**Impact of Mergers and Acquisitions on Types of Earnings Management during Crisis: A study on Chinese Listed Firms**

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**Abstract**

In this research study we examine the impact of domestic and cross-border merger and accusations on types of earnings management practice followed by the managers of the Chinese firms. Similar studies either focus on developed market or they consider the accrual earnings management in the context of M&As. We not only extend these studies but by considering the recent financial crisis time we contributed to the existing literature to a great extent. Our sample consists of 1948 observations for the year 2004-2013. We find that managers in domestic M&As substitute real earnings management for accrual-based earnings management during the financial crisis. Moreover, real earnings management has been exercised in cross-border M&As for both before and during crisis period. The findings of the study will enhance the relevant literature and will guide the policy makers in evaluating the exiting corporate governance mechanisms applied in the second largest economy in the world.

**Keywords:** Accrual earnings management; Real earnings management; Mergers and acquisition; Financial crisis; China

**1. Introduction**

Anecdotal evidence has documented that managers increase the receipt of sales or defer expenses in order to window-dress current financial performance either by increasing or decreasing earnings, for instance before management buyout (DeAngelo, 1986; Perry and Williams, 1994), initial public offering (IPO) or seasoned equity offerings (SEO) (Aharony et al., 2000; Cohen and Zarowin, 2010), and stock takeover (Erickson and Wang, 1999; Louis, 2004). This is termed as earnings management carried out by adjusting accruals or constructing real transactions to manipulate earnings in current year. In addition to these studies, there is another stream of research that has enriched the context of earnings management, is in the area of mergers and acquisitions (M&A) (e.g. Erickson and Wang, 1999; Koumanakos et al. 2005; McNichols and Stubben 2008; Bens et al. 2012; Zhang, 2015). During the recent years M&As manifest one of the most important outside expansion strategies, especially in the emerging markets such as China and India. But most of the existing studies either focus on developed market or consider only one type of earnings management (Erickson and Wang, 1999; Louis, 2004). So, it is worthwhile for us to investigate the choice of earnings management in M&As in emerging economic environment for several reasons. Firstly, previous studies focus on examining earnings management in M&As activities that only highlight the accrual-based earning management ignoring real earnings management (Erickson and Wang, 1999; Louis, 2004) or only focus on real earnings management (Zhang, 2015). Even though a few studies mention both types of earnings management (e.g. Claude et al. 2012), but they fail to systemically compare these two distinctive methods. Secondly, prior studies discuss that managers indeed engage in earnings management when there is a takeover (e.g. Easterwood, 1998; Louis, 2004 etc.). However, it is hard to find studies aiming at domestic and cross-border takeovers together that may affect earnings management. Thirdly, the changes in outside economic environment are potential factors that not only influence earnings management (Yew et al, 2007) but also affect M&As activities (Chen and Young, 2008). This motivates us to consider the recent financial crisis in this study.

In this study, we investigate earnings management by Chinese acquiring firms listed in Chinese A-stock market. The M&As have witnessed a rapid increase in China since 1990s and but encountered a big shock around the year 2001 during the Asian economic recession (Tang and Metalli, 2012). But how does the earnings management behavior change during the recent financial crisis? To fill this gap in the literature we test the preference and tendency for earnings management of Chinese listed firms involved in M&As before and after the financial crisis. During the last decades, China encounter with many corporate governance challenges, which change the existing policies and investment environment. Such changes allow investors and scholars to expect an unprecedented healthy growth of M&As activities in China. Moreover, during the past years, we also find rapid expansion of foreign direct investment (FDI) and impressive outward FDI that mainly takes place due to favorable cross-border policies by Chinese government (Grave et al, 2012). These changes motivate us to distinguish between domestic and cross-border M&As in China and also identify the changes in the trends of M&As before and after the financial crisis.

Recent studies demonstrate that acquiring firms have abnormal discretionary accruals in domestic M&As especially in stock-to-stock takeovers (Erickson and Wang, 1999; Louis, 2004; Higgins, 2012), which is a measure of accrual-based earnings management. The value of discretionary accruals is either negative or positive which is an indicator of decreasing or increasing earnings manipulation. In a very recent study Zhang (2015) finds that Chinese acquiring firms also carry out the real earnings management (indicated by low abnormal cash flows from operations, discretionary expenses and relatively high abnormal production cost) during the years 2008-2010. The literature on earnings management highlights the advantages of doing real earnings management. For instance, through manipulating operating activities, real earnings management is less likely to violate the accounting regulations than altering accruals in accrual-based earnings management (Cohen and Zarowin, 2010; Zang, 2012). When the outside regulations and securities are tightened, managers are more likely to exercise real earnings management instead of accrual-based earnings management, because there is a low chance of detection by the auditors (Roychowdhury, 2006). Consequently, real earnings management is considered as more costly than accrual as it affects the long-term performance of firms (Graham et al, 2005). Because of the varying effects of accrual and real earnings management, it is important to discuss the types of earnings management to get a detailed idea about the preference of managers of firms undergoing M&As. To cope up with the financial crisis, Chinese listed companies start adhering to many restrictions including the advanced accounting standard. So, it is possible that these restrictions force the managers of these firms to choose real earnings management. Furthermore, we expect that acquiring firms, which are generally owned by state in cross-border takeovers, may prefer real earnings management because of highly stringent legal risks.

Because of the above-mentioned reasons we test the impact of two types of M&As in China on the types of earnings management during the recent financial crisis. We use a sample of 1948 firm-year observations from 2004 to 2013. First we test whether the tendency of types of M&As differs between domestic and cross-border M&As before and after the financial crisis. Then we explore whether the different types of M&As can explain accrual-based and/or real earnings management of the acquiring firms. Following Dechow et al. (1995), we measure accrual-based earnings management by discretionary accruals in two different models. To capture the extent of real earnings management, we follow Roychowdhury (2006) and construct abnormal cash flows from operation, abnormal discretionary expenses and abnormal production cost respectively as indictors. We also create comprehensive proxies of earnings management. We model all measures of earnings management as a function of types of M&As before and after financial crisis. In addition, consistent with existing literature, we control for other proxies of target companies (see e.g. Cohen et al, 2008; Bok, 2009; Chaney et al, 2001; Zang, 2012; Geert et al, 2015).

