

Impairment Recognition and Revaluation– China Publicly Listed Companies

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Introduction

The advent of SFAS 142 and IAS 36 regarding handling of asset impairment has spawned research into how these standards influence whether an impairment loss is recorded. Deferred tax items in China have three major components: temporary tax and financial reporting differences in depreciation; impairment losses; and previous losses, which can be carried forward for five years for tax purposes. While the temporary differences in depreciation typically defer taxes and create deferred tax liabilities, impairment losses and previous losses create deferred tax assets because they are not deductible in the current period for tax purposes. A deferred tax asset is created when a firm has overpaid its taxes and is due some form of tax relief sometime in the future when the previously non-deductible loss becomes deductible for tax purposes. A deferred tax asset is viewed as less desirable than a deferred tax liability since deferred tax liabilities result in lower taxable income in the current period, whereas deferred tax assets result in higher taxable income and higher taxes due in the current period. It is in general more desirable to delay paying taxes. In our previous research (Wang et al., 2016), we documented that publicly listed Chinese companies' median GAAP effective income tax rate is 13% while the median cash effective income tax rate is 26%. This is less than optimal from a cash flow management standpoint. Many factors contribute to this result. In this research, we investigate the incentives of companies reporting impairment loss, and thus creating deferred tax assets, which lower accounting net income but typically do not lower taxable income.

The goal of this study is to analyze how compensation and insider equity holdings affect impairment loss taking. Our process will include examination of many variables that could impact impairment loss decisions, including firm market value and size, compensation of and ownership percentages of various management groups, Board of Director and Board of Supervisor size and composition, asset mix, leverage and industry. We include all companies listed on the Shenzhen and Shanghai stock exchanges for the period 2011-2016. Chinese Accounting Standard No. 8 (CAS No. 8) prohibits the reversal of long-lived asset impairments to constrain managerial opportunism with respect to previously recognized impairment loss reversal. CAS No. 8 forbids the reversal of long-lived asset impairment losses only, while allowing the reversal of short-term asset impairment losses. Our analysis shows the influence of this differential treatment on firm impairment loss taking behavior.

Literature Review

It has long been understood that firms have a certain amount of latitude in the application of accounting rules, and that they use that latitude to measure reported earnings. Healy & Wahlen (1999) find that earnings management is used “to window dress financial statements prior to public securities offerings, to increase corporate managers' compensation and job security, to avoid violating lending contracts, or to reduce regulatory costs or to increase regulatory benefits.” Numerous studies have concluded that the accounting for asset impairment provides management with the flexibility to exercise judgment in the reporting of impairment losses (Riedl 2004; Titard

& Pariser, 1996; Healy & Wahlen, 1999). Francis, Hanna & Vincent (1996) find that an announcement of an impairment loss communicates information regarding a decline in the economic value of assets. In a study of 55 Taiwan firms, Duh, Lee, & Lin (2009) find that firms that recognize more impairment losses are more likely to reverse the loss in subsequent periods in order to avoid earnings decline, and this is more pronounced in firms with higher debt ratios. Shaari, Cao & Donnelly (2017) study the effects of IAS No. 36 which allows impairment loss reversal and find that for firms that reverse impairments, there are no increase in incentives to engage in earnings management, nor are there in fact an increase in earnings management. In addition, they find a positive association between reversals and stock valuation changes, but no association with future operating performance. Duh, Lee & Lin (2009) study 110 listed firms in Taiwan during the period from 2005 through the first quarter of 2007 to determine whether impairment loss reversals provide an opportunity for earnings management and whether reversals are associated with managers' incentives. They find that firms that recognize more impairment losses are more likely to reverse impairments when doing so avoids a decline in earnings. They do not find firms with higher earnings-based compensation for top managers being more likely to reverse impairments. The adoption of SFAS No. 142, eliminating goodwill amortization and instead requiring an annual assessment of goodwill impairment, has motivated research into this issue. Jordan & Clark (2004) examine Fortune 100 companies that reported goodwill impairments. They find that firms taking goodwill impairments possess lower earnings than other companies that did not record a write-down, suggesting that these firms adopt a "big bath" strategy. Sevin & Schroeder (2005) conclude that some firms have used this assessment of goodwill impairment in a "big bath" strategy.

