# Corporate Goodwill and Debt Financing Costs

## —Based on The Empirical Study of China's A-Share Listed Companies From 2008 To 2018

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**Abstract:** Huge goodwill brings risks to the capital market that cannot be ignored. Taking a-share listed companies excluding finance and insurance industry from 2008 to 2018 as samples, this paper finds that the ratio of goodwill to assets and impairment of goodwill will significantly increase the debt financing cost of enterprises, and audit opinions and corporate credit rating will play A significant regulating role. The research results of this paper enrich the research on the relationship between goodwill information and debt contract, and have enlightenment significance for the decision-making usefulness of goodwill information.

## 1. Introduction

In order to support high valuation, mergers and acquisitions targets usually exaggerate their profitability, give ultra high performance commitment, and form huge goodwill. However, when the performance commitment is not up to the standard, the phenomenon of "deadbeat" emerges one after another. On the other hand, huge goodwill and its impairment risk may also lead to such as increase earnings management space, exacerbating the uncertainty of future performance. More and more researches begin to notice that enterprise accounting information is more used in the evaluation of business status and the implementation of relevant contracts. Chinese companies are more dependent on debt financing than their Counterparts in the U.S. and Europe. In recent years, the overall degree of debt of listed companies has also increased significantly. With the increasing influence of creditors on corporate decisions, it becomes very important whether the goodwill information can provide useful information for creditors to make decisions. This paper selects the net goodwill, the proportion of goodwill impairment loss in assets and the proportion of interest expense in total liabilities of listed companies from 2008 to 2018 as the main research data to test the impact of goodwill information on the debt capital cost of enterprises. The results show that the greater the proportion of goodwill in total assets, the more goodwill impairment provision and the higher debt financing cost. Further study found that the positive audit opinions of accounting firms and a good credit rating can mitigate the above positive correlation.

The possible research significance of this paper is as follows: firstly, from the perspective of the main creditors of an enterprise, this paper studies in detail the impact of goodwill information on the conclusion of debt contracts, which enriches the literature in this field. Secondly, this paper discusses the impact of goodwill, a specific accounting information, on the cost of debt capital. Thirdly, this paper studies the moderating effect of audit opinions of accounting firms and corporate credit rating, which is helpful to fully understand the impact of accounting information on debt contracts and has certain reference significance for future research on debt contracts. In general, this paper provides comprehensive empirical evidence of the impact of the ratio of goodwill and the degree of impairment on the cost of debt capital of listed companies in China.

## 2. Literature Review, Theoretical Analysis and Research Hypotheses

The root cause of the huge goodwill is the m&a with high valuation and premium, including the motivation of sending positive signals to the market to raise the stock price or hiding the potential

benefit delivery of management, high performance commitment and catering evaluation. Goodwill impairment also includes earnings management factors. As the goodwill impairment test is more subjective and has more room for manipulation, senior executives have the incentive to recognize more goodwill[1]. Defects in internal control will also significantly improve the possibility of the impairment of newly added goodwill in the future and aggravate the subsequent impairment of goodwill in the decision of merger and acquisition[2]. High proportion of goodwill and subsequent impairment will have two effects on the financing ability of listed companies. First, the high ratio of goodwill means the decline of the asset quality of the company, leading to the downgrade of the company's credit rating, which further affects the financing ability of the company and the stock price recovery potential of subsequent mergers and acquisitions. Second, it affects the enterprise's going concern ability, makes the future profit uncertain, and brings difficulties for the enterprise financing. A high proportion of goodwill and a huge impairment of goodwill will interfere with the accuracy of analysts' judgment, increase the information asymmetry between enterprises and investors, and reduce the overall efficiency of the market. The unverifiability of goodwill recognition measurement and impairment test will also increase the audit expense of enterprises, and the audit expense of enterprises with impairment loss of goodwill will increase more[3].