The findings of this study contribute to the ongoing research related to earnings management in two ways. First, it complements a growing body of literature on earnings management and M&As. Prior studies provide evidence that managers exercise earnings management when they involve in import duty (Jone, 1991), IPO and SEO (Aharony et al, 2000; Cohen and Zarowin, 2010) and stock-financed domestic takeovers (Erickson and Wang, 1999; Louis, 2004). By investigating Chinese listed companies and both real and accrual-based earnings management, we extend the previous studies (Erickson and Wang, 1999; Shleifer and Vishny, 2003; Louis, 2004) that prove corporate managers have strong incentives to alter earnings prior to M&As. It also has important implication for studies aiming at the emerging markets. Moreover, we focus domestic and cross-border M&As and find their different impact on earnings management. We fill the gap in the research by documenting types of M&As as a powerful factor of earnings management. In addition, our study adds to the extant literature of accrual-based and real earnings management (Cohen and Zarowin, 2010; Zang, 2012; Geert et al, 2015). If firms endured new legislations (e.g., Sarbanes-Oxley Act), they shift from one type of earnings management to another (Cohen et al, 2008). Alternatively, the firms trade-off between real earnings manipulation and accrual adjustment due to their relative costliness (Zang, 2012) or for their specific firm characteristics such as, political connections (Geert et al., 2015). Current evidence from earnings management in M&As normally focuses on accrual-based earnings management and ignores the potentially hazardous influences of real earnings management. Our results extend the literature by indicating that firms’ trade-off between real versus accrual-based earnings management in connection with different types of M&As. Our study also contributes to growing literature on the recent financial crisis. We examine the tendency of M&As in China during the global financial crisis. It enriches the literature as scholars have claimed that Chinese M&As activities maintain a strong growth in the recent decade and will keep a good performance in the future (Grave et al., 2012). Previous studies that target at developed countries such as Singapore during Asian financial crisis in 1997 (Yew et al, 2012) and Australia during 2006 -2009 (Mollik et al., 2013) have only considered accrual-based earnings management. We contribute to this line of research by manifesting the choices in types of earnings management over financial crisis period.

The rest of the paper is organized as follows. Section 2 provides an overview of prior related literature and develops our research hypotheses to test the association of impacts of M&As on types of earnings management. Section 3 describes sample selection, the measurement of earnings management, empirical models and results followed by robustness test. Section 4 draws the conclusion, discuss and limitation of our paper and indicate suggestions for further studies.

**2. Literature Review and Hypotheses Development**

*2.1 Theoretical Framework*

Mergers and Acquisitions (M&As) refer to the process of gaining other companies’ actual right of control. In our study, we identify three categories of M&As that are mergers, consolidation and acquisition (Hillier, 2013) (Refer Appendix 1 for detail definition). Most studies (Berkovitch and Narayanan, 1993; Chen and Young, 2010; Danbolt and Maciver, 2012) agree that the essence of M&As is a behavior of ownership trading and capital operations (Refer Appendix 2). From the economics perspective, there is no wide difference among mergers, acquisition and consolidation, so this paper does not distinguish these instead and we use the acronym M&As.

As a number of M&As is taking place in China, it allows us to study the earnings management behavior of managers in those companies. Following the extant literature (e.g., Cohen and Zarowin, 2010, Zang, 2012) we test accrual-based and real earnings management to get an in depth knowledge about the preferences of the managers associated with M&As in China. A brief description of the two types of earnings management and its comparative advantages and disadvantages are summarized in Appendix 3.

The empirical evidence indicates the existence of earnings management for firms involved in M&As activities. DeAngelo (1986) studies the accounting decisions of 64 companies made by managers who plan the management buyouts. By systematically reducing the total accruals, managers understate earnings before management buyouts. Subsequently, Perry and Williams (1994) follow DeAngelo’s work and select a sample of 175 management buyouts from 1981 to 1988. Finally, the results indicate that in the year before the public announcement of mergers, there exists a manipulation of discretionary accruals in the predetermined direction. At the beginning of the takeover attempt, managers of acquiring firms systematically engage in increasing reported earnings in the quarter’s immediately beforehand (Easterwood, 1998). In a similar study, Erickson and Wang (1999) analyze unexpected accounting accruals of 78 acquiring firms involved in a negotiated stock for stock mergers. Acquiring firms have an incentive to increase its stock prices to reduce the amount of shares that are used in exchange. The results confirm that acquiring companies attempt to manipulate accounting earnings upward. Shleifer and Vishny (2003) point out that the financial decision is the most crucial factor in M&As. When managers realize that altering the value of firms can benefit M&As, there is a powerful incentive for firms to get equity overvalued even by earnings manipulation. Louis (2004) cover 373 mergers of publicly traded firms, headquartered in the USA, including 236 pure stock for stock payments and 137 pure cash payments. As for stock swap acquirers, there are significant positive abnormal accruals in the quarter before buyouts announcements, which is anticipated by earnings manipulation. However, in cash purchases, changes of discretionary accruals are not significant as stock swap. Later on, Scott (2007) supports that merged banks manipulated earnings in the preceding year and the year prior to the preceding year. In the Canadian stock market, consistent with prior studies, acquirers also have incentives to manage earnings upward in the periods preceding the deal (Claude et al, 2012). Whereas, given the Canada’s strict legislation, managers are prevented to some degree from involving in opportunistic earnings management in stock-financed M&As. On the Tokyo Stock Exchange market, many Japanese mergers are transacted by stock swaps so that acquirers engage in upward earnings management to reduce the amount of shares and avoid the dilution of their controlling position (Higgins, 2012). As managers deduce that overestimating or underestimating the market value of firms can benefit M&As, they have incentives to manipulate earnings. Many factors, such as asymmetric information and difficulties in financing medium, can bring variety of risks into M&As. If M&As are going to fail, companies lose the brilliant opportunity to expand or it may damage the reputation of executives. Furthermore, it may affect investors’ confidence in acquiring firms (Louis, 2004). All these incentives and pressure give rise to manage earnings prior to the implementation of M&As. For these reason, in order to reserve a portion of profit margins for the impending companies’ performance after M&As, acquiring firm have incentives to manage downward earnings in the pre-merger years (Perry and Williams, 1994). After M&As, acquiring companies may face inefficient operation, cultural conflicts and agency problem, to name few problems (see Reynolds and Teerikangas, 2015). Similarly, in order to maintain the good corporate performance in current year, managers make every effort to change the adverse situation and may prefer to do earnings management. So they are able to deliver a growing and healthy signal to shareholders and investors (Shleifer and Vishny, 2003). Thus, positive earnings can avoid investors’ panic about the drastic changes in capital structure (Easterwood, 1998).

The above discussion indicates that the managers associated with firms undergoing M&As are very often motivated to do earnings management. The literature on earnings management shows evidence of differential impact of accrual and real earnings management in many other contexts such as change in operational environment or happening of an event (e.g., Cohen and Zarowin, 2010; Greet et al., 2015). The evidence shows that accrual earnings management can only be done at the end of financial year ,which may not match with the time of M&As. Moreover, as the accrual methods are easily detectable by auditors, managers refer real earnings management at the cost of long-term performance of the firms (Graham et al., 2005). In addition, the global financial crisis insists the policy makers of the growing Chinese economy to bring in advanced restricted rules and regulations. So, we assume that the changes in policy increase the transparency in the economy, which may also affect the preference of the earnings management practices of the managers. Thus, we test the preference of two types of earnings management (accrual and real) for managers of Chinese listed companies involved in M&As during crisis.