Chinese Accounting Standard No. 8 (CAS No. 8) prohibits the reversal of long-lived asset impairments to constrain managerial opportunism with respect to previously recognized impairment loss reversal. CAS No. 8 forbids the reversal of long-lived asset impairment losses only, while allowing the reversal of short-term asset impairment losses. Zhou & Habib (2013) cite previous research, which documents that managers use impairment losses strategically to manage company earnings. They find that managers use less current asset write-downs and more reversals in the post CAS No. 8 period, but that these practices do not seem to be motivated by the desire to avoid losses or to report "big bath" losses. The international standard IAS No. 36 allows for the reversal of impairment losses on long-term assets if the asset value recovers. Zhang, Lu, & Ye (2010) investigate the impact of transitioning away from IAS No. 36 to a standard that prohibits impairment reversals on long-term assets. They find an increase in impairments, followed by loss reversals, but are unable to document any evidence of earnings management.

How impairment loss affects stock price is beyond the scope of this study, but it forms an important stream of research. Hsieh & Wu (2005) investigate factors affecting the timing and amount of asset impairment and find that those factors include both reporting and operational motives. In addition, they note a significant negative stock price reaction to impairment announcements. In a study of Australian firms, Sharpe & Walker (1975) conclude that an impairment revaluation is associated with an increased stock price. But in a similar study using New Zealand firms, Emanuel (1989) finds no association between revaluation announcements and share prices. Aboody et al. (1999) undertake a similar study using UK firms. They document that upward revaluations by UK firms are significantly and positively related to future firm performance. They also conclude that revaluations are related to stock returns, indicating that revaluations reflect asset value changes.

How equity-based compensation affects firm performance and management behavior has long been under discussion. Armstrong, Jagolinzer & Larcker (2010) use a sample of nearly 20,000 CEO incentives for fiscal years 2001 – 2005 to examine whether equity-based compensation provides incentive to CEOs to manipulate accounting data. In contrast to some other studies, they do not find evidence that equity incentives are related to accounting irregularities. In fact, they find some evidence that accounting irregularities occur less frequently at firms at which top executives have relatively high equity-based compensation packages. However, Elayan, Li & Meyer (2008) find that the compensation of top executives at firms that had accounting irregularities are significantly more weighted toward equity-based compensation. They find that the average irregularity represents 363.5% of the firms' average net income and are predominantly overstatements of revenue, income or net income, early recognition of income, phantom sales, or overstatement of assets. Cohen, Dey & Lys (2005) note an increase in earnings management during the period 1997 – 2002, and find that stock-based compensation and options are a strong predictor of aggressive accounting. Harris & Bromiley (2007) use data from the GAO on financial statement restatements by US firms from January 1997 to June 2002 to study the factors that encourage firms to misrepresent their financial statements. They find two factors that substantially increase the likelihood of misrepresentation: a high level of CEO compensation in the form of stock options and very low firm performance compared to other firms in the industry. They also report that financial incentives for top executives have grown radically from 1990, when top executives earned an average of 100 times the pay of a typical worker, to 2003 when various researchers give the percentage as 350 to 570 times the pay of a typical worker. Harris & Bromiley (2007) also find an 8.77% probability of misrepresentation by any specific firm over a 5-year period, which is a bit less than the GAO estimate of 9.9%

In an investigation of the relationship between impairment losses and CEO compensation, Darrrough, Guler & Wang (2014) examine whether CEO compensation is reduced when goodwill impairment losses are recognized. They find a significant reduction in CEO compensation as firms recognize goodwill impairment losses. Their results suggest that CEOs pay a price for non-value maximizing acquisitions. Beatty & Weber (2006) find that the existence of a bonus plan affects the timing of the goodwill impairment charge required under SFAS 142. However, Darrrough, Guler & Wang (2014) and Beatty & Weber (2006)'s efforts to link compensation with impairment are limited to goodwill impairment. Duh, Lee & Lin (2009) examine impairment reversal and earnings-based compensation. Our study is an in depth comprehensive analysis of impairment loss and compensation. Our analysis shows how cash and equity-based compensation can affect impairment loss in opposite ways.