When making a loan decision, the debtor will evaluate the risk by referring to the accounting information of the borrower[4][5]. From the perspective of business performance, the impairment of goodwill means that the expected inflow of future economic benefits is lower than when the enterprise is booked, which sends a negative signal of declining profitability to the outside world and causes the negative reaction of the market. The immediate effect is that creditors see this signal as a sign that a company is becoming less solvent. The indirect reaction is that the negative impact of goodwill impairment may reduce the level of corporate information disclosure[6][7]. From the perspective of earnings management, the goodwill impairment test itself provides a certain possibility for management to manipulate performance, aggravates the degree of information asymmetry between enterprises and creditors, and enables creditors to obtain compensation for information asymmetry risk by increasing the rate of return.

This paper argues that the proportion of goodwill in total assets plays an important role in the cost of debt capital. On the one hand, it is found that creditors make credit decisions mainly based on the earnings quality and financial performance of enterprises[8]. The greater the proportion of goodwill in total assets means the greater the risk of asset bubbles. The impairment loss of goodwill, as a part of the impairment loss of assets, is directly reflected in financial statements, which will reduce both asset value and net profit. Therefore, from the perspective of economic factors, the huge goodwill and its potential impairment risk may increase the company's debt capital cost. On the other hand, there is a certain relationship between information asymmetry and capital cost. Due to the unrecognizability of goodwill, measurement and impairment of goodwill are still subjective, which is likely to become the tool of management earnings management. Therefore, a high degree of goodwill and its impairment may send a signal to creditors that the management has the motive of earnings manipulation to reduce the quality of accounting information, and the debt financing cost of enterprises will rise relatively. Therefore, the research hypothesis 1 of this paper is proposed:

*H1a: The higher the proportion of goodwill in the total assets, the higher the cost of debt capital.*

*H1b: The greater the degree of goodwill impairment, the higher the cost of debt capital.*

Audit opinions can have a significant impact on the cost of debt capital. According to the theoretical explanation of information asymmetry, the bubble accumulation caused by excessive proportion of goodwill assets increases the degree of information asymmetry, which makes creditors pay more attention to the supervision role of audit. To some extent, auditing can supervise the management of enterprises and identify the risks of enterprises, thus reducing the agency cost and information asymmetry[9]. When the audit opinion is a standard unqualified opinion, it indicates that the quality of accounting information disclosure is higher, and the degree of information asymmetry between enterprises and creditors is lower, and creditors are inclined to reduce interest rate requirements. Therefore, research hypothesis 2 is proposed:

*H2: Positive audit opinions can regulate the positive correlation between the goodwill information*

*and the cost of debt capital.*

The determination of the loan interest rate mainly depends on the risk of the loan project, and the credit rating of an enterprise can explain the credit risk and solvency of the enterprise to a certain extent. It is generally believed that creditors can effectively identify the credit rating of enterprises through strict credit examination procedures. The higher the credit level of enterprises, the lower the loan pricing level of creditors[10]. A high proportion of goodwill assets means a low asset quality. However, if an enterprise has a good credit rating (such as AAA) and has the potential to make profits in a period of time in the future, it can be seen that it still has a certain solvency and low credit risk. Therefore, we propose research hypothesis 3:

*H3: A good credit rating moderates the positive correlation between goodwill information and the cost of debt capital.*

## 3. Sample Selection, Variable Definition and Empirical Test

### 3.1 Sample Selection and Data Sources

China implemented the new accounting standards for business enterprises in 2007, which changed the subsequent measurement of goodwill from amortization year by year to annual impairment test, and calculated the goodwill impairment provision. Therefore, this paper selects a-share listed companies in Shanghai and Shenzhen stock exchanges from 2008 to 2018 as research samples, and processes the data according to the following criteria :(1) excluding listed companies in the financial and insurance industry; (2) excluding data with missing variables or anomalies. In the end, a total of 27,769 observed values were obtained, among which 18,133 observed values of goodwill impairment were disclosed. In order to avoid the influence of extreme values, all continuous variables were winsorize up and down 1%. The data in this paper are mainly from the Wind database, in which the data of bank loan interest rate is collected manually from the annual report of 2016-2018.