Most of the studies have examined earnings management in developed countries such as the United States, Japan, and Canada, while the tendency has recently shifted to the emerging markets, especially towards China due to its significant development in the capital market. The earnings management in China apparently distinguishes from that in the United States on account of the tight political and economic relationship between listed companies and the local government and condensed ownership within listed companies (Yang et al, 2012). The majority of previous studies focus on earnings management that arise before specific operating events, such as IPO, Seasoned Equity Offerings (SEOs), and import relief (Jones, 1991; Aharony et al, 2000; Cohen and Zarowin, 2010). At the same time, there are relatively fewer studies, which have investigated the earnings management when the company intends to do M&As (Erickson and Wang, 1999; Louis, 2004; Higgins, 2012). Overall, academics have shown its interest in earnings management in the context of M&As. During their research, they either treat the acquiring firm or target firm as an objective or look at the effect of certain variables, for instance the payment of takeovers and ownership structure (Botsari and Meeks, 2008; Claude et al, 2012). Nevertheless, most scholars detect the accrual-based earnings management and do not pay much attention to real earnings management. In terms of Chinese listed companies, the pertinent literature is limited that demonstrates the existence of accrual-based earnings management in stock for stock M&As (Chen et al, 2008). Thus, there is a gap in the literature regarding which types of earnings management are preferred by the firms engaged in M&As in China.

The landscape of M&As has changed during the global financial crisis. Chance is given to the emerging markets mainly to the main BRIC countries (Brazil, Russia, India and China) as there exist new identifiable takeover targets (Grave et al, 2012). M&As are very popular in the United States, Europe and Japan, but those world’s largest consumer markets have witnessed a radical shift during crisis (Tang and Metalli, 2012). In response to the financial turmoil, acquiring firms diversify their investment by aiming at growth beyond their domestic regions. The financial tsunami not only has affected the consumer markets, but also has caused a sluggish capital market so that it becomes much difficult for firms to finance any new or existing projects. Under the unfavorable economic environment, an incentive to manipulate earnings is facilitated. In the study of Asian financial crisis in 1997, Chia et al. (2007) find that managers have engaged in decreased-earnings management in Singapore’s service industry. The rationale behind this phenomenon is that stakeholders are fully prepared to take losses in financial crisis as long as the company can indicate relative evidence in progressive financial performance in the future. Consequently, managers seize this opportunity to decrease their earnings properly in order to window-dress profit in the future. However, it is hard to find any further study related to earnings management in the context of M&As during financial crisis especially on China. We bridge this gap in the literature by examining the impact of M&As on types of earnings management during crisis.

*2.2 Hypotheses Development*

In China, the first M&A activity occurred considerably late than other counterparties around the world. Because of sluggish social-economic system and reform of state-owned companies, the Chinese M&As activities still remain in infant stage until 1987. In 2007, when financial tsunami sweeps around the world, albeit with some regional diversity, an overall steep decline in global M&As is observed on average deal value and volume and it continues until 2012 (Bloomberg, 2014). The global M&As deal volume shrinks dramatically from 31,757 transactions in 2007 to 23,047 in 2008. In the meantime, global M&As deal value drops more than 41% to $1.56 trillion in 2008 compared to $2.67 trillion in 2007 (Wilmerhale, 2009). However, later M&As market has recovered step by step. In 2014, global M&As deal value has reached $3.6 trillion compared to $2.85 trillion in 2013. China’s M&As attain the new record in 2014 as well, both in terms of deal volume (6,899) and their deal value ($407 billion) (PwC, 2015). Chinese government begins to promote favorable policies to M&As happening after the financial crisis. Particularly in 2009, the first loan of M&As is approved by Beijing (Xiao, 2014). It is a historical moment in Chinese M&As activities to demonstrate the government’s positive attitude towards Chinese M&As market (Xiao, 2014). Meanwhile, the two major policy-related banks such as China Development Bank and Export-Import Bank of China specially establish policies to support corporate investments (Tang and Metwali, 2012). A stable growth is observed in the Chinese domestic M&As as firms with favorable policies seek to enhance their corporate value by using M&A strategy. Based on these conditions, our study predicts that the majority of domestic M&As in China has witnessed the healthy growth during the financial crisis. Based on these arguments we test the following hypothesis:

*H1a: Domestic M&As have positive growth during the financial crisis.*

There is no doubt that the financial crisis has hit the global M&As market. The year 2000 is an acme for the fifth M&A wave and then with the constant growth about five years from 2003, M&As activities eventually show another peak in 2007. Conversely, international takeovers have experienced a significant increase by 2005 whose cross-border takeovers and outbound investment make up 30% of the whole M&As (Grave et al, 2012). In 2014, global cross-border M&As is $1.1 trillion greater than $775.3 billion in 2013, which is over the third of the whole global M&As (Thomson Reuters, 2014). By analyzing the impact on acquiring and target firms from cross-border M&As in the United Kingdom, Danbolt and Maciver (2012) find that both acquiring and target firms benefit more than compete with similar domestic mergers and the rate of return of acquiring and target firms are 1.5% and 10.1% respectively. By the end of 2008, when the financial tsunami affects the majority of global economic entities, it still creates a valuable chance for Chinese listed companies to implement cross-border M&As. Firstly, after the market begin to open up to foreign investors on China’s accession to the World Trade Organization in 2001, National Development and Reform Commission, Commerce Department has launched the *going out* strategy. Secondly, compared to other foreign countries, China appear to be less affected in global financial crisis and its economic growth remain bullish and there remain an appreciation of Renminbi. Furthermore, after several years of trade surpluses, the foreign exchange reserves in China have attained totaling $1,905.59 billion by September 2008 (Chen and Young, 2009). In addition, many foreign companies have to dispose their duplicate assets to enhance their liquidity, such as assets sale of Chrysler, Lehman’s bankruptcy and Fannie Mae, Freddie Mac owned by state. As a consequence, the prices of their assets go down and decrease their liquidity and financial flexibility. Foreign companies and relevant government departments are exhausted with raising funds so they reduce the political obstacles and implicit cost when they deal with relatively cash-rich cross-border M&As. The capital market witneses cash-rich China and make strategic decisions during the financial crisis for mass expansion across continents. According to China’s Commerce Ministry estimates, the annual growth rate from 2011 to 2015 for China’s outward Foreign Direct Investment (FDI) on average is estimated to remain around 17%, and the accumulative volume in these five years is expected to achieve $560 billion (Tang and Metalli, 2012). Most importantly, cross-border M&As have become a dominant trend of international market entry for Chinese firms (Chen and Young 2010). Another milestone to boost potential growth of cross-border M&As in China comes in December 2006 when the Organization for Economic Co-operation and Development (OECD) publishes favorable policies towards cross-border M&As (Grave et al, 2012). Based on the above arguments, we test the following:

*H1b: There exist less number of cross-border M&As before the financial crisis compared to the post-financial crisis period.*