Methodology

Data Collection

The data used in our study is are from China Stock Market & Accounting Research Database (CSMAR), which includes all companies listed on the Shenzhen and Shanghai stock exchanges. The data range is from 2011-2016.

Hypothesis Development

Trottier (2013) finds that permitting impairment loss reversals significantly increases the likelihood that a manager would record an impairment. This is caused not by the manager's intention to smooth income by impairment reversals, but by his desire to avoid the potential loss of a future bonus, which would be jeopardized if he could not reverse previously recorded impairment losses should asset value recover in the future. Darrough, Guler & Wang (2014) study the impact on CEO compensation when impairment losses are recognized on acquired business units. They find that firms reduced CEO total compensation after recognition of goodwill impairment losses. However, while levels of cash (salary and bonus) and stock options were significantly reduced, restricted stock compensation was not reduced significantly. This is thought to be because restricted stock compensation is a less risk-inducing form of compensation than cash and stock option compensation. An examination of the relationship between CEO compensation and accounting choice by Beatty & Weber (2006) centers on accounting choices that managers made during the transition to SFAS 142. They find that if there was a bonus plan that relied on earnings, goodwill impairment charges were less likely to be recorded and tended to be lower in magnitude. They find that compensation committees incorporated adverse effects of asset write-downs or goodwill impairment charges in compensation formulas.

Previous studies seem to support that incentive-based compensation can discourage impairment loss recognition. We believe impairment loss in the current year improves the firm's income outlook in the following year and potentially allows for a bigger raise for the executives. However, based on the results from previous studies, we separately analyze cash and incentive-based compensations.

H1: *Ceteris paribus*, there is a positive association between impairment loss recognition and the following year's executive cash pay growth.

Fernandes et al. (2016) conclude that the probability of recognition of impairment losses is higher for companies with higher market values. Elliott and Shaw (1988) find significant differences in the reporting of impairment losses between large and small entities. In an examination of a number of explanatory variables, Yanamoto (2008) concludes that the probability of impairment recognition increases with asset value. Studies by Li et al. (2011) and Oliveira et al. (2010) find positive relationships between total assets, net profits (factors affecting market value), and impairment reporting. We believe larger firms are more likely to recognize impairment loss. We use the natural logs of market value and sales as the proxy for firm size.

H2: *Ceteris paribus*, there is a positive association between impairment loss recognition and the size of the company.

Cornett, Marcus, & Tehranian (2008) investigate whether the impact of governance structure and incentive-based compensation on firm performance continues when performance is adjusted for earnings management. Overall, they find that when earnings management is adjusted for, there is a substantial increase in the importance of governance variables, and a decrease in the impact of incentive compensation on overall corporate performance. A number of studies (Bergstresser & Philippon, 2006; Cohen, Dey, & Lys 2005; Cheng & Warfield, 2005) investigate the relationship between discretionary accruals and earnings management, and conclude that the magnitude of discretionary accruals is greater and there is a higher incidence of earnings management at firms

where manager wealth is closely tied to stock value. On the contrary, Warfield, Wild, & Wild (1995) find that a high level of managerial ownership is positively related to the explanatory power of reported earnings and accruals management is inversely related to managerial ownership. As we presented earlier, Darrough, Guler & Wang (2014) and Beatty & Weber (2006) conclude that goodwill impairment recognition is discouraged by incentive-based compensations.