### 3.2 Model Selection and Variable Definition

In order to study the proportion of goodwill in assets and the impact of goodwill impairment on corporate debt capital cost, models (1) and model (2) are established respectively:

$$\mathrm{Cost}_{it} = \alpha + \beta \times Goodwill_{it-1} + \gamma \times Controls_{it-1} + \varepsilon \tag{1}$$

$$\mathrm{Cost}_{it} = \alpha + \beta \times Gwimp_{it-1} + \gamma \times Controls_{it-1} + \varepsilon \tag{2}$$

Where Cost is the Cost of debt capital, this paper is based on the research of Xu Jingchang et al. (2017)[11].The cost of debt capital is represented by the ratio of interest expense to the total amount of debt. Goodwill represents the proportion of net Goodwill in the total assets of the enterprise at the end of the period, which is the explanatory variable of model (1). Gwimp is the goodwill impairment rate, representing the proportion of goodwill impairment loss in total assets, and it is the explanatory variable of model (2). In order to avoid the endogenous effect of the reverse causality, the explanatory variables of model (1) and (2) were delayed by one stage:

Model at the same time control of the company characteristics and corporate governance variables, these variables including firm Size (Size), asset-liability ratio (Lev), return on equity (ROE), operating income Growth rate (Growth), the ratio of the first largest shareholder (Top), business net Cash flows (Cash), fixed assets ratio (Tangi), the board Size (Dirsize), the nature of the property (SOE), chairman and general manager whether the joining together of two position (Dual), the independent directors proportion (Ind_dir) and the company time to market (the List),The central bank's base lending Rate (Rate) controls the industry and the year.

In addition, in order to test hypothesis 2 and hypothesis 3, the following models are established respectively:

$$Cost_{it} = \alpha + \beta \times Goodwill_{it-1} + \chi \times Opinion_{it-1} + \delta \times Goodwill_{it-1} \times Opinion_{it-1} + \lambda \times Controls_{it-1} + \varepsilon \quad (3)$$

$$Cost_{it} = \alpha + \beta \times Gwimp_{it-1} + \chi \times Opinion_{it-1} + \delta \times Gwimp_{it-1} \times Opinion_{it-1} + \lambda \times Controls_{it-1} + \varepsilon \quad (4)$$

$$Cost_{it} = \alpha + \beta \times Goodwill_{it-1} + \chi \times Grade_{it-1} + \delta \times Goodwill_{it-1} \times Grade_{it-1} + \lambda \times Controls_{it-1} + \varepsilon \quad (5)$$

$$Cost_{it} = \alpha + \beta \times Gwimp_{it-1} + \chi \times Grade_{it-1} + \delta \times Gwimp_{it-1} \times Grade_{it-1} + \lambda \times Controls_{it-1} + \varepsilon \quad (6)$$

In summary, the definitions and names of related variables are shown in Table 1:

Table 1 Variable definitions

| The variable name | Variable definitions |
|---|---|
| Explained variable | |
| Cost | Debt capital cost, interest expense/total liabilities |
| Explanatory variables | |
| Goodwill | Ending net goodwill/ending total assets |
| Gwimp | Degree of goodwill impairment, amount of goodwill impairment/total assets at the end of the period |
| Adjust the variable | |
| Opinion | Audit opinion, standard unqualified opinion is 1, others is 0 |
| Grade | If the credit rating of the main body of the company is AAA, it is 1; otherwise, it is 0 |
| Control variables | |
| Size | Enterprise size, natural log of total assets |
| Lev | Asset-liability ratio |
| ROE | Return on equity |
| Growth | Revenue growth rate, a measure of enterprise growth |
| Top | Shareholding ratio of the largest shareholder |
| Cash | Net cash flow from operating activities/total assets |
| Tangi | Fixed assets ratio, fixed assets/total assets |
| List | The natural logarithm of listed years, not listed or listed year is 0 |
| SOE | Property right nature, state-owned enterprises take 1, non-state-owned enterprises take 0 |
| Dirsize | The size of the board of directors, the natural logarithm of the number of directors |
| Ind_dir | The proportion of the number of independent directors in the total number of the board of directors |
| Dual | The chairman of the board and the general manager when the two functions are combined, take 1; otherwise, take 0 |
| Rate | The central bank's one - to three-year base lending rate |