In 2007, the outbreak of sub-prime credit crisis in the USA affects the real economy and employment market, and it also triggers the global financial crisis (Thomas et al, 2011). At the same time, the economy of European Union has suffered its continuous downturn due to the European debt crisis. Under such difficult economic environment, earnings management may still be an instrument to influence earnings or to lessen the value destruction (Chia et al., 2007). Mollik et al. (2013) examine 149 firms in Australia from 2006 to 2009. They find that most of firms have witnessed a systematic decline in profits attributed to the impact of macroeconomic shocks rather than their poor corporate governance. Australian firms use more income-decreasing earnings management during the financial crisis than before by conducting discretionary accruals (Mollik et al., 2013). A recent study by Thomas et al. (2011) on a sample of 10,406 companies over nine Asian countries from 1995 to 2000 finds that during the Asian financial crisis in 1997 when external operating environment has endured the changes, managers have incentives to increase the earnings management to minimize the impact on financial performance, which similarly occurs in the emerging market. The value of discretionary accruals shows a significant fall during the financial crisis, whereas there is no obvious dramatic fluctuation in operating cash flows or non-discretionary accruals. Financial crisis not only influences the development of economy, but also provokes a series of adjustments in accounting standards. In 2008, International Accounting Standards Board (IASB) issues the amendment, *Reclassification of Financial Assets* that aims at the IAS 39 (*Financial Instruments: Recognition and Measurement*) and the IFRS 7 (*Financial Instruments: Disclosures*). In China, A new *Enterprise Accounting Standards: Basic Standards* is implemented in 2007 for all Chinese listed companies issued by Ministry of Finance of China. Firms linked to low efficient supervision have engaged in aggressive accrual-based earnings management than the one under the strict scrutiny (Chia et al, 2007). However, there is a high chance that with new strict accounting standards, accrual-based earnings management might be regulated and detected (Graham et al, 2005; Cohen et al, 2008; Zang, 2012). So, managers might have incentive to shift their decision away from accrual-based earnings management to real earnings management after the passage of the accounting regulations. Thus, in the following hypothesis we test the change in the preference of types of earnings management during crisis:

*H2a: For domestic M&As, managers prefer to use accrual-based earnings management and after the financial crisis they switch to real earnings management.*

Over the last decades, cross-border M&As have demonstrated their potential aggressive growth and have increased healthily since the financial crisis (Thomson Reuters, 2014). Multinational companies have always played an important role in cross-border M&As. During the financial crisis multinational companies have an overall better performance than their local rivals, even though the considerable heterogeneity connects to the FDI (Alfaro and Chen, 2010). However, changes in external conditions may trigger or magnify managerial motivation to engage in earnings management. Empirical studies imply that managers with lager excessive free cash flow in hand go for empire building to increase the size of the firm (Jensen and Ruback, 1983) rather than returning them to shareholders (Grave et al, 2012). The US acquirers are more likely to engage in income-increasing accrual-based earnings management to reduce the capital cost in stock for stock cross-border M&As during the financial crisis, especially when they encounter high information asymmetry in the target country (Baik et al, 2009). In China, cross-border M&As are seen as a fast track that offer an international comparative stage for Chinese listed companies. The main advantages of cross-border M&As are reflected in three aspects (1) to open up overseas markets including market expansion and cross-trade barriers; (2) to shake off the unfavorable situation, such as supply shortage and reduce costs; and (3) to enhance competition in technology (Wang, 2008). According to Bloomberg (2014), compared to domestic M&As, most Chinese cross-border M&As are trade in cash, and the small percentage of takeovers are in the stock-swap, which can influence lower possibility in accruals-based earnings management (Erickson and Wang, 1999; Louis, 2004; Higgins, 2012). Another difference between domestic M&As and cross-border M&As is that the majority of acquiring firms involved in cross-border M&As are state-owned enterprises (Xiao, 2014). These firms face more stringent legal risks and are under strict scrutiny when they implement M&As. So they may not prefer accrual-based earnings management, as it is easily detectable by the accounting watch-dogs (Dechow, 2002; Cohen and Zarowin, 2010). Because of these different characteristics of domestic and cross-border M&As in China, we assume that there is a high chance of real earnings management for cross-border M&As. Hence, we test following:

*H2b: During the financial crisis, most cross-border M&As are more inclined to use real earnings management than before.*

Below is the summary table, which shows the preference to earnings management for domestic and cross-border M&As respectively during the financial crisis.

|  |  |  |
| --- | --- | --- |
|  | **Before the Financial Crisis** | **After the Financial Crisis** |
| **Domestic M&As** | Accrual-based earnings management | Real earnings management |
| **Cross-border M&As** | Real earnings management | Real earnings management |

**3. Methodology**

*3.1 Sample*

In order to test our hypotheses, we collect data from China Stock Market and Accounting Research (CSMAR) database, which is widely used by researchers (e.g. Chen et al, 2008; Yang et al, 2012; Zhang, 2015). The additional required economic data are retrieved from the World Economic Outlook Database (WEOD). The initial sample is consisted of all M&As announced between 1st January 2004 and 31st December 2013 by Chinese listed companies. Based on previous research, managers manipulate earnings to maximize their benefits before the announcement date of M&As (Erickson and Wang, 1999). Therefore, we extend one year before the mentioned period to fully capture the financial performance of the sample firms. As a result, we find 5442 M&As in China during this 10 years’ time. We follow the existing literature and apply the following criteria to finalize the sample. First, the acquirer firms must be listed for 3 years in Shanghai or Shenzhen A-stock market before they engage in M&As, otherwise the financial data is not entirely covered (Chen et al, 2008; Yang et al, 2012, Zhang, 2015). Secondly, we exclude acquirers belong to financial industry whose industry code start with “J” under the industry category release by the Chinese Securities Regulatory Commission. The reason behind this exclusion attributes to the different financial reporting requirement and more strict regulations, which might bias the analysis (see Botsari and Meeks, 2007). Then, the acquirer should not be in the special treatment (ST) category. In such a special situation, their financial performance is not representative so, we eliminate all the firms containing ST in their names. Following Xiao (2014) and Zhang (2015), if the firms have completed more than one M&A or takeover in current year, we choose the one with the largest amount. Finally, it is important to require at least 10 qualified firms for each industry to measure earnings management (Cohen et al., 2008; Zhang, 2015). We exclude some other firms because of lack of required financial data in CSMAR. All the continuous variables are winsorized at the top and bottom 1% of their distribution to avoid outliers. Finally, we obtain an unbalanced panel data of 1948 qualified observations during the sample 10 years time. The differences in number of companies for each year ascribes to the screening process. It is noteworthy to mention that there is a remarkable increase in M&As after 2008 which is mainly for the favourable policies in foreign investment and takeovers (Tang and Metawlli, 2012). The number of takeovers reaches the peak in 2013 which is 784.

*3.2 Variable description*

*3.2.1 Earnings management measurement*

Two types of earnings management measures are used in this study: accrual-based earnings management and real earnings management. Following Dechow et al., (1995), we use the modified cross-sectional Jones model to compute the discretionary accruals. The measure is as follows:

(1)

Here, Asseti,t-1 represents the total assets (CSMAR item asset) of the firm i for the fiscal year t-1. ∆REVi,t is the difference of revenue (CSMAR item revenue) between year t and the previous year t-1. PPEi,t (CSMAR item PPE) is the net value of property, plant and equipment for the year t.

