

Goodwill Impairment and Market Reaction - Empirical Evidence from Chinese Listed Companies

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Abstract: *There is a significant increase of goodwill impairment, and the risk of goodwill impairment is gradually exposed to the public. The market reaction is a key object for investors as well as enterprises. The study of the market reaction to goodwill impairment is of great importance to make investment decisions for investors and manage the whole companies for the managers. In order to research the relationship between goodwill impairment and market reaction, this paper focuses on the A-share listed companies from 2014 to 2021. According to the research, it is found that goodwill impairment can lead to negative market reaction. The share price and value of companies can be reduced by goodwill impairment. As the impairment of goodwill increases, the market reaction of companies becomes more dramatic. Compared with state-owned companies, there is much more violent market reaction caused by the goodwill impairment of private companies. This study provides advice for decision making and corporate operations.*

Keywords: *Goodwill impairment, Market reaction, Ownership type*

1. Introduction

Goodwill impairment has attracted extensive attention of academia, regulators and capital markets. In the ‘Opinions on Further Optimizing the Market Environment for Enterprise Mergers and acquisitions’ published in 2014, it is claimed that Mergers and Acquisitions (M&A) is encouraged”. There are more and more M&A activities in China. Goodwill impairment has begun to rise continuously in Chinese capital market since 2012. In 2018, China Securities Regulatory Commission issued ‘Accounting Supervision Risk Reminder No.8 - Goodwill Impairment’, requiring to strictly supervise goodwill impairment activities and improve the quality of accounting information disclosed. At the same time, the amount of goodwill impairment was even higher than the accumulated impairment of goodwill in the previous decade (Zhang et al., 2020). Goodwill has been impaired much more frequently and there have been more huge drops in the capital market of China. The high goodwill and huge impairment have a significant effect on the stability of stock market. This probably can further affect the investors' decisions and company management, which can influence the development of China capital market[1-2].

This paper focuses on the market reaction of goodwill impairment from the perspective of stock price and company value. The share price and value of A-share listed companies from 2014 to 2021 are investigated to research the impacts of goodwill impairment. The importance should be emphasized on the ownership type. This paper also researches the effects of ownership type on the relationship of goodwill impairment and market reaction.

Goodwill plays a crucial role in the researching M&A activities and company management. On the one hand, the risk of goodwill impairment is increasing significantly. Accounting to the ‘Accounting Supervision Risk Reminder No. 8 -- Goodwill Impairment’, it is pointed that the proportion of business assets of goodwill has increased and that the risk of impairment has been exposed to the public. M&A can drive companies to be more vital. Research on goodwill impairment can help improve the market system of M&A in China. On the other hand, the study of goodwill impairment and the market reaction under different property rights can help investors effectively avoid risks and reduce the negative impact of goodwill impairment. This is of great significance to promote the development of China's capital market. In addition, due to the rapid development of the economy, private companies is easier to be affected by various market factors than state-owned companies, which may have a profound impact on the capital market. In terms of a large impairment of goodwill, it is important to conduct an in-depth research from the perspective of the nature of ownership type in order to continuously study the development of the Chinese economy and capital markets. This paper can enrich the research of M&A goodwill impairment on the stock market and provide related references for subsequent studies[3-4].

2. Theory development

Due to the update of standards, goodwill and goodwill impairment have become more significant (Chalmer et al., 2011). Goodwill impairment can convey certain information and signals to the market and investors, which is beneficial for investors and others to make investment decisions.

2.1. *Impacts of goodwill impairment*

Impairment of goodwill can be seemed as hints about the negative operation and management of companies. M&A activity is often associated with surplus management and other detrimental activities of corporate benefits (Shleifer and Vishny, 2003; Jensen, 2005). Goodwill impairment of listed companies can reflect the operation of the company and the motives of surplus management (Elliott and Hanna, 1996). The performance of the companies can be affected by goodwill impairment, and it can be decreased in the short term while increases significantly in the long term (Wang and Chu, 2020).

Goodwill is measured using the fair value of goodwill at the time of impairment test. This makes the goodwill impairment test conducted mainly based on the valuation and judgement of corporate managers, resulting in managerial subjectivity in the results of the goodwill impairment test (Li and Sloan, 2017). Goodwill impairment can reveal that the capital absorption capacity of enterprises is weak, and that the enterprises have not met the targets on the betting agreement, which can deteriorate the future operation (Zhang et al., 2019). There are more relevant and detail information held by the managers, and goodwill impairment can reflect managers' predictions about the future of the firms. Goodwill impairment is the result of managers' negative forecasts about the business capacity and financial position of the firm (Cheng et al., 2017).