In this study, we want to determine whether management compensation, especially incentive based compensation, affects impairment recognition. Previous studies as we analyzed above are inconclusive. Incentive based compensation is often based on firm performance. Impairment loss taking negatively affects firm performance. We thus hypothesize a negative association between incentive-based compensation and impairment recognition. We do not have direct information on incentive-based compensation. We are able to obtain executives, management, BOD and BOS members' security holdings percentages of the total outstanding stock. The percentages are used as proxies of incentive-based compensation. We exclude management and BOD members' ownerships from our analysis due to multicollinearity considerations.

H3: *Ceteris paribus*, there is a negative association between impairment loss recognition and insider equity holding.

$$\text{Model 1: Impairment} = \beta_0 + \beta_1 \text{MarketValue} + \beta_2 \text{ExecutivePayGrowth}_{(t+1)} + \beta_3 \text{BODPayGrowth}_{(t+1)} + \beta_4 \text{StateOwnership\%} + \beta_5 \text{ExecutiveOwnership\%} + \beta_6 \text{BOSOwnership\%} + \beta_7 \text{BODSize} + \beta_8 \text{IndependentBOD\%} + \beta_9 \text{BOSSize} + \beta_{10} \text{Financial} + \beta_{11} \text{Utilities} + \beta_{12} \text{RealEstate} + \beta_{13} \text{Wholesale\&Retail} + \beta_{14} \text{Size} + \beta_{15} \text{AssetMix} + \beta_{16} \text{Leverage} + \beta_{17} \text{PreviousYearLoss} + \varepsilon$$

Where:

Impairment is the natural log of impairment loss if impairment loss is taken, 0 otherwise.

MarketValue is the natural log of the total market value of the company.

ExecutivePayGrowth_(t+1) is the top three executives' pay growth in the year following impairment loss.

BODPayGrowth_(t+1) is the top three Board of Directors' pay growth in the year following impairment loss.

StateOwnership% is the state ownership percentage of the company.

ExecutiveOwnership% is executives' ownership percentage of the company.

BOSOwnership% is Board of Supervisors' ownership percentage of the company.

BODSize is Board of Directors' size scaled by the natural log of sales.

IndependentBOD% is the percentage of independent BOD members.

BOSSize is Board of Supervisors size scaled by the natural log of sales.

Financial, Utilities, RealEstate, and Wholesale&Retail are different industries. The baseline industries are manufacturing and complex industries.

Size is the natural log of sales.

AssetMix is capital assets scaled by total assets.

Leverage is beginning total debt divided by beginning total assets

PreviousYearLoss is 1 if previous year has a loss, 0 otherwise.

Chinese Accounting Standard No. 8 (CAS No. 8) prohibits the reversal of long-lived asset impairments to constrain managerial opportunism with respect to previously recognized impairment loss reversal. CAS No. 8 forbids the reversal of long-lived asset impairment losses

only, while allowing the reversal of short-term asset impairment losses. Since some impairment losses can be reversed in later years, data is separated into two groups for the purpose of analysis. Companies with reversed impairment losses are separately analyzed.

Results

Table 1: Descriptive statistics

	Companies with impairment loss		Companies reversed impairment loss		Companies without impairment loss	
	Mean	Median	Mean	Median	Mean	Median
MarketValue	6,560,269,386	3,579,476,324	6,350,344,781	3,165,031,826	11,476,970,038	3,616,335,749
ExecutivePayGrowth _(t+1)	0.1699	0.0474	0.1823	0.0520	0.3003	0.0440
BODPayGrowth _(t+1)	0.1919	0.0474	0.2579	0.0396	0.0902	0.0376
StateOwnership%	0.0433	0.0000	0.0565	0.0000	0.0758	0.0000
ExecutiveOwnership%	0.0846	0.0012	0.0554	0.0000	0.0377	0.0000
ManagementOwnership%	0.1590	0.0076	0.1066	0.0001	0.0397	0.0000
BODOwnership%	0.1495	0.0045	0.1011	0.0001	0.0365	0.0000
BOSOwnership%	0.0043	0.0000	0.0026	0.0000	0.0014	0.0000
Sales	8,292,121,671	1,411,001,107	4,431,707,651	1,245,554,238	4,912,281,653	1,797,185,026
AssetMix	0.4104	0.3936	0.4569	0.4488	0.5567	0.7120
Leverage	0.4428	0.3910	0.5713	0.4163	0.4612	0.4737

Market value and sales are in RMB.

