlation tests.

	ROA	GIV	Size	AG	RG	Debt	CFO	Loss	Slip
ROA	1								
GIV	-0.562***	1							
Size	0.151***	-0.188***	1						
AG	0.417***	-0.242***	0.100***	1					
RG	0.198***	-0.057***	0.022	0.317***	1				
Debt	-0.358***	-0.026*	0.420***	-0.096***	-0.069***	1			
CFO	0.214***	-0.088***	0.061***	0.009	0.061***	-0.155***	1		
Loss	-0.571***	0.366***	-0.180***	-0.376***	-0.196***	0.184***	-0.206***	1	
Slip	-0.308***	0.166***	-0.125***	-0.261***	-0.244***	0.037**	-0.177***	0.422***	1

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

3.4. Relevance Analysis

In this study, the correlation test of variables was conducted before the regression analysis in order to ensure the accuracy and scientific validity of the empirical results. Table 3 shows that the correlation coefficients of the explanatory, control and moderating variables with ROA are all significant at the 1% level. The correlation coefficients between the control variables were significant at the 1% level for all the control variables except for the correlation coefficient between CFO and AG, which was not significant. It shows that the choice of control variables is scientific and reasonable. Overall, the likelihood of multicollinearity between the variables selected for this paper is small, so the next step of the study can be carried out.

4. Empirical Results and Analysis

4.1. Baseline Regression

The study first conducted a VIF test, and Table 4 demonstrates that the correlation coefficients among the variables were less than 10, with a mean value of 1.35, indicating that the model does not have serious multicollinearity and can be tested in the next step.

Table 4. VIF test.

Variable names	VIF	1/VIF
GIV	1.36	0.736
Loss	1.71	0.583
Slip	1.32	0.755
Size	1.63	0.613
AG	1.39	0.720
RG	1.19	0.844
Debt	1.60	0.627
CFO	1.17	0.853

Table 5 shows the results of the regression of goodwill impairment on firm performance for the current and next periods. Model (1) shows that the coefficient correlation between GIV and ROA is significant at the 1% level of -0.971, without considering the control variables. Model (2) shows that after adding the control variables (Size, AG, RG, Debt and CFO), the regression of GIV on ROA remains significant at the 1% level of -0.803. This is a sufficient indication that the impact of goodwill impairment on a company's current year performance is significantly negative and that goodwill impairment leads to a reduction in a company's current period performance, proving hypothesis 1 to be valid.

Model (3) indicates that the correlation coefficient between GIV and (T+1) ROA is significant at the 1% level of -0.255. Model (4) indicates that with the inclusion of control variables, the coefficient of the impact of goodwill impairment on the next period's firm performance is again significant at the 1% level of -0.164. Hence, goodwill impairment also has a negative correlation with a company's corporate performance in the following year. Therefore, Hypothesis 2 is valid.

Table 5. Regression results of goodwill impairment on firm performance.

Variables	(1)	(2)	(3)	(4)
	ROA	ROA	(T+1) ROA	(T+1)ROA
GIV	-0.971***	-0.803***	-0.255***	-0.164***
	(-43.83)	(-44.00)	(-8.86)	(-5.73)
Size		0.057***		0.007
		(17.72)		(1.36)
AG		0.120***		0.072***
		(16.70)		(6.04)
RG		0.020***		0.014**
		(5.37)		(2.31)
Debt		-0.333***		-0.047***
		(-38.10)		(-3.17)
CFO		0.238***		0.579***
		(9.66)		(14.37)
Constant	0.203***	-0.232***	0.035	-0.073
	(6.90)	(-6.29)	(0.90)	(-1.20)
Observations	4,137	4,137	3,411	3,411
R-squared	0.361	0.600	0.068	0.145
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Note: **, and *** indicate significance at the 10%, 5%, levels, respectively.

Regarding the control variables, the coefficient of correlation between the company's asset size and ROA is significant at the 1% level of 0.057. However, the coefficient of Size on (T+1) ROA is not significant. The coefficient between the company's asset growth and ROA is significant at the 1% level of 0.120, and the coefficient with (T+1) ROA is also significant at the 1% level. This suggests that a larger company with better growth tends to have stronger assets and create more value. The coefficient between RG and ROA is also significant at the 1% level of 0.020 and the coefficient with (T+1) ROA is significant at the 1% level of 0.014. This illustrates that higher revenue growth results in better company performance. Lastly, the coefficient between CFO and ROA is significant at the 1% level at 0.238 and the coefficient with (T+1) ROA is significant at the 1% level at 0.579, indicating that higher cash flow generates better company performance.