Goodwill impairment can have an impact on the level of a firm's cash flows. According to the existing research, it is acknowledged that the ability of goodwill to predict the company's future cash flows will improve significantly (Lee et al., 2011). Goodwill impairment may be the result of a firm manager's prediction of reduced cash flows (Cheng et al., 2017).

There can be a number of relevant market reactions caused by goodwill impairment. Company is one of the key components of capital market, and the activities of companies can make a great difference in the market. It is showed that the goodwill impairment can lead to the negative reaction of the market which the companies are located (Zhang et al., 2020). The market reactions that may be caused by goodwill impairment can be divided into two categories. Some studies suggest that the market may not be significantly affected when some companies impair their goodwill (Ramanna, 2008); however, some studies show that impairment of goodwill can lead to a decrease of firm's share price (Lee, 2011; Hayn and Hughes, 2005). It is found that if the market is efficient, the price can accurately reflect more information about the companies and guide investors and managers to make effective decisions (Fama and Miller, 1972). When share prices are overvalued, companies may engage in transitory investment behavior, which can lead to higher goodwill impairment risk for the companies (Hu and Li, 2019). This suggests that stock information of companies in the market is significant for investors, managers and others.

The reaction of the market, which the listed companies focus on, drives more and more scholars to research goodwill impairment. The behavior of companies in the stock market can be worse as goodwill impairment increases (Xu et al., 2011). The information of goodwill impairment has negative impacts on investors and the capital market as a whole (Gietzmann, 2019).

The information related to the enterprise is paid attention by the investors, analysts and others, and they make analysis according to the information. Existing studies have shown that if a company announces a goodwill impairment, investors, analysts and others will predict that the company's stock price will fall, and that the earnings of stock can be lower as more goodwill is impaired (Li, 2011).

2.2. *Ownership type*

The nature of ownership type can lead to unique characteristics, especially in the socialist economy with Chinese characteristics. The unique characteristics of stated-owned companies lie on the nature of ownership type. Different nature of ownership will result in different risk tolerance of companies (Peng et al., 2020). State-owned companies have certain privileges in terms of taxation and financing compared to private companies due to the difference of ownership type, and state-owned companies are more able to enjoy the resources provided by the government because of policies preferences, which leads to the

increase of benefits of state-owned companies (Pan and Yu, 2011). The Chinese government encourages state-owned companies to engage in M&A, which is the important section of state-owned company reform and can promote the development of state-owned companies (Wang and Yu, 2017). The advantages enjoyed by state-owned companies will decline if the proportion of state-owned equity declines, at the same time the constraints faced by state-owned companies will increase. There are various differences of Goodwill impairment between private and state-owned companies due to the nature of their ownership [5-12].

Existing researches in the literatures have concluded that goodwill impairment convey negative information to investors and the market about the behaviour of companies and managers. There is a negative correlation between goodwill impairment and market reaction. State-owned companies have more advantages and can tolerate more risks because of government policies. Due to the lack of researches about ownership type in existing goodwill impairment studies, this paper examines the relationship between goodwill impairment and market reaction in China and the influence of ownership type on the relationship from the perspective of share price and company value.

2.3. Innovations and contributions

The innovations and contributions of this paper can be listed as followings.

First, this study considers the impacts of goodwill impairment on the share price in the capital market with Chinese characteristics. Due to differences in political systems and economic environment, Chinese companies have various peculiarities because of their special ownership type. There is little existing literature that examines the relationship between goodwill impairment and market reaction from the perspective of the nature of ownership type. This paper fills a gap in the research on goodwill impairment by comparing and analyzing the impact of goodwill impairment on the Chinese market.

Secondly, the combination of share price and corporate value is applied to measure market reaction. Share price, as a direct object of investors, is much easier for investors to understand market reaction. Most of the existing literature focuses on stock market crashes as well as overall market reactions, and there are some limitations in making relevant decisions for investors. This paper pays attention to the stock price which is direct and easy-to-understand, so the investors can make better decisions with helpful advice. The impairment of goodwill in a firm will eventually influence the market value. This paper takes share price and company value into consideration, using a direct and fundamental perspective to measure the market reaction [13-15].