### 3.3 Empirical Results

#### 3.3.1 Descriptive Statistics

The descriptive statistics of model variables in this paper are shown in Table 2. Panel A in Table

2 is the descriptive statistics of all samples. It can be seen that the average debt financing cost of the explained variable is 1.8%, indicating that the average interest expense of the company accounts for 1.8% of the total liabilities of the company. The explanatory variable net goodwill accounts for 1.9% on average in the total assets, with the smallest accounting for 0 and the largest accounting for 43.2%. It can be seen that the ratio of goodwill varies greatly among different companies. Panel B in Table 2 reveals the descriptive statistics of the sample of goodwill impairment. It can be seen that the average debt financing cost of the explained variable is also 1.8%, while the average ratio of goodwill impairment to total assets of the explanatory variable is 0, and the maximum value is 1.6%, indicating that goodwill impairment accounts for a small share of total assets in the sample. In the two groups of samples, although there is a difference in the mean value of control variables, the difference is small.

Table 2 Descriptive statistics

| Variable | Obs | Mean | Std | Min | Max | Obs | Mean | Std | Min | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Cost | 27769 | 0.018 | 0.016 | 0.000 | 0.067 | 18133 | 0.018 | 0.017 | 0.000 | 0.067 |
| Goodwill | 27769 | 0.019 | 0.065 | 0.000 | 0.432 | | | | | |
| Gwimp | | | | | | 18133 | 0.000 | 0.002 | 0.000 | 0.016 |
| The Size | 27769 | 21.850 | 1.367 | 18.980 | 25.950 | 18133 | 21.600 | 1.317 | 18.980 | 25.950 |
| Lev | 27769 | 0.430 | 0.212 | 0.049 | 0.943 | 18133 | 0.421 | 0.215 | 0.049 | 0.943 |
| ROE | 27769 | 0.093 | 0.129 | 0.483 | 0.501 | 18133 | 0.096 | 0.136 | 0.483 | 0.501 |
| Growth | 27769 | 0.205 | 0.451 | 0.563 | 3.005 | 18133 | 0.198 | 0.467 | 0.563 | 3.005 |
| Top | 27769 | 0.338 | 0.169 | 0.000 | 0.765 | 18133 | 0.340 | 0.175 | 0.000 | 0.765 |
| Cash | 27769 | 0.043 | 0.066 | 0.150 | 0.252 | 18133 | 0.044 | 0.068 | 0.150 | 0.252 |
| Tangi | 27769 | 0.185 | 0.161 | 0.000 | 0.727 | 18133 | 0.193 | 0.167 | 0.000 | 0.727 |
| Rate | 27769 | 5.422 | 0.681 | 4.750 | 6.650 | 18133 | 5.464 | 0.679 | 4.750 | 6.650 |
| Dirsize | 27769 | 2.104 | 0.348 | 0.000 | 2.708 | 18133 | 2.085 | 0.380 | 0.000 | 2.708 |
| Ind dir | 27769 | 0.363 | 0.075 | 0.000 | 0.571 | 18133 | 0.361 | 0.080 | 0.000 | 0.571 |
| Dual | 27769 | 0.274 | 0.446 | 0.000 | 1.000 | 18133 | 0.291 | 0.454 | 0.000 | 1.000 |
| The List | 27769 | 1.676 | 1.104 | 0.000 | 3.178 | 18133 | 1.560 | 1.166 | 0.000 | 3.178 |
| SOE | 27769 | 0.364 | 0.481 | 0.000 | 1.000 | 18133 | 0.362 | 0.481 | 0.000 | 1.000 |