Total accrual (TAi,t) is equal to the difference between the net income (NIi,t, CSMAR item NI) for the year t and the cash flows from the operation activities (CFOi,t,CSMAR item CFO). Taking assets as a denominator can eliminate the effect of the size of the firm. The formula is as below:

(2)

In particular, for each industry and year, the value of total accruals is obtained by estimating the Equation (2) will be plugged into equation (1) to get the estimated parameter. Then, the model for estimated non-discretionary accruals (NDAI,t) for the year t is:

(3)

In the next step, we subtract the non-discretionary accruals (NDA) from the total accruals. Discretionary accruals (DA1) is derived from the Equation (4). The larger value of DA1 indicates that managers involve in more accrual-based earnings management.

DA1i,t = NDAI,t  (4)

In Equitation (1), while estimating total asset, we ignore the discretionary choice related to revenue recognition. According to Geert et al., (2015), there is an alternative approach to measure discretionary accrual by using the following equation in the first stage.

(5)

Where ∆RECi,t is the change from the previous year t-1 and the year t in the net receivables (CSMAR item receivables). We also develop our second equation as follows:

(6)

Then, we obtain the second measures of discretionary accrual (DA2), using the same equitation (4) as before.

In terms of real earnings management, we construct three proxies based on the prior literature (Roychowdhury, 2006; Graham et al, 2005; Zang, 2012). Looking at operating level, companies engage in real earnings management to reveal the following characteristics: abnormally low cash flows from operations (CFO), abnormally low discretionary expenses (DE) and/or abnormally high production costs (PC) (Geert et al, 2015). Therefore, the first proxy is the abnormal level of cash flows from operation.

(7)

The rationale behind this model is that managers temporarily increase prices discounts or more lenient credit terms in light of generating abnormal levels of cash flows from operations. As, Roychowdhury (2006) and Cohen et al (2008) suggest that there is a liner relationship among CFO, sales (CSMAR, item Sale) and the changes in sales for the year t. For each industry and year, we perform cross-sectional regressions by real CFO to get the estimated coefficient. Once it is obtained, normal CFO can be measured by Equation (7) again. The abnormal CFO is defined as a variable RM\_CFO, which is the difference between the real CFO and the estimated normal CFO. Thus, the lower value of this proxy implies more real earnings management.

The second proxy for real earnings management is the abnormal levels of discretionary expenses (RM\_DE), which is generated due to reduce discretionary expenses, for instance: advertising, research and development, administrative expense. Chinese listed companies do not report the research and development cost, advertising expenses separately, instead they merge them into the sales expenses (CSMAR, item Sales Expenses) and administrative expenses (CSMAR, item Admin Expenses). Discretionary expenses are the sum of sales and administrative expense in this paper. Managers can increase the current cash flows and achieve more earnings by reducing discretionary expenses so that the lower value of this proxy means more real earnings management involved. The model to measure the normal DE is as follows:

(8)

To capture the normal DE, we follow the similar step use in computing the normal CFO. Then, the abnormal DE is the difference between the real DE and normal DE, which is estimated from the Equation (8).

The last proxy for real earnings management is the abnormal level of production costs (RM\_PC), which is the summation of cost of good sales (COGS) and changes in inventory (INV). If managers overproduce than required, they can reduce fixed cost per unit by distributing fixed overhead costs among a large amount of products. However, at the sales level, CFO declines because of the higher overproduction and it eventually increases the annual production cost related to sales. Real production cost is the sum of cost of good sales (CSMAR, item Cost of Sales) and changes in inventory (CSMAR, item Inventory). Following are the liner functions to present the relationship between COGS and sales, ∆INV and sales.

(9)

(10)

Combining the above two equations, the normal production cost is estimated as follows:

(11)

Similar to first two proxies, we run cross-sectional regressions by industry and year and keep at least 10 firms for each industry-year. The abnormal PC is the difference between the real PC and normal PC. The higher value of RM\_PC signals more real earnings management. In addition, we create two dummy proxies to evaluate accrual-based and real earnings management separately. Based on those two dummy variables, types of earnings management for different types of mergers are examined. The dummy variable D\_ACCRUAL captures the effect of accrual-based earnings management by two measures of discretionary accruals. Following Geert et al (2015), D\_ACCRUAL of a firm in year t is 1 when both measures of accrual-based earnings management, in this case DA1 and DA2 are both above the industry-year median, and 0 otherwise. A value of 1 indicates that a firm is more likely to use accrual-based earnings management than the lower half of the sample. Then we create a proxy for real earnings management by the sum of RM\_PC, the reversed value of RM\_CFO and RM\_DE. Dummy variable D\_RAEL is equal to 1 if the proxy is above the industry-year median, and 0 otherwise. A value of 1 implies that a firm is more likely to manipulate earnings by any real measures, which is than half of the sample (Geert et al, 2015).

*3.2.2 Other variables*

To test, the types of M&A before and after the financial crisis, the dependent variable in the first hypothesis is a dummy variable of M&As (TYPE\_MA). A value of 1 indicates that the firm is involved in the domestic takeovers, otherwise it equal to 0 if the firm takes part in the cross-border takeovers. The independent variable is dummy crisis (D\_CRISIS). A value of 0 indicates that the M&As happen before the financial crisis (2004-2007), and 1 for M&As taking place from 2008 to 2013. 2008-2013 is indicated as financial crisis in this study. Following the relevant existing literature (Dechow et al, 1995; Cohen et al, 2008; Geert et al, 2015), we control for several variables. At country level, we control for inflation and risk free rate (Grave et al., 2012). INFILATION is a proxy for the business cycle and captures the fluctuations in economic activities (Chaney et al, 2011). It obviously has an impact on companies’ financial decision, which can affect the percentage changes in country’s average consumer prices (Geert et al, 2015). Risk free rate (RF\_RATE) is a signal for market participants to invest, either in the domestic or cross-border (Alfaro and Chen, 2010) environment. These two indicators can be considered as an explanatory factors in M&As in that the favourable economic environment and interest rate may encourage investors and promote the market.