3. Hypotheses

3.1. Goodwill Impairment

There is a negative relationship between goodwill impairment and market reaction. It can be analysed from two perspectives.

From perspective of corporates, according to China's accounting standards, when a company does not achieve its expected results or does not deliver on its promised results, the company is required to take goodwill impairment test, which can result in reduce of assets. If profits do not cover the amortisation of goodwill for three consecutive years, the companies must be delisted. In order to eliminate this risk, a large number of companies recognise a significant impairment of goodwill to ensure that the value of the business is not burdened by goodwill amortisation. As a result, goodwill impairment can send a message to the market that a company's performance is declining.

From the perspective of managers, goodwill impairment probably is caused by the manager's negative forecast of cash flow. The confidence of investors can be undermined. When performance declines or investor confidence decreases, investors will invest less and pay less attention, leading to a decline of stock price and corporate value. Therefore, this paper proposes the following hypothesis:

H1: In the Chinese capital market, goodwill impairment can led to negative market reactions, and there can be significant increases of market reaction as more goodwill is impaired.

3.2. Ownership Type

Fair value is applied to take goodwill impairment test, so managers rely on their professional

judgement to take impairment test, which make impairment test more subjective. It is possible for manager to manipulate statements, smooth profits to make surplus management by taking goodwill impairment test. When the goodwill is impaired, investors and analysts prefer to believe that the companies may experience decreases of revenue and cash flow[16-19].

The market reaction has a crucial relationship with the nature of ownership type. In China, companies that are controlled by the government or that the government holds certain number of their shares are known as state-owned companies. The performance and market response of these companies are influenced by government behavior. Private companies are more dependent on the market. The market can react quickly as the information speed out. Investors will reduce their shareholdings, which has negative influence on the future cash flow and normal operations of the business. Less revenue can be earned, which lead to the decrease of price and corporate value. Due to the nature of ownership type, state-owned companies enjoy more resources provided by the policies. Compared with private companies, these companies have some priorities in terms of taxation, financing, etc., so that they can under take more risks from the market. This reduces the dependence of companies on market regulation. Although goodwill impairment can reduce the cash flow of the companies and investors' attention, the government preference can provide more capital to reduce the decrease of performance and stabilize investors' confidence, which diminishes the negative impacts of goodwill impairment. Therefore, this paper proposes the hypothesis as following:

H2: Compared with state-owned companies, the negative market reaction of private companies which is caused by goodwill impairment is more dramatic.

4. Empirical study

4.1. Sample and data collection

In 2014, there was a new policy published, 'the Opinions on Further Optimising the Market Environment for Enterprise Mergers and Acquisitions'. This document pointed that M&A activity is encouraged to promote the development of capital market. There is a new trend of conducting M&A in China's domestic market. At the same time, the Ministry of Finance of China issued 'eight additional enterprise accounting standards', which have been implemented since July 1, 2014. Therefore, the study of goodwill impairment in this paper started in 2014.

The share price, goodwill and other relevant data used in this study were obtained from the CSMAR database. This paper focuses on the A-share listed companies from 2014 to 2021. The sample was screened as following: (a) exclude financial companies with special structures and ST companies; (b) exclude companies which neither have a goodwill carrying value nor goodwill impairment (Lin and Yang, 2022); (b) exclude observations where relevant goodwill and financial data are missing.

4.2. Variable measurement

4.2.1. Market reaction

In this study, both share price (Price) and company value (Tobin) are applied to measure market reaction. In China, there is no separate publication date for goodwill impairment reports, and they are usually included in the annual report. So the stock price on the disclosure deadline of annual report is applied, which can take into account the whole behavior of companies during the whole accounting year. Company value is measured by Tobin Q, which is the ratio of market capitalisation to total assets at the end of the period taking full account of the impact of capital markets.

4.2.2. Goodwill Impairment

There are two variables that this paper uses to measure the goodwill impairment. Impairment of corporate goodwill (GW) indicates whether a company has undertaken the activity of impairing goodwill. Based on the measurement of Zhao and Zhao (2021), this paper applies the degree of goodwill impairment (IMP) to measure how much goodwill is impaired by the companies[20-25].