### 3.3.2 Correlation Analysis

Pearson correlation analysis shows that the proportion of goodwill in total assets, the impairment rate of goodwill and debt financing cost are significantly positively correlated at the level of 1%. In other words, the greater the proportion of goodwill in assets, or the greater the ratio of goodwill impairment to assets, the higher the debt capital cost of enterprises will be correspondingly, which is consistent with our hypothesis. In addition, company size, asset-liability ratio and fixed asset ratio are significantly positively correlated with debt financing cost, while return on equity, growth rate of operating income and shareholding ratio of the largest shareholder are significantly negatively correlated with debt financing cost. There is no high correlation coefficient between variables, so it is speculated that collinearity has little influence on variables. Omitted here because the table is too large.

### 3.3.3 Regression Analysis

Table 3 shows the regression results of the relationship between goodwill information and debt financing costs. Among them, 1-3 columns report the univariate test of model (1), panel data regression of annual control industry and regression results of firm fixed effect model, and 4-6 columns report the corresponding results of model (2). The interference caused by heteroscedasticity is not alleviated, and robust standard error is used in regression. It can be seen that goodwill asset than in the three groups of regression and debt capital cost at 1% level is significantly related to the creditor in the conclusion of debt contract that huge goodwill reflects the enterprise of some of the fundamental problems, such as higher reputation than as assets artificially

high, a large penalty that may occur in the future, and performance, the risk of loss of signal that such companies a big problem, liquidity and solvency in the premium of merger, acquisition and reorganization may exist in the management of the indemnification, etc., so the creditor may demand goodwill than high enterprises responsible for the debts of the higher cost of capital.

On the other hand, the degree of goodwill impairment is also significantly positively correlated with the cost of debt capital in the three regression groups. This can explain, creditors is generally accepted that goodwill is the enterprise goodwill asset bubble burst or management using the results of the impairment test of subjectivity by earnings manipulation, generally means that the increased risk of enterprise, in order to make up for this kind of risk, the uncertainty of the creditor may demand that the depreciation is more goodwill enterprise pay a higher cost of debt capital, corporate debt financing will be more difficult, this also and assuming a expectations.

Table 3 Goodwill information and debt capital cost

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Cost | Cost | Cost | Cost | Cost | Cost |
| Goodwill | 0.008 * * * | 0.015 * * * | 0.015 * * * | | | |
| | (0.002) | (0.002) | (0.002) | | | |
| Gwimp | | | | 0.330 * * * | 0.378 * * * | 0.414 * * * |
| | | | | (0.000) | (0.000) | (0.000) |
| The Size | | 0.000 * | 0.000 | | 0.000 * * | 0.000 |
| | | (0.088) | (0.826) | | (0.018) | (0.945) |
| Lev | | 0.016 * * * | 0.015 * * * | | 0.015 * * * | 0.013 * * * |
| | | (0.001) | (0.001) | | (0.000) | (0.001) |
| ROE | | 0.005 * * * | 0.003 * * * | | 0.004 * * * | 0.002 * |
| | | (0.001) | (0.001) | | (0.000) | (0.068) |
| Growth | | 0.001 * * * | 0.001 * * * | | 0.001 * * * | 0.001 * * * |
| | | (0.000) | (0.000) | | (0.000) | (0.000) |
| Top | | 0.004 * * * | 0.003 * * * | | 0.005 * * * | 0.003 * * * |
| | | (0.001) | (0.009) | | (0.001) | (0.001) |
| Cash | | 0.005 * * * | 0.000 | | 0.009 * * * | 0.003 |
| | | (0.002) | (0.905) | | (0.002) | (0.239) |
| Tangi | | 0.021 * * * | 0.018 * * * | | 0.021 * * * | 0.017 * * * |
| | | (0.001) | (0.001) | | (0.001) | (0.000) |
| Dirsize | | 0.001 | 0.000 | | 0.001 * | 0.000 |
| | | (0.165) | (0.578) | | (0.083) | (0.909) |
| Ind_dir | | 0.002 | 0.003 * | | 0.003 | 0.004 |
| | | (0.163) | (0.095) | | (0.206) | (0.127) |
| Dual | | 0.000 | 0.000 | | 0.000 | 0.000 |
| | | (0.660) | (0.969) | | (0.566) | (0.615) |
| List | | 0.000 | 0.002 * * * | | 0.000 | 0.002 * * * |
| | | (0.830) | (0.000) | | (0.729) | (0.000) |
| Rate | | 0.008 * * * | 0.002 * | | 0.010 * * * | 0.004 * * |
| | | (0.001) | (0.075) | | (0.001) | (0.024) |
| SOE | | 0.001 * * * | 0.000 | | 0.001 * * | |
| | | (0.003) | (0.966) | | (0.011) | |
| _cons | 0.017 * * * | 0.033 * * * | 0.000 | 0.017 * * * | 0.048 * * * | 0.004 |
| | (0.000) | (0.007) | (0.987) | (0.000) | (0.000) | (0.767) |
| Year | No | Yes | Yes | No | Yes | Yes |
| Industry | No | Yes | No | No | Yes | No |
| Obs. | 27769 | 27769 | 27769 | 18133 | 18133 | 18133 |
| Adj. R2 | 0.0019 | 0.2192 | 0.0917 | 0.0024 | 0.2057 | 0.0816 |