The item that catches our attention is asset mix. While companies with impairment loss only have 39% in capital assets, companies without impairment loss have 71% in capital assets. Thus, companies with a high percentage of long-lived assets are much less likely to record impairment losses. We speculate that this may be because CAS No. 8 prohibits reversal of impairment losses on long-lived assets. Companies with high percentages of capital assets are reluctant to take impairment losses on their capital assets and have fewer short-term assets that may be subject to impairment.

Table 2: Companies with impairment loss vs. companies without
Overall model: $p < 0.0001$; Adjusted $R^2 = 0.3188$

Parameter Estimates					
Variable	Parameter	Standard	t Value	Pr > t	Variance
Intercept	-0.4087	0.5362	-0.76	0.4459	0
MarketValue	0.0419	0.0233	1.80	0.0717	1.4032
ExecutivePayGrowth _(t+1)	0.0277	0.0095	2.93	0.0034	1.0099
BODPayGrowth _(t+1)	-0.0039	0.0109	-0.36	0.7226	1.0126
StateOwnership%	-0.3963	0.1673	-2.37	0.0178	1.0741
ExecutiveOwnership%	-0.3814	0.1583	-2.41	0.0160	1.2212
BOSOwnership%	-3.7139	1.4254	-2.61	0.0092	1.0685
BODSize	1.0261	0.3254	3.15	0.0016	1.4699
IndependentBOD%	1.8969	0.4463	4.25	<.0001	1.2949
BOSSize	0.5924	0.4558	1.30	0.1937	1.2585
Financial	1.5051	0.1555	9.68	<.0001	1.2851
Utilities	-0.3979	0.0597	-6.67	<.0001	1.0828
RealEstate	-0.4343	0.1026	-4.23	<.0001	1.0860
Wholesale&Retail	-1.1199	0.1058	-10.59	<.0001	1.0522
Size	0.6954	0.0172	40.53	<.0001	1.5066
AssetMix	-0.8493	0.1089	-7.80	<.0001	1.1850
Leverage	0.1225	0.0271	4.52	<.0001	1.0456
PreviousYearLoss	1.3280	0.0963	13.79	<.0001	1.0789

* Impairment is the natural log of impairment loss if impairment loss is taken, 0 otherwise.

The results in Table 2 for executive cash pay (ExecutivePayGrowth) do suggest that executives get bigger raises in the following year if bigger impairment losses are taken. We believe higher executive cash pay growth in the future is a motivating factor for impairment loss taking behavior. BOD members pay raises are not associated with impairment loss. Insider security holding does affect impairment loss taking significantly. Although executive pay raises in the following year encourage impairment loss taking, executive security ownership discourages impairment loss taking. BOS members' security ownership also significantly reduces impairment losses. Increases in BOD size and the percentage of independent BOD members significantly increases impairment loss taking while state ownership significantly decreases it. We do not have strong support to validate that firms with higher market values are more likely to take impairment losses. However, bigger firms are significantly more likely to recognize impairment loss if firm size is measured by sales instead of market value. Other factors that affect impairment loss taking are industry, asset mix, leverage, and previous year loss. The industry that is most likely to take impairment losses is

the financial industry. We wonder if this is related to bad debt write-offs. A breakdown of impairment loss in the financial industry would reveal more information, however this is beyond the scope of this paper. The base industries are manufacturing and complex industries. Firms with higher debt, and with previous year losses are all more likely to take an impairment loss. We note that firms with higher capital concentration are less likely to take impairment loss. As mentioned previously, we speculate that this may be because CAS No. 8 prohibits reversal of impairment losses on long-lived assets. Companies with high percentages of capital assets are reluctant to take impairment losses on their capital assets and have fewer short-term assets that may be subject to impairment.

