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## Article

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# Under-Performance of Listed Companies, Real Earnings Management and M&A: Chinese Empirical Evidence

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## **Abstract:**

**Purpose:** The purpose of this paper is to examine whether acquiring firms attempt to adopt real earnings management strategy to upward reported earnings in the period of M&A announcement and provide an explanation for the underperformance of post-M&A in share payment M&A affairs occurring in China's capital market from 2008-2010.

**Design/methodology/approach:** The author uses Roychowdhury's (2006) methodology to measure the magnitude of real earnings management of acquiring firms in stock for stock M&A by exploiting financial data from 2006 to 2011. The methodology includes three models, which are cash flow from operations, production costs and discretionary expenditures, respectively.

**Findings:** It was found that firms using stock as a financing medium exhibit significant negative abnormal cash flows and abnormal discretionary expenses yet abnormal production costs significantly positive during the current period of M&A. Moreover, it was also documented that acquiring firms use real activities manipulation to overstate earnings for the purpose of improving market confidence. Finally, a negative association was found between REM and under-performance of post-M&A.

**Research limitations/implications:** To some extent, these results explain the puzzle of performance decline over the following period of post-M&A. Meanwhile, our study adds to prior literature that capital market pressures induce acquiring firms inflate reported earnings by manipulating real activities in stock-financed M&A occurring in China's capital market.

**Practical implications:** The author's result imply that investors, analysts and regulators cannot ignore more undetectable opportunism behaviors underlying reported earnings than accrual-based earnings management and the impact on the performance of post-M&A when they use financial statements to evaluate acquiring firms.

**Social implications:** Our study plays important role in making public policies. Furthermore, it is necessary to improve outside supervisory mechanism and strengthen construction of honesty and faithfulness so as to realize the main purpose of value creation in M&A.

**Originality/value:** The paper extends prior literature by taking a closer look at acquiring firms' managerial myopia behavior in stock-financed M&A. The administrators of acquiring firms have strong incentives to manage earning upward by adopting a more subtle way which is a costly means because it has value-destroying effect on performance of post-M&A.

**Keywords:** share payment, real earnings management, performance of M&A

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## 1. Introduction

Anecdotal evidence suggests that the motivation of earnings management is to acquire private benefits. Prior research has documented that managers emphasize the importance on manipulating reported earnings upward or downward around several specific corporate event, such as IPO, SEO, M&A etc. As a strategic expansion behavior, M&A activities are vitally important for corporations. The failure of this investment usually takes the serious economic loss. For an acquiring corporation, it makes every effort to guarantee the success of the deal in order to realize operational synergy and increase the value of companies. The consideration received by target shareholders is the acquiring firm's stock in share for share corporate takeovers. Because the accounting information and exchange ratio are closely related to share price on or near the takeover agreement date and carry signals to investors leading to affect their investment confidence. So when controlling owners or managers realize that if corporation undervaluation or overvaluation can contribute the success of the deal, they have strong incentives to manipulate reported earnings prior to the takeover in the hope of raising the stock price, therefore reducing the cost of buying the target.

In fact, the primary purpose of the Sarbanes–Oxley Act (SOX) is to regain the public's trust in the integrity of financial reports in order to curb earnings management opportunistic behavior. However, because of tighter accounting standards and more stringent regulation, the decrease in accounting discretion results in accrual-based earnings management more likely to be detected. Therefore, more and more companies shift to real earnings management which is more subtle to avoid the risk of being punished and litigation. Real earnings management refers to managers' opportunistic behavior who attempts to achieve special purpose through making suboptimal decisions on the timing and scale of the real business activities to alter reported accounting earnings, which misleads stakeholders' understanding of financial report. It attracts extensive attentions in academic and practical fields over time. Graham, Harvey and Rajgopal (2005) argue that 80% CEOs of US firms would like to adopt real earnings management to achieve short-term earnings targets. However, real earnings management is a suboptimal decision which deviates from normal business practices and has a negative effect on future performance and competitive ability (Gunny, 2010; Ewert & Wagenhofer, 2005; Cohen, Dey & Lys, 2008; Zang, 2012).