This paper further analyzes whether the audit opinion has an impact on the relationship between the company's goodwill information and debt financing cost, and the results are shown in Table 4 (1) - (2). Audit opinion type assets and goodwill than paying by item and cost of debt financing is negatively related to 1% significance level, the audit opinion type assets and goodwill than paying by item and cost of debt financing is negatively related to 10% significance level, show goodwill accounting for the proportion of total assets, goodwill impairment degree higher company, under the standard unqualified audit opinion for a lower cost of debt financing, namely positive audit opinion type on the relationship between the reputation information and the cost of debt capital play a significant regulatory role.

In addition, this paper also studies the regulation of credit rating, the regression results in table 4 (3) - (4) the first column, as shown in the company credit rating and goodwill assets than pay by relationship with the cost of debt financing to 1% significance level, with goodwill impairment assets than pay by 10% significance level, show goodwill than high, goodwill is more firm, if the credit rating is very high, the requirements of the creditors will fall in the cost of financing, this suggests that the enterprise of good credit rating can significantly influence to some extent goodwill information and the relationship between enterprise debt financing costs.

Table 4 Moderating effect of audit opinion and credit status

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | Cost | Cost | Cost | Cost |
| Goodwill * Opinion | 0.030 * * * | | | |
| | (0.006) | | | |
| Gwimp * Opinion | | 0.306 * | | |
| | | (0.064) | | |
| Opinion | 0.002 * * * | 0.002 * * * | | |
| | (0.001) | (0.001) | | |
| Goodwill * Grade | | | 0.011 * * * | |
| | | | (0.007) | |
| Gwimp * Grade | | | | 0.454 * |
| | | | | (0.083) |
| Grade | | | 0.001 | 0.001 |
| | | | (0.699) | (0.192) |
| Goodwill | 0.045 * * * | | 0.016 * * * | |
| | (0.000) | | (0.001) | |
| Gwimp | | 0.659 * * * | | 0.388 * * * |
| | | (0.000) | | (0.000) |
| Controls, | Yes | Yes | Yes | Yes |
| Ind FE | Yes | Yes | Yes | Yes |
| Obs. | 27769 | 18133 | 27769 | 18133 |
| Adj. R2 | 0.2204 | 0.2072 | 0.2193 | 0.2057 |