4.2. Robustness and Endogeneity Test

To guarantee the persuasiveness and reliability of the empirical outcomes, this study uses the substitution variable method" to test robustness. In Table 6, Model (1) replaces the dependent variable ROA with ROE, which is the firm's return on net assets, and the correlation coefficient of GIV to ROE is -1.889, which is significant at the 1% level. Model (2) replaces the independent variable GIV with AGI, AGI is the amount of goodwill impairment/net goodwill at the beginning of the period, and the correlation coefficient of AGI on ROA is -0.103, again significant at the 1% level. Model (3) replaces both independent and dependent variables; the correlation coefficient of AGI on ROE is -0.389, and the correlation coefficients are all significant at the 1% level. (4) Replace GIV with AGI in the effect on the next period's firm performance. The correlation coefficient of AGI with (T+1) ROA is -0.015, which is significant at the 10% level. This shows that goodwill impairment has a significant negative impact on a company's performance in the current year and can also have a negative impact on the company's performance in the next period. The stability of the research model was demonstrated.

Table 6. Robustness test results.

Variables	(1)	(2)	(3)	(4)
	ROE	ROA	ROE	(T+1) ROA
GIV	-1.889***			
	(-9.95)			
AGI		-0.103***	-0.389***	-0.015*
		(-15.89)	(-6.73)	(1.67)
Size	0.185***	0.068***	0.201***	0.004
	(5.54)	(18.00)	(5.99)	(0.77)
AG	0.450***	0.161***	0.513***	0.061***
	(6.01)	(19.16)	(6.85)	(4.93)
RG	0.078**	0.016***	0.064	0.007
	(2.03)	(3.54)	(1.64)	(1.17)
Debt	-1.098***	-0.335***	-1.083***	-0.030*
	(-12.06)	(-32.42)	(-11.79)	(-1.95)
CFO	0.346	0.285***	0.420	0.534***
	(1.35)	(9.81)	(1.63)	(13.05)
Loss				-0.039***
				(-4.67)
Slip				-0.027***
				(-4.62)
Constant	-1.001***	-0.430***	-1.317***	-0.064
	(-2.61)	(-9.95)	(-3.43)	(-1.05)
Observations	4,137	4,137	4,137	3,411
R-squared	0.113	0.446	0.102	0.153
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

4.3. Heterogeneity Analysis

Table 7 verifies the effectiveness of corporate surplus management in a state of profit loss. In this state profit loss (Loss) is used as a control variable in Model (1), as grouping variables in Models (2) and (3), and as a moderating variable in Model (4). Regression tests were performed separately for each model.

In model (1), the coefficient between GIV and next period of firm performance is -0.123, which is significant at the 1% level, when controlling for the loss of profit at the end of the period (Loss). This indicates that goodwill impairment has a significant negative impact on period firm performance. In the grouped regression of whether or not a loss in profits occurred, the coefficient of Model (2) GIV and the next period firm performance is positive but not significant, indicating that GIV does not have a significant negative effect on the company's performance

in the next period in the event of a loss in the company's profit at the end of the period. Conversely, in Model (3), the coefficient between GIV and the next period firm performance under profit without loss is -0.335, which is significant at the 1% level. This shows that goodwill impairment still has a significant negative impact on the next period firm performance even without a loss in profit. In Model (4), the interaction term GIV*Loss has a positive correlation coefficient of 0.275 with the next period firm performance, which is significant at the 1% level. This shows that the more goodwill impairment management a company undertakes in the case of a profit loss, the higher the company's ROA will be in the next year, which proves that hypothesis 3 is valid. This also indicates that loss plays a significant inhibitory role in the impact of goodwill impairment on firm performance in the next period.

By comparing the regression results with Loss as a control, grouping, and moderating variable, it can be found that the variable Loss attenuates the relationship between GIV and firm performance in the next period. A plausible explanation is that the company uses surplus management tools that can change the impact on its performance in the next period through profit moderation.

Table 7. Goodwill impairment, profit loss and firm performance in the following year.