Executive compensation structure significantly affects impairment loss taking. Security based compensation lowers impairment loss taking, while cash compensation encourages impairment loss taking. BOD members' compensation does not affect impairment loss taking while BOS members' security based compensation significantly lowers impairment loss. Bigger firms, judging by sales instead of market value, are more likely to take impairment loss. Our results support hypothesis 1 and partially support hypothesis 2 and 3.

Table 3: Parameter estimates when impairment loss is reversed (negative)

Overall model: $p < 0.0001$; Adjusted $R^2 = 0.1065$

Parameter Estimates					
Variable	Parameter	Standard	t Value	Pr > t	Variance
Intercept	5.0056	1.8380	2.72	0.0066	0
MarketValue	0.0531	0.0792	0.67	0.5032	1.5031
ExecutivePayGrowth _(t+1)	-0.1243	0.1492	-0.83	0.4050	1.3154
BODPayGrowth _(t+1)	-0.0248	0.0701	-0.35	0.7233	1.3135
StateOwnership%	-0.4411	0.4834	-0.91	0.3618	1.0784
ExecutiveOwnership%	-1.3899	0.6637	-2.09	0.0366	1.2273
BOSOwnership%	-13.2687	7.0616	-1.88	0.0606	1.1048
BODSize	0.0416	1.1042	0.04	0.9700	1.5400
IndependentBOD%	0.6239	1.6941	0.37	0.7128	1.3052
BOSSize	1.0335	1.4744	0.70	0.4836	1.3277
Financial	0.5064	0.6342	0.80	0.4248	1.2359
Utilities	-0.1401	0.1926	-0.73	0.4672	1.1765
RealEstate	0.4383	0.2708	1.62	0.1059	1.2198
Wholesale&Retail	-0.4492	0.3000	-1.50	0.1348	1.1042
Size	0.3786	0.0584	6.48	<.0001	1.6392
AssetMix	-0.4746	0.3445	-1.38	0.1688	1.3305
Leverage	-0.0965	0.0668	-1.45	0.1486	1.0943
PreviousYearLoss	0.9323	0.2809	3.32	0.0009	1.1433

*Dependent variable is the natural log of the absolute value of impairment loss reversal.

Table 3 provides information on impairment losses taken by companies that later reverse the impairment recognition. Only three items have an impact on impairment revaluation. Executive security ownership has a negative impact and both firm size and previous year loss have a positive impact. Executive incentive compensation discourages both impairment loss recognition and reversal. While bigger firms measured by sales are more likely to recognize impairment losses, they are more likely to reverse the recognitions as well. Firms with previous year losses are more likely to recognize impairment losses and are also more likely to reverse the recognitions.

Summary

Our results show that there is a positive association between impairment loss recognition and the following year's executive cash pay growth, and that there is a negative association between impairment loss recognition and insider equity holding. While executive incentive compensation discourages impairment recognition, it also discourages reversal of the recognition. There is a positive association between impairment loss recognition and the size of the company, if size is measured by sales instead of market value. While bigger firms (measured by sales) and firms with previous year losses are more likely to recognize impairment losses, they are more likely to reverse the recognitions as well. Furthermore, a bigger BOD size and a higher percentage of independent BOD members in the board encourage impairment recognition.

Our results shed light on how corporate compensation structure and corporate supervision mechanisms affect company earnings management behavior, specifically in regard to impairment recognition and revaluation. We believe balanced executive cash and incentive compensation accompanied by a larger BOD and a larger percentage of independent BOD members in the BOD promote proper impairment recognition and revaluation.

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