## 4. Robustness Test

### 4.1 PSM

In order to reduce the impact of the difference between different companies' characteristics, this paper first takes as a treatment variable whether the ratio of year-end net goodwill and total assets is greater than the industry median. If the ratio is greater than the industry median, it is set as 1; otherwise, it is set as 0. Reference to Dai Bingbin (2007)[12], selected company size, asset-liability ratio, return on equity, growth rate of operating income, shareholding ratio of the largest shareholder,

board size, whether chairman and general manager are in one, proportion of independent directors and listing time as covariables to conduct one-to-one matching of propensity score. The results of the unlisted propensity score matching show that the above covariates will significantly affect whether the company conducts goodwill impairment, and the matching samples meet the co-support hypothesis and parallel hypothesis. Table 5 reports the results of the predisposition score matching. After the predisposition score matching, the difference of debt financing cost between the treatment group and the non-treatment group decreases, but it is still significantly positive, indicating that our conclusion is robust.

Table 5 Results of propensity score matching: ratio of goodwill to debt financing cost

| Panel A | | | | | |
|---|---|---|---|---|---|
| Variable | Sample | Treated | Controls, | Difference | T - stat |
| Cost | Unmatched | 0.0193 | 0.0177 | 0.0016 | 8.13 |
| | ATT | 0.0193 | 0.0186 | 0.0007 | 2.56 |
| | ATU | 0.0177 | 0.0183 | 0.0006 | |
| | ATE | | | | |

In addition, whether the proportion of goodwill impairment in the total assets is greater than the industry median is taken as a treatment variable; if it is greater than the industry median, it is set as 1; otherwise, it is set as 0. Control the company's size, asset-liability ratio, return on equity, growth rate of operating income, shareholding ratio of the largest shareholder, scale of the board of directors, proportion of independent directors, and whether the chairman and general manager are in one. The matched samples satisfy the co-support hypothesis and the parallel hypothesis. Table 6 reports the results of the predisposition score matching. After the predisposition score matching, the difference of debt financing cost between the treatment group and the non-treatment group decreases, but it is still significantly positive, indicating that our conclusion is robust.

Table 6 Results of propensity score matching: goodwill impairment and debt financing costs

| Panel A | | | | | |
|---|---|---|---|---|---|
| Variable | Sample | Treated | Controls, | Difference | T - stat |
| Cost | Unmatched | 0.0191 | 0.0178 | 0.0013 | 2.83 |
| | ATT | 0.0191 | 0.0181 | 0.0010 | 1.68 |
| | ATU | 0.0178 | 0.0179 | 0.0001 | |
| | ATE | | | | |

## 5. Conclusions

Accounting information reflects the financial status and operating results of an enterprise, which is the basis for creditors and investors to make decisions. Using the data of A-share listed companies on Shanghai and Shenzhen stock exchanges from 2008 to 2018, this paper conducts empirical tests on the ratio of goodwill to total assets and the relationship between the degree of goodwill impairment and debt financing cost. The results show that these two types of goodwill information will significantly increase the debt financing cost, that is, creditors are more inclined to regard high goodwill as the risk of asset "overinflated", rather than the ability to actually create excess returns in the future, resulting in the increase of corporate debt financing cost. The audit opinion and the company's credit rating can adjust the positive correlation between goodwill information and debt financing cost to some extent.

The research results of this paper show that the goodwill information has decision-making usefulness and has a certain influence on the debt contract. Although goodwill on paper on behalf of the enterprise get excess returns in the future, but because of the complexity of its measurement and impairment test of subjectivity, m&a bidders "up" the value of the company's point of view, often make the book on the intrinsic value of the goodwill cannot represent the actual, also brought inflated assets for enterprises face problems and huge goodwill performance risk. In this regard, we

should strengthen market supervision, promote the standardization of m&a and improve the transparency of m&a information. The management of an enterprise should also conduct acquisition activities at a reasonable price to prevent the phenomenon of "inflated" goodwill and make reasonable impairment of existing goodwill. At the same time, creditors should also view the goodwill information of enterprises from multiple dimensions. They can make a comprehensive evaluation based on the audit opinions obtained by enterprises and their current credit status, so as to make better use of financial reports to make relevant decisions.

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