In the second hypothesis, to test the types of earnings management in different M&As before and after the financial crisis, we use the following as the dependent variables: DA, RM\_CFO, RM\_DE and RM\_PC, D\_ACCRUAL, D\_REAL (as defined above). Independent variables are TYPE\_MA and D\_CRISIS (explained before). Moreover, we construct another independent variable MA\_CRISIS which is an interaction term of TYPE\_MA and the D\_CRISIS. The value is 1, when firms undertake domestic takeovers after financial crisis, and in other scenarios it is equal to 0. Associated with earnings management literature (Cohen et al, 2008; Chen et al, 2008; Geert et al, 2015), we also include some control variables at the firm level such as leverage (LEVERAGE), return on assets (ROA), market-to-book (MTB) and total asset (SIZE), relative size (RE\_SIZE). Leverage is the non-current debt divided by the sum of the non-current debt and the equity, and MTB is the ratio of market equity to book equity of the firm. In order to control the size of the firm, SIZE is measured by the logarithm of total assets of the firm. RE\_SIZE is defined as the deal amount of M&As as percentage of total assets to eliminate the size of the takeover. ROA is a common financial ratio to present the profitability of the firm related to opportunistic real earnings management. At the country level, gross domestic product per capita (GDP/CAP) and exchange rate to dollars (EX\_RATE) are introduced. Gross domestic product per capita (GDP/CAP) is an indicator of national economic growth. When the whole national economy is developing, it is supposed to influence the individual company’s financial decision, especially when the company deal with the significant amount of takeovers (Peng, 2006). According to Chaney et al. (2011), GDP/CAP is the natural log of the changes in GDP per CAP. WEOD provides two types of GDP/CAP. One is expressed in constant national currency and the other one is expressed in current national currency. The second expression is adopted in this paper. EX\_RATE is a signal of foreign currency risk especially when cross-border takeovers encounter information asymmetry (Xiao, 2014). According to Yang et al. (2012), Chinese listed firms are less likely to manipulate accruals through cash payment. Thus, a dummy variable named D\_CASH is equal to 1 if the firm use cash payment, and 0 otherwise. In addition, at the industry level, a dummy industry (D\_INDUSTRY) is generated to control the industry differences. Based on a distinction on the initial capital letter of industry code, the value of D\_INDUSTRY is given 1 if the acquire and the target firms are in the same industry, and 0 otherwise. Below is the summary table of all dependent, independent and control variables.

[Insert Table 3.1 about here]

*3.3 Models*

In this subsection, we explain the empirical model that we use in the empirical analysis of the study. To investigate the changes in types of M&As before and after financial crisis we use the following Probit model in this study.

(12)

The definitions of the variables remain same as before. We expect that after the financial crisis if China can maintain the bullish economic growth compared to other countries around the world, then the domestic M&As activities in China indeed show a stable growth. In addition, if Chinese firms can seize this chance to explore international markets, then the cross-border M&As also get a boost. Thus, we expect a significant negative coefficient of the variable dummy crisis in this model.

To test the second hypothesis, we use the seven measures of earnings management explained in the previous section. These mentioned measures are all dependent variables in the model. In order to examine the preference of earnings management in different M&As, the independent variable TYPE\_MA is introduced in the following model. Furthermore, we divide the sample into two groups: before financial crisis and after financial crisis and run Equation (13) for both of them. In general, if cross-border M&As face more strict scrutiny than domestic takeovers, we assume cross-border takeovers prefer real earnings management and many domestic M&As will engage in accrual-based earnings management. We expect a significant positive coefficient for TYPE\_MA when accrual-based management is measured by abnormal discretionary expenses. When real management is measured by abnormal operating cash flows and discretionary expenses, the expected coefficient of TYPE\_MA should be significantly negative and it should be significantly positive when measured by production cost. We separately check the differences of coefficients form two groups. In the full sample test over the periods we introduce the interaction term MA\_CRISIS. The 2008 world financial tsunami not only promote strict scrutiny for Chinese firms but also brings in new regulations to protect the market for future. The mentioned changes motivate us to expect that firms related to domestic M&As will switch to real earnings management after 2008 and firms associated with cross-border takeovers still prefer to do real earnings management. Thus, we assume the coefficient on MA\_CRISIS in Equation (14) should be significantly negative when real earnings management is measured by abnormal operating cash flows and abnormal discretionary expenses. When real earnings management is measured by abnormal production costs, the coefficient of MA\_CRISIS should be significantly positive and in terms of accrual-based earnings management the coefficient should not be significantly positive.

We start our analysis with Ordinary Least Square (OLS) regression but because of the specific assumptions of the method we cannot capture the impact of M&As on types of earnings management during crisis. So, we use advance econometric modelling to do the empirical test in this study. As our sample data is a panel, we acknowledge the individual heterogeneity by using fixed and random effects in the following way. In fixed effect model, it assumes that the independent variables, in our case TYPE\_MA is correlated to heterogeneous term. While in random effect model, the independent variables are assumed to be unrelated to heterogeneity item. We do Hausman test to check the validity of the models.

EM\_Measures=α1+α2TYPE\_MA+α3LEV+α4MTB+α5SIZE+α6RE\_SIZE+α7ROA+α8D\_CASH+α9D\_INDUSTRYR+α10 (GDP/CAP)+α11 EX\_RATE+ **ε** (13)

EM\_Measures=α1+α2MA\_CRISIS+α3LEV+α4MTB+α5SIZE+α6RE\_SIZE+α7ROA+α8D\_CASH+α9D\_INDUSTRYR+α10 (GDP/CAP)+α11 EX\_RATE+ **ε** (14)

*3.4 Empirical Findings*

*3.4.1. Summary statistics*

Panel A of Table 3.2 reports sample characteristic for 1948 Chinese acquiring firms. The average value for accrual-based earnings management (DA1) is -0.00985 with a standard deviation of 0.055; DA2 is -0.00989 with a standard deviation of 0.053. The medians of these proxies are -0.0159 and -0.0152 indicating the decreasing-earnings and also a preference of mainly accrual-based earnings management among these firms. For real earnings management, the mean of RM\_CFO, RM\_DE and RM\_PC are 0.0613, -0.01106 and 0.06372 respectively. The median of those proxies are 0.0595, -0.0101 and0.0460. The relatively low value of RM\_CFO and RM\_DE with relatively high RM\_PC imply that there is a real earnings management in corporate activities, which is consistent with previous studies (Zhang, 2015). The average of the dummy accrual (D\_ACCRUAL) and dummy real(D\_REAL) variables are 0.9748 and 0.5910 respectively, which imply that accrual-based earnings management is a better option than real earnings management. To find the further summary statistics, we separate full sample to domestic group and cross-border group.

Panel B of Table 3.2 presents the descriptive statistics for domestic takeovers. Compared to previous sample the average and standard deviation of accrual-based proxies (DA1 and DA2) are similar for the full sample. The average for DA1 and DA2 are -0.00987 and -0.00987 with a standard deviation of 0.055 and 0.054 respectively. Even for real earnings management, we observe a similar mean as before. As the majority of the full sample consists with domestic takeovers (1859), so it can explain why there is a slight difference between full sample and domestic group.

In panel C of Table 3.2, we report summary statistics for 88 cross-border takeovers. DA1 is marginally higher than previous groups as the average is -0.00945 and the standard deviation is 0.053. However DA2 is marginally lower than pervious groups as the average is -0.01035 and standard deviation is 0.054. Proxies for real earnings management still keep in same range. The mean of RM\_CFO and RM\_DE are slightly higher: 0.0670 and -0.01086. In contrast, RM\_PC get a slightly lower value of 0.05910. In a word, the difference in mean and median among there groups is not obvious. The dominance of domestic takeovers may potentially attribute to this issue.