4.2.3. Control variables

There are various factors that can influence the market. In order to reduce the influence of other variables, this paper controls the size of listed companies (Size), total asset turnover (Turnover), cash flow (Free), market-to-book ratio (BM), institutional investor shareholdings (Inshare), length of listing

(Age), and top shareholder shareholding (Z). Moreover, the impacts of industry and time are controlled with fixed effects, as well. The details of definition are shown in Table 1.

Table 1: Definition of Variables.

	Variables	Definition
Market Reaction	Price	Closing price of shares on 30 April T+1
	Tobin	Market capitalisation / Total Assets
Goodwill	GW	Goodwill is impaired, 1; otherwise, 0.
	IMP	Goodwill impaired in the current period/(Goodwill impaired + Net goodwill at the end of the period)
Controls	Size	Ln(Total Assets)
	Turnover	Revenue/Assets
	Z	Percentage of shareholding of the company's largest shareholder
	BM	Equity/Market capitalisation
	Inshare	Shareholding of institutional investors
	Age	Number of years the company has been listed
	Industry	Industry dummy variables
Year	Annual dummy variables	

4.3. Models

This paper applies simple OLS regressions to investigate the hypothesis proposed earlier. Model (1) is designed as following to test the relationship between goodwill impairment test and market reaction.

$$\text{Market reaction} = \beta_0 + \beta_1 \text{GW} + \sum \beta_i \text{Control} + \varepsilon \quad (1)$$

In order to research the effects of the degree of goodwill impairment, this paper designs model (2) as following:

$$\text{Market reaction} = \theta_0 + \theta_1 \text{IMP} + \sum \theta_i \text{Control} + \varepsilon \quad (2)$$

5. Results

Table 2: Goodwill Impairment.

	(1) Price	(2) Tobin
GW	-5.02026*** (0.43100)	-0.12611*** (0.02782)
Size	1.03252*** (0.19902)	-0.43958*** (0.01285)
Turnover	2.41734*** (0.44606)	-0.10948*** (0.02879)
Z	-0.06264*** (0.01628)	-0.00240** (0.00105)
Free	0.07159*** (0.01369)	0.00464*** (0.00088)
BM	-30.57631*** (1.40681)	-4.89449*** (0.09081)
Inshare	0.15275*** (0.01042)	0.00890** (0.00067)
Age	-0.79987*** (0.03217)	0.00856*** (0.00208)
_cons	4.90348 (8.89250)	12.90864*** (0.57401)
N	13161	13161
r2	0.21717	0.37638
Industry	Yes	Yes
Year	Yes	Yes

Standard errors in parentheses.

* p < 0.1, ** p < 0.05, *** p < 0.01

Table 2 shows the research results on the impacts of goodwill impairment. It is clear that regression coefficients are all negative and significant at the 1% level. This indicates that the share price and company value can be decreased as goodwill is impaired in China capital market. Goodwill impairment is required when a firm does not meet its target objectives. It is acknowledged that goodwill impairment sends a negative signal to the market. This can make investors pay less attention on the companies and reduce the investment, which can cause the decrease of share price. The negative signal, goodwill impairment, can affect the future cash flows, company performance and so on., which can make the companies suffer troubles.

Table 3 illustrates the relationship between the degree of goodwill impairment and market reaction. The coefficients in Table 3 are negative at significant level of 1%. The study reveals that there is a negative relationship between the degree of goodwill impairment and market reaction. An increase of goodwill impairment indicates that the gap between the current level and the target is gradually increasing, which cuts down investor confidence and capital absorbed. This can result in continued decreases of company value.

Table 3: The degree of goodwill impairment.

	(1) Price	(2) Tobin
IMP	-6.57216*** (0.84025)	-0.25426*** (0.05408)
Size	0.79574*** (0.19960)	-0.44684*** (0.01285)
Turnover	2.37105*** (0.44755)	-0.11230*** (0.02881)
Z	-0.06007*** (0.01633)	-0.00234** (0.00105)
Free	0.06895*** (0.01375)	0.00451*** (0.00088)
BM	-31.11145*** (1.41142)	-4.91268*** (0.09084)
Inshare	0.15831*** (0.01043)	0.00901*** (0.00067)
Age	-0.80160*** (0.03228)	0.00871*** (0.00208)
_cons	11.56616 (8.93857)	13.14261*** (0.57532)
N	13161	13161
r2	0.21271	0.37645
Industry	Yes	Yes
Year	Yes	Yes

Standard errors in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

To examine the impacts of ownership type, we regress the data of state-owned and private companies separately to test our hypothesis. Table 4 shows the market reaction of private and state-owned companies. The coefficients of both state-owned and private companies are significant, and the existence of negative relationship has been proved. When a company impairs goodwill for failing to meet targets or for negative forecasts, the impairment has negative influence on the investment decisions of investors and other capital acquired by the companies, which can contribute to the decline of share price and company value.