Variables	(1) (T+1) ROA full samples	(2) (T+1) ROA loss==1	(3) (T+1) ROA loss==0	(4) (T+1) ROA full samples
GIV	-0.123***	0.031	-0.335***	-0.298***
	(-4.10)	(0.36)	(-10.54)	(-6.03)
Loss	-0.037***			-0.048***
	(-4.64)			(-5.72)
GIV*Loss				0.275***
				(4.45)
Size	0.003	0.000	0.000	0.003
	(0.47)	(0.74)	(1.12)	(0.49)
AG	0.058***	0.067	0.065***	0.068***
	(4.68)	(0.92)	(7.76)	(5.42)
RG	0.012**	0.036	0.009**	0.011*
	(1.97)	(1.05)	(2.24)	(1.86)
Debt	-0.029*	-0.047	-0.024**	-0.032**
	(-1.91)	(-1.07)	(-2.14)	(-2.09)
CFO	0.550***	1.136***	0.397***	0.552***
	(13.51)	(7.11)	(13.51)	(13.60)
Constant	-0.033	-0.283	0.055**	-0.001
	(-0.54)	(-1.44)	(2.04)	(-0.01)
Observations	3,411	663	2,748	3,411
R-squared	0.151	0.139	0.163	0.156
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

4.4. Further Study

Further study was conducted to investigate the impact of goodwill impairment on the company's performance in the next period in the event of a decline in the company's period-end profit. The results of testing the ending profit decline variable slip as a control variable, grouping variable, and cross-sectional term are presented in Table 8.

When controlling for slip, the correlation coefficient between goodwill impairment and the next period's corporate performance is -0.148, which is significant at the 1% level, indicating that GIV has a significant negative effect on the company in the next year's corporate performance, even after controlling for the profit inclination indicator. In both models (2) and (3), the relationship between GIV and the next year's firm performance is significantly and negatively correlated with whether the firm's ending profit has declined. This suggests that goodwill impairment can lead to a decline in the next year's firm performance, regardless of whether the ending profit has declined.

However, the correlation coefficient of the interaction term GIV*Slip in Model (4) is positive but insignificant, proving that Hypothesis 4 is not valid.

Table 8. Goodwill impairment, profit decline and company performance in the following year.

Variables	(1) (T+1)ROA full samples	(2) (T+1)ROA slip==1	(3) (T+1)ROA slip==0	(4) (T+1)ROA full samples
GIV	-0.148***	-0.335***	-0.244***	-0.178***
	(-5.17)	(-10.54)	(-7.89)	(-3.28)
Slip	-0.033***			-0.033***
	(-5.81)			(-5.80)
GIV*Slip				0.042
				(0.65)
Size	0.005	0.000	0.000	0.005
	(0.96)	(1.12)	(0.77)	(0.96)
AG	0.061***	0.065***	0.051***	0.063***
	(5.10)	(7.76)	(6.26)	(5.12)
RG	0.008	0.009**	0.000	0.008
	(1.40)	(2.24)	(0.12)	(1.38)
Debt	-0.043***	-0.024**	-0.033***	-0.043***
	(-2.89)	(-2.14)	(-2.77)	(-2.90)
CFO	0.544***	0.397***	0.347***	0.544***
	(13.40)	(13.51)	(11.36)	(13.41)
Constant	-0.043	0.055**	0.064**	-0.037
	(-0.71)	(2.04)	(2.21)	(-0.60)
Observations	3,411	2,748	1,748	3,411
R-squared	0.154	0.163	0.167	0.154
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Note: **, and *** indicate significance at the 10%, 5% levels, respectively.

5. Research Conclusions and Recommendations

The results of this study show that goodwill impairment can lead to a decrease in firm performance not only in the current year but also in the following year, and that companies can attenuate this negative impact of goodwill impairment on firm performance. In practice, this financial objective is mainly achieved by means of surplus management, which is mainly manifested by the company's control over profits. The ending profit loss situation plays a significant inhibitory effect on the impact of goodwill impairment on the company's performance in the following year.

This paper also puts forward some suggestions: to strengthen the regulation of the surplus management behavior of listed companies, to guide enterprises to realize the positive impact of goodwill impairment on company performance through the "bubble extrusion effect," and to improve the synergistic effect of overall assets. Since China's current accounting standards still provide some room for manipulation of corporate surplus management, it is essential to strengthen the supervision of surplus management practices and conduct independent audits jointly with accounting firms to crack down on the manipulation of accounting information by executives. Finally, it is important to find the causes of goodwill impairment to avoid large amounts of M&A goodwill and reduce the occurrence of goodwill impairment.

The shortcoming of this study is that it only uses the company's ending profit situation to verify surplus management and does not adopt a more appropriate measurement method to evaluate the surplus management indicator. Therefore, this is something that will be discussed later in this paper.

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