[Insert Table 3.2 about here]

*3.4.2 Correlation matrix of main variables*

Table 3.3 describes the Pearson pairwise correlations between main variables use in the main models. Similarly, Panel A reports the results from the full sample and Panel B and Panel C contain information from the domestic group and the cross-border group respectively. As expected, the correlation between two proxies of accrual-based earnings management and RM\_CFO from real earnings management are significantly negative in three groups. Conversely, the correlation between proxies of accrual-based earnings management and RM\_DE are significantly positive in three samples. Interestingly enough, proxies of accrual-based earnings management show positive relation with RM\_PC in full sample and domestic groups while there is a negative relation between them in cross-border takeovers. Consistent with prior literature (Cohen et al., 2008; Zang, 2012, Geert et al., 2015), firms appear to exercise accrual-based and real earnings management alternatively when it is related to cash flows from operation and production cost. The highest negative correlation between DA and RM\_CFO, RM\_PC are seen in the cross-border M&As and they are -0.5544, -0.5778, -0.1075 and -0.1309, respectively. From the results we could say that firms have engaged in accrual-based earnings management and also have incentives to manipulate discretionary expenses (Cohen, 2008; Zang, 2012, Geert et al., 2015). The significant relationship among the proxies of real earnings management intimates that firms can adopt real earnings management by several operating methods. In addition, when constructing the comprehensive proxies for earnings management, we observe that most firms have either 1 for D\_ACCRUAL or 1 for D\_REAL that indicates that they have engaged in one of earnings management at that point. The correlation between the dummy proxy for accrual-based earnings management and comprehensive proxy for real earnings management supports that in full sample these two methods are alternatively used as they are statistically significant in the 1% level. However, we also notice that some firms have 1 or 0 for two comprehensive proxies, which implies that two types of earnings management occurred in the same firm.

[Insert Table 3.3 about here]

*3.4.3 Multivariable analyses*

Our sample consists of qualified M&As between 2004 and 2013. There are 1948 observations, which is distributed in the following years as follows: 2004(151), 2005(95), 2006(137), 2007(238), 2008(245), and 2009(225), 2010 (235), 2011(208), 2012(215), 2013(199). Figure 3.1 presents the number of M&As during these ten years. There is no doubt that domestic takeovers are the majority part and play a curial role in M&As activities. Correspondingly, cross-border takeovers have been growing for this period and just occupy a small percentage of whole pie. According to Figure 3.2, it demonstrates the clear tendency of M&As activities from 2004 to 2013. In 2004, the total number of takeovers in our sample is 151 that is lower than other developing countries at that time (Xiao, 2014). M&As activities have suffered the dramatically decline in 2005 due to changes in China stock and capital markets. Until 2008, investors and corporate managers have strong confidence in Chinese M&As markets. Within four years, the number of takeovers has incredibly risen from 95 to 245. Since affected by the global financial crisis, the trade of M&As is not as strong as before and presents its weakness from 2008 to 2013 while the average of volume still has maintained in a higher level compared before 2006. However, during these ten years, cross-border M&As are always steadily developing even though it is only the small part. We exercise multivariate analysis to further examine the relation between types of M&As and financial crisis. Panel A of Table 3.4 states the results of Probit regression analysis. We model D\_CRISIS as a function of TYPE\_MA, controlling inflation and risk free rate. The coefficient on dummy crisis is significantly negative at the one-percent level, suggesting that the development of domestic takeovers is stronger before financial crisis than after. When dummy crisis, the independent variable increase 1 unit, the likelihood of domestic takeovers will decrease 3.78% by calculating the marginal effect of regression. To the contrary, there is a parallel movement between financial crisis and cross-border takeovers. When a dummy crisis is more likely to indicate after financial crisis period, the likelihood of cross-border takeovers will increase 3.78%. The outcomes from regression is consistent with the conclusions that is directly drawn from the Figure 3.1 and Figure 3.2. Overall, both of them support our first hypothesis that domestic takeovers reveal the bullish growth before financial crisis and stabilize during financial crisis. As cross-border takeovers keep increasing, there are more cross-border takeovers after 2008.

[Insert Figure 3.1 and Figure 3.2 about here]

[Insert Table 3.4 about here]

Table 3.5 reports the results of the regression analyses for the hypothesized relation between accrual-based earnings management and types of M&As, real earnings management and types of M&A, and proxies of earnings management and types of M&As. In order to distinguish the changes in different time period, we separated full sample into two groups: observations before financial crisis and observations after the financial crisis. Meanwhile we also consider the fixed and random effect respectively.

[Insert Table 3.5 about here]

Panel A of Table 3.5 shows positive associations between accrual-based earnings management and types of M&As as well as negative associations between real earnings management and types of M&As when it is measured by cash flows from operation before financial crisis. After checking all the P-values in the Hausman test, we rejected the null hypothesis at the 1% level that independent variables have no correlation with heterogeneity term so that we adopt the OLS regressions with fixed in regression of comprehensive proxies of real earnings management. We accept the random effect in the rest of our regressions. Adjusted R square for all regressions is acceptable between 1% and 13% which is comparable with the exiting literature (Cohen et al., 2008; Ferreira et al., 2010; Zhang, 2015). The coefficients on TYPE\_MA of DA1 and DA2 (0.068 and 0.064) proves that accrual-based earnings management has been used more frequently in domestic than cross-border takeovers before financial crisis. Whereas, it can’t be ignored that coefficient on RM\_CFO (-0.038) critically attest that real earnings management is more conducted in cross-border than domestic takeovers before financial crisis. Furthermore, by noticing the comprehensive proxies of earnings management, D\_ACCRUAL (0.012) and D\_REAL (-0.291) we prove that domestic takeovers incline toward accrual-based earnings management while real earnings management is more prominent in cross-border takeovers before financial crisis.

Panel B of Table 3.5 focuses on the relation between earnings management measures and types of M&As in the period of after financial crisis. Similarly, based on the high P-value in Hausuman test above 0.05, we choose the OLS regressions with random effect when dependent variables are detected by earnings management measures. The rest of them are suitable for OLS regression with fixed effect. First, both coefficient on TYPE\_MA of proxies for accrual-based earnings management is not significant. Therefore, they have no power to statistically support that accrual-based earnings management is widely used in both domestic and cross-border takeovers after the financial crisis. Nevertheless, coefficient on TYPE\_MA of RM\_DE and RM\_PC represented real earnings management are significant at the 10% and 5% level respectively. On the one hand, the negative coefficient (-0.001) in regression of RM\_DE indicates that managers in cross-border takeovers have manipulated more discretionary expense to adjust earnings than they do in domestic takeovers. On the other hand, the positive coefficient (0.012) on TYPE\_MA of RM\_PC signals that there is more abnormal production cost in domestic than cross-border takeovers. The results jointly disclose the dominance of real earnings management to alter earnings in the context of M&As activities after the financial crisis. Correspondingly, the results from D\_ACCRUAL doesn’t provide a hint of obvious existence of accrual-based earnings management in takeovers after financial crisis. Whereas, the negative coefficient of D\_REAL supports that real earnings management has revealed in cross-border more than domestic takeovers. Overall, these findings evince that managers in domestic takeovers are more inclined to substitute the real earnings management for accrual-based earnings management after financial crisis; while in cross-border takeovers, managers still stick with real earnings management during financial crisis. It is compatible with our hypothesis.