According to the regression results, there is a significant difference about the market reaction caused by the goodwill impairment of state-owned and private companies. The first and second columns research the market reaction of private companies. The objective of the third and last column is state-owned companies. It is obvious that the regression coefficients are negative, and the coefficients of private companies are lower than those of state-owned companies. In terms of share price, the coefficient of private companies is 64.05% smaller than that of state-owned companies. In terms of enterprise value, there is a decrease of 12.37% of private companies compared with state-owned companies. It is clear that when it comes to goodwill impairment, the market reaction of private companies is much more dramatic than that of state-owned companies. The difference in the nature of ownership type makes state-owned companies protected by the government and more likely to have access to more resources and investor trust. When goodwill impairment sends a negative signal to bind the companies, the government support

can reduce the constraints such as the loss of investor confidence, the decrease of capital and the decline of resource, which can help companies deal with troubles. Furthermore, it can be found that the decrease of company value is much less than the fall of share prices. This suggests that share prices are easier to be influenced by corporate behaviour and that analysing corporate behaviour can help investors better predict the market reaction and make rational investment decisions[26-29].

Table 4: Ownership Type.

	(1) Private Price	(2) State-owned Tobin	(3) Price	(4) Tobin
IMP	-6.48838*** (1.05628)	-0.25101*** (0.06152)	-3.95508*** (1.21519)	-0.22337** (0.11017)
Size	1.97789*** (0.28774)	-0.42812*** (0.01676)	0.07215 (0.25795)	-0.55664*** (0.02338)
Turnover	2.02862*** (0.59928)	-0.10178*** (0.03490)	2.09292*** (0.59608)	-0.14337*** (0.05404)
Z	-0.06237*** (0.02139)	-0.00243* (0.00125)	-0.13606*** (0.02481)	-0.00632*** (0.00225)
Free	0.07936*** (0.01764)	0.00533*** (0.00103)	0.04821** (0.01882)	0.00159 (0.00171)
BM	-33.84311*** (1.81122)	-5.35932*** (0.10548)	-28.06955*** (2.03658)	-3.74845*** (0.18463)
Inshare	0.16942*** (0.01242)	0.00782*** (0.00072)	0.31658*** (0.02401)	0.02036*** (0.00218)
Age	-1.21043*** (0.04914)	0.01118*** (0.00286)	-0.08251* (0.04333)	0.01400*** (0.00393)
_cons	-9.58382 (14.77182)	12.26033*** (0.86030)	8.3439 (9.30186)	15.03216*** (0.84328)
N	9241	9241	3920	3920
r2	0.22015	0.40733	0.31152	0.33601
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes

Standard errors in parentheses.

* p < 0.1, ** p < 0.05, *** p < 0.01

6. Robustness Test

This paper focuses on the impacts of goodwill impairment and the degree of goodwill impairment on the market reaction. In order to ensure the robustness of the experimental results, we replace the measurement of the degree of goodwill impairment to investigate again. In the robustness test, the degree of goodwill impairment is the ratio of the accumulated impairment of goodwill made by the listed company to the number of common shares of the company outstanding in the period.

According to robustness test, it is acknowledged that the regression coefficients between goodwill impairment and market reaction are significantly negative. The negative market reaction of companies becomes intensive as the impairment of corporate goodwill increases, and the market reaction of private companies is much stronger. The outcomes are consistent with the findings above and the results of this paper are robust.

7. Conclusions

In China, it is significant to research the goodwill impairment which is crucial to keep the stability of market. Because of the unique nature of ownership type, goodwill impairment can contribute to a series of reactions in the market. This paper focuses on the A-share listed companies from 2014 to 2021 to investigate the market reaction of goodwill impairment. This paper finds that goodwill impairment can result in the negative reaction and break the stability of market. The share price and companies value can be declined by goodwill impairment. The market reaction of state-owned companies is weaker than that of private companies as goodwill is impaired.

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