As an outside expansion strategy, M&A plays an important role in China's capital market. Examining real earnings management in the course of M&A and the consequence on subsequent performance are very important for several reasons. First of all, Prior literatures demonstrate that acquiring firms which adopt share payment have incentives of earnings management before announcement of M&A (Erickson & Wang, 1999; Louis, 2004; Botsari & Meeks, 2008). However, it is a pity that prior research focuses on accrual-based earnings management and overlooks radically real earnings management, which may draw wrong conclusions. Secondly, as is described in earlier literatures, real earnings management aggravates the information asymmetry with regards to a firm's report earnings between managers and stakeholder, thus affecting stakeholders' estimates of a firm's value and profitable ability. Therefore, this information risk has a potential effect on transaction price and goes against stakeholders. Thirdly, owing to the characteristics of concealing of real earnings management, prior studies demonstrate that it is unlikely to be detected by auditors and regulators (Graham et al., 2005; Zang, 2012). Whether this opportunistic earnings management behavior can be perceived is a very interesting question. Meanwhile, our study aims to provide empirical evidence on the impact of real earnings management on post-performance of M&A in China's capital market.

The remainders of this paper is organized as follows: Section 2 provides an overview of previous related literatures and develops our research hypothesis. Section 3 describes our empirical models. Section 4 presents data source and sample selection and Section 5 draws the paper's conclusion.

## **2. Theoretical Analysis, Literature Review and Hypothesis Development**

### **2.1 Theoretical Analysis from Game Theory Perspective**

Prisoner's dilemma, as one of classical cases in Game Theory, can be used to explain why managers of acquiring firms adopt real earnings management strategy in M&A transactions. Prior research demonstrates that the target firm exists earnings management opportunistic behavior before M&A, therefore, acquisition audit focused on the financial statements of the target companies. As a matter of fact, both acquiring and acquired firms fall into the prisoner's dilemma when they make earnings management choices. Like the general commodities trading, M&A also abides by the principle of bilateral transaction, both the parties of M&A deal are suitors to maximize their own interests. Based on the hypothesis of rational economic men, the acquiring company which could not adopt earnings management strategy, will pay a higher purchase cost which will become part of the premium income of the target company while the target company does. On the contrary, if the acquired company doesn't adopt earnings management strategy while the acquiring company does, the acquiring company will pay lower purchase cost to achieve extra interest. Therefore, the rational choice of acquiring company is to adopt earnings management strategy. In the same way, the acquired company will also make the same choice. Based on the psychology of distrust and precaution, the both will make earnings management decision.

### **2.2 Real Earnings Management and Stock for Stock M&A**

Bernard and Thomas (1990) and Chaney and Lewis (1995) find that reported accounting earnings and stock prices are closely linked. The higher reported accounting earnings are, the higher stock prices. The most important reason for earnings management incentive in the course of stock for stock M&A is value relevance between stock prices and accounting earnings, which means that accounting earnings affect stock prices having an influence on conversion ratio in return, and conversion ratio decides acquisitions costs. Owing to higher acquiring firm's stock price Pre-M&A leading to lower conversion ratio, namely, acquired company exchanges for a fewer number of acquiring company's shares, the acquisition cost becomes lower. Therefore, managers of acquiring firms often overstate reported earnings before announcement of M&A. On the one hand, it aims to reduce acquisition cost through raising share price pre-M&A; on the other hand, it can reduce diluting possibility of existing earnings as well as voting and control rights of existing shareholders. Prior literatures have demonstrated that acquiring firms engage in earnings inflation before announcement of M&A, and the level of earnings management is positive related to the scale of transaction. (Erickson & Wang, 1999; Louis, 2004; Botsari & Meeks, 2008). However, prior documents focus on accrual-based earnings management, and overlook real earning management thoroughly.

Recently, scholars tend to switch their research emphasis to how companies conduct real earnings management by constructing real business activities. Roychowdhury (2006) demonstrates that managers inflate earnings by overproduction and liberal credit policies and reducing discretionary expenditures in order to avoid reporting losses or meet analyst forecasts. Ewert and Wagenhofer (2005) and Tan and Jamal (2006) suggest that companies manipulate operating activities to adjust the underlying earnings to reach special aims when more perfect accounting standards and more stringent supervisory regulations reduce accounting flexibility. Real earnings management is not in violation of Generally Accepted Accounting Principles, and the possibility of detection by regulators and auditors is lower because of high concealment and low risk characteristics (Zang, 2012; Graham et al., 2005). Cohen et al. (2008) argue that real earnings management significantly increases while accrual-based earnings management goes opposite after enactment of SOX. Cohen and Zarowin (2010) demonstrate that firms exist not only accrual-based earnings management but also real earnings management in the course of Seasoned Equity Offerings (SEO). Stock for stock M&A is a way to gain control rights of target firms by targeted placement. This investment is SEO in essence and also exists motivation of earnings management. With the new Accounting Standards formally performed in the listed company in 2007, the Enterprise Internal Control Basic Norms implemented in 2008, and the regulations governing the purchase of public companies, the management approach for material assets reorganization of listed companies as well as the financial advisory business management approach for M&A of listed companies and so on perfected M&A related laws and regulations, the space of accrual-based earnings management is shrinking because of external supervisory power constantly heightening. Due to information asymmetry, acquiring firms owning the information advantages tend to adjust earnings upward before the merger announcement in the absence of outside attention in order to prepare for the M&A success. The purpose is to reduce the exchange ratio and then reduces acquisition cost by raising the pre-merger stock price, for which prior studies has provided empirical evidence (Erickson & Wang, 1999; Louis, 2004; Zhao & Zhang, 2012). In the current period, the news of M&A becomes the public information in the capital market and attracts wide attentions from media, financial analysts and investors. Under strong market pressure and strict regulations, acquiring company's managers switch to more concealed real earnings management to increase reported earnings so that they can protect company and personal reputation, convey successful signals of M&A to the capital market and ensure the company's future business operating properly. This behavior is less easily detectable and may provide greater manipulation space for managers (Cang, Chu & Qi, 2011). Based on the above analysis, we put forward to the first hypothesis:

*Hypothesis 1: In the current period of M&A announcement, Acquiring firms have real earnings management behavior to adjust reported earnings upward.*

### 2.3 Real Earnings Management and Performance of M&A

Recent studies have shown that accrual-based earnings inflation pre-M&A will reverse and lead to obvious decline in performance of post-M&A. Louis (2004) examined the relationship between accrual-based earnings management and performance of post-M&A and provided empirical evidence that the abnormal accrual negatively related to performance of post-M&A in the long run. Zhang (2010) suggests that performance of acquiring firms which engage in earnings inflation will decline owing to part of accruals reversing when the private placement is completed. Zhao and Zhang (2012) demonstrate that upward accrual-based earnings management of Chinese listed company prior to stock for stock M&A results in decline of corporate performance because of the reversal of abnormal accrual post-M&A.

Academic field did not reach the consistent conclusion about the impact of real earnings management on the company's future performance. Taylo and Xu (2010) didn't find that real earnings management brings about significant decline in subsequent operating performance. Cheng (2004) suggests that limited manipulation of business activities will not affect the long-term operating performance when real earnings management behavior happened occasionally and reverted to its ordinary strategy next year, while it affects future performance significantly when it happens periodically. Ewert and Wagenhofer (2005) and Roychowdhury (2006) argue that real earnings management deviates from ordinary business activities and has negative effects on future cash flow. Real earnings management does harm to subsequent operating performance (Gunny, 2010). Cohen and Zarowin (2010) find that real earnings management has severer negative effects on future performance than accrual-based earnings management around the time of SEO. Li, Dong and Lian (2011) empirically studied the consequences of earnings management on the future performance in the course of SEO and provided evidence that real earnings management results in under-performance of post-M&A. This article suggests that upward accrual-based earnings management behavior pre-M&A restrict firm's ability to continue to adopt this method to overstate reported earnings in current period of M&A. In order to promote the probability of M&A success and protect interests and reputations of company and personal, the managers of acquiring firms would adopt more subtle real earnings management to inflate earnings unceasingly which aims to convey success signal to capital market and enhance investors' confidence. The behavior deviates from firm's optimal operating decision and leads to changes in cash flow directly. The temporary deliberately trading arrangements for increasing short-term earnings cannot last forever and give rise to under-performance of post-M&A. Therefore, we put forward to the second hypothesis:

*Hypothesis 2: If acquiring firms engage in earnings inflation through real earnings management in current period of M&A, the future performance of M&A will decline.*

### 3. Research Design

#### 3.1 Sample Selection and Data Sources

Our sample covers M&A affairs occurring in Shanghai and Shenzhen A-share stock markets from 2008 to 2010. We choose the first announcement date as event date, and control rights of objects must be transferred. We obtain financial data from China Stock Market and Accounting Research (CSMAR) database. M&A affair samples are obtained from China Center for Merger and Acquisition Research. Statistical software is Stata11. Meanwhile, we deal with observations according to the following rules:

- We exclude acquiring firms in insurance and financial industries because of different accounting rules and operating characteristics.
- We eliminate acquiring firms with leverage rate above 1, otherwise, ST firms and PT firms are excluded because of special treatment.
- Acquiring Firms lacking required accounting data for research are excluded.
- All of the variables are winsorized at 1% and 99%.
- We eliminate acquiring firms which are listed through buying a shell or occurring important events. The former is different from general M&A affairs while the latter cannot distinguish earnings management motivation.

#### 3.2 The Measure of Real Earnings Management

We use Roychowdhury's (2006) model to estimate real earnings management level of acquiring firms in stock for stock M&A by exploiting financial date from 2006 to 2011. The steps are as follows: to begin with, we estimate the normal level in cash flow from operations, production costs and discretionary expenditures respectively by running the following regression models each year for each industry. Secondly, we derive the regression residuals from these models as proxies for abnormal cash flow from operations, abnormal production costs and abnormal discretionary expenditures respectively consistent with prior researches (Cohen et al., 2008; Cohen & Zarowin, 2010; Zang, 2012). In general, acquiring firms engaging in real earnings management have the characteristics of low abnormal cash flow from operations, high abnormal production cost and low abnormal discretionary expenditures.

(1) The model of cash flow from operations

$$\frac{CFO_{it}}{A_{i,t-1}} = k_1 \frac{1}{A_{i,t-1}} + k_2 \frac{SALE_{i,t}}{A_{i,t-1}} + k_3 \frac{\Delta SALE_{i,t}}{A_{i,t-1}} + \varepsilon_{it} \quad (1)$$



## (2) The model of production costs

$$\frac{PROD_{it}}{A_{i,t-1}} = k_1 \frac{1}{A_{i,t-1}} + k_2 \frac{SALE_{i,t}}{A_{i,t-1}} + k_3 \frac{\Delta SALE_{i,t}}{A_{i,t-1}} + k_4 \frac{\Delta SALE_{i,t-1}}{A_{i,t-1}} + \varepsilon_{it} \quad (2)$$

## (3) The model of discretionary expenditures

$$\frac{DISX_{it}}{A_{i,t-1}} = k_1 \frac{1}{A_{i,t-1}} + k_2 \frac{SALE_{i,t-1}}{A_{i,t-1}} + \varepsilon_{it} \quad (3)$$

The variables in these models are as follows: *t* is a period indicator, *i* is a firm indicator, CFO is cash flow from operations, SALE is annual sales revenues, and  $\Delta$ SALE is the change in sales compared with the sales amount in the previous period. PROD is the sum of the cost of goods sold and the change of inventory cost. DISX is discretionary expenses as measured by the sum of selling and administrative expenses.  $A_{i,t-1}$  is total assets in the previous period. Otherwise, to capture total level of earnings management as a comprehensive proxy, we multiply abnormal CFO and abnormal DISX by -1, then, construct real earnings management (REM) by summing Abnormal Production, Abnormal CFO and Abnormal DISX.

### 3.3 Regression Model and Variable Definitions

We construct the following regression model to examine the consequence of real earnings management on performance of post-M&A:

$$\nabla ROA = \beta_0 + \beta_1 REALDAC + \beta_2 LEV + \beta_3 LSH_5 + \beta_4 HERFINDAHL\_5 + \beta_5 SIZE + \beta_6 OPINION + \varepsilon \quad (4)$$

Variables	Definitions
$\nabla ROA$	the change of return on assets in subsequent year compared with the year of M&A
DEALDAC	the total of real earnings management which is measured by abnormal PROD subtracting abnormal CFO minus abnormal DISX
LEV	the book value of debt divided by the book value of assets at the end of year
LSH <sub>5</sub>	the sum of the top five shareholders' shareholding ratio
HERFINDAHL_5	the sum of the squares of the top five shareholders' shareholding ratio
SIZE	the natural logarithm of total assets at the end of year
OPINION	the virtual variables of audit opinion type at the end of year where number 1 stands for qualified and clean audit opinion, otherwise 0

Table 1. Definition of variables

In order to eliminate the influence of endogenous (Bushee, 1998), the data of LEV, LSH<sub>5</sub>, HERFINDAHL\_5 and SIZE are at the end of preceding period of M&A.

#### 4. Empirical Results and Analysis

We denote the current period of M&A announcement as event window 0 (a period concludes six months). According to the above (1) - (3) models respectively, real earnings management degree is calculated by five different time windows around M&A based on cross-sectional financial data from 2006 to 2011. Table 2 shows real earnings management degree and examining results. It's not difficult to find abnormal cash flows and abnormal discretionary expenses are significantly negative yet abnormal production costs significantly positive. The results support our Hypothesis 1. It illustrates rational managers of acquiring firm engaging in earnings inflate in the current period of M&A in order to convey successful signals to the capital market and enhance investor's confidence. However, In the second period post-M&A, abnormal operating cash flows and abnormal production costs show opposite sign, indicating that real earnings management is unable to continue.

Time	-2	-1	0	1	2
<b>AB-CFO</b>	0.018	-0.002	-0.180	-0.008	0.034
<b>Z-value</b>	(1.53)	(0.13)	(-1.96) **	(-0.57)	(1.70) *
<b>AB-PROD</b>	0.025	0.026	0.058	0.023	-0.027
<b>Z-value</b>	(1.30)	(1.44)	(1.83) *	(1.04)	(-1.83) *
<b>AB-DISX</b>	-0.015	-0.020	-0.012	-0.007	-0.010
<b>Z-value</b>	(1.20)	(-2.30) **	(-2.16) **	(-0.73)	(-0.15)

Notes: \*\*\*Significant at the 1% level, \*\*Significant at the 5% level, \*Significant at the 10% level.

Table 2. Acquiring firm's real earnings management degree and examining results

	Mean	Median	Max	Min
<b>ROA(-1)</b>	0.022	0.023	0.193	-0.392
<b>ROA(0)</b>	0.045	0.036	0.382	-0.079
<b>ROA(1)</b>	0.035	0.031	0.238	-0.235
<b>ROA(2)</b>	0.030	0.034	0.230	-0.222

Table 3. Distribution of time series of acquiring firm's performance around M&A

Table 3 presents distribution of time series of acquiring firm's performance around M&A. It shows that acquiring firm's performance in current period is the highest, then, continues to decline in the two periods of post-M&A. Is under-performance of post-M&A related to real earnings management in current period of M&A? We will examine empirically through the OLS regression.

Variety	Model1	Model2	Model3	Model4
cons	0.128 (0.93)	0.131 (1.05)	0.134 (1.11)	-0.001 (-0.03)
Realdac	-0.061** (-1.99)	-0.615** (-2.03)	-0.062** (-2.10)	-0.051* (-1.82)
opinion	0.034** (2.38)	0.034** (2.49)	0.034** (2.54)	0.034** (2.49)
Lev	-0.021 (-0.44 )	-0.021 (-0.46)	-0.022 (-0.49)	-0.050 (1.27)
size	-0.021 (-0.44)	-0.015 (-0.99)	-0.016 (-1.14)	
Ish5	-0.012 (-0.19)	-0.013 (-0.26)		
herfindahl_5	-0.004 (-0.04)			
adjust-ar <sup>2</sup>	0.21	0.24	0.28	0.26

Notes: \*\*\*Significant at the 1% level, \*\*Significant at the 5% level, \*Significant at the 10% level.

Table 4. Empirical results of consequences of real earnings management on subsequent performance of M&A

Table 4 shows that real earnings management in the period of M&A is an important explaining variable for under-performance of post-M&A. The level of real earnings management increases 1% and return on assets falls by 5% - 6% in the subsequent year of M&A, statistically significant. Acquiring firms engage in real activities manipulation in the period of M&A by maintaining high operation performance in order to convey successful information about firms' prospects to the capital market. Although real earnings management enhances earnings in the short run, it fails to maintain high performance forever. Real earnings management has a negative effect on future cash flow. Once business strategy returns to normal one, operating performance is on the decline. In addition, audit opinion is significantly positive related to M&A performance. In contrast with non-standard audit opinions, the performance of acquiring firms providing standard audit opinions is better, which is consistent with the study result of Fang and Jin (2011), who argues that acquiring firms providing clean audit opinions have high governance quality and high internal control quality and have inhibitory action on earnings management.

## 5. Research Results

This paper investigates whether acquiring firms attempt to adopt real earnings management strategy to upward reported earnings in the period of M&A and the impacts on performance of post-M&A. Our results demonstrate that acquiring firms exist real activities manipulation to overstate earnings in the period of M&A for the purpose of improving market confidence. Meanwhile, we also find that real activities constructed deliberately are temporary and bring about under-performance of post M&A. Therefore, Investors, analysts and regulators cannot ignore more hidden opportunism behaviors underlying reported earnings and the impact on the performance of post-M&A when they use financial statements to evaluate acquiring firms. Only in this way, can they make rational judgments and decisions. It is necessary to improve

outside supervisory mechanism and strengthen construction of honesty and faithfulness so as to realize the main purpose of value creation in M&A.

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