Finally, to shed further light on which types of M&As are more likely to engage in accrual-based or real earnings management on account of changes brought by the financial crisis, we estimate the interaction term MA\_CRISIS as a dependent variable. Panel A of Table 3.6 reports interaction effects of earnings management with types of M&A and dummy crisis. The interaction with both DA1 and DA2 significantly negative with random effect: -0.0042 and -0.0046 chosen by Hausamn test. Panel A also evaluates a significant association for the interactions between M&As activities during financial crisis and real earnings management when it is measured by using RM\_CFO and RM\_PC. The magnitude of the coefficient of D\_REAL also implies statistically positive significance while D\_ACCRUAL is negative but not significant. Consistent with our expectations, these results demonstrate that managers are less inclined to accrual-based earnings management when they deal with domestic takeovers after financial crisis. As an alternative, when they exercise real earnings management in cross-border takeovers, they are more likely to alter cash flows from operation or/and increase abnormal production cost. Besides, the significance of comprehensive proxy D\_REAL supports the conclusion by showing the tendency from accrual-based to real earnings management during the financial crisis.

[Insert Table 3.6 about here]

*3.5 Robustness test*

To check whether our results are robust in two groups based on changes in specific time period, we separated the full sample from new perspective: domestic takeovers and cross-border takeovers. Then we repeat our analyses taking a dummy crisis as our main independent variables. First, in Panel A1 of Table 3.7, we examine the relationship between proxies of earnings management and financial crisis. The negative coefficients on dummy crisis of DA1 (-0.0250) and DA2 (-0.0252) statistically verify at the 1% level that domestic takeovers have been involved less in accrual-based earnings after financial crisis. However, by controlling abnormal cash flows from operation and production cost, managers have engaged in more real earnings management in domestic takeovers after financial crisis. It is supported by significant coefficient of RM\_CFO and RM\_PC. The coefficient of the dummy crisis of D\_AACRUAL is negative as we expected and is not significant enough. The relation between dummy crisis and D\_REAL is positive and powerfully indicates that choice of real earnings management is strong with changes in financial crisis. Hence, results from this table confirm our conclusion in the previous subsection that managers switch from accrual-based earnings management to real earnings management during financial crises in domestic takeovers. Secondly, Panel A2 of Table 3.7 reports the association between proxies of earnings management and financial crisis in cross-border takeovers. In this particular group, no surprisingly, the significant coefficient on dummy crisis is found in proxies of real earnings management. Managers in cross-border takeovers favour the manipulation in cash flows from operation before financial crisis through the significantly negative sign of RM\_CFO. After a financial crisis, they alter production cost to adjust earning that is inferred from the significantly positive coefficient of RM\_PC. Additionally, the coefficient of D\_REAL (0.5370) statistically strengthen our settlements. On the whole, our results are robust with regard to the different methods of the sample classification.

[Insert Table 3.7 about here]

Consequently, our results from regressions with fixed effect can potentially be confounded by the endogenous nature of the types of M&As, which is the independent variable in equitation (13). Since it is an explanatory variable, some determinants are likely to affect the domestic or cross-border takeover. Furthermore, it will influence the accuracy of our regressions. It is crucial to address endogeneity issue to avoid the main assumption regarding the properties of the error terms. Therefore, we consider the two-stage least-squares (2SLS) by adding the instrumental variables in our regressions for additional robustness test. Specifically, instrumental variables drive the exogenous terms of types of M&As to explain earnings management. Selected instrument variables should have power to influence the choice of M&As while unrelated to the current-year earnings management not matter whether they are accrual-based or real. Following Ferreira et al. (2012), we include three instrument variables. First, the local stock market return is included as investors can be stimulated by local market valuation waves. Next, we control the level of openness of the economy that is computed as the ratio of the sum of export and imports to GDP. Last, we consider for specific aspects of economic development: the importance of the stock market measured by market capitalization divided by GDP. All instrumental variables are valid after checking that the covariance on instrumental variables of independent variables are not equal to zero (reported in Panel C of Table 8). Next, in first-stage regression, three instrumental variables are used to be dependent variable with TYPE\_MA. In the second-stage regressions, we take the estimated TYPE\_MA from the first-stage as an independent variable to our baseline regressions with previous proxies of earnings management. Panel A of Table 3.8 attests the relation between types of M&A and financial crisis. In the group before the financial crisis, the coefficients on TYPE\_MA in seven regressions are still meaningful; moreover RM\_CFO improves its significance at the 1% level. In the group of after financial crisis, the interpretation and significance of coefficient on TYPE\_MA in all regression have been maintained as before. This provides evidence that impact of types of M&As on types of earnings management during financial crisis is robust to controlling self-selectivity. Similarly, Panel B of Table 8 reports the connection between MA\_CRISIS and all proxies of earnings management. The relationship between MA\_CRISIS and DA1 become more powerful and other coefficients on interaction term preserve in the same range. The findings of this additional examination indicate that previous analysis of association for interaction term and earnings management is unbiased. In general, as none of the robustness tests vary our prior conclusions, we are confident about our findings from qualitatively perspective.

[Insert Table 3.8 about here]

**4. Conclusion**

In this paper, we hypothesize the relation between types of mergers and acquisition (M&A) and choices of earnings management during financial crisis. More specifically, we argue that managers in domestic takeovers are more inclined to substitute real earnings management for accrual-based earnings management than cross-border takeovers when they are affected by the financial crisis. The 2007 financial crisis is not the only factor that has changed the economic environment to force them to gloss over earnings; there is a need of higher secrecy due to new accounting and economic regulations after financial crisis. In addition, firms involved in cross-border takeovers have more incentives to use real earnings management to mask earnings since they have face much more juristic barriers, institutional and linguistic boundaries, challenges of culture (Reynolds and Teerikangas, 2015) etc. Our expectations are confirmed by the results of several different regression analyses, demonstrating that types of M&As alone with the tendency of financial crisis play a vital role in explaining variance in choices of earnings management. In changed economic setting, firms show their particular preference of earnings management strategies. Before financial crisis, acquiring firms in domestic M&As have engaged in more abnormal discretionary accruals. Instead, in the same period, the manipulation of cash flows from operation is more prominent in cross-border than domestic takeovers. Moreover, after financial crisis, bidders’ abnormal accruals are not significant as before instead of significantly lower abnormal discretionary expenses and higher abnormal production cost. All the signs state that acquiring firms in both of domestic and cross-borders takeovers have exercised more real earnings management than accrual-based earnings management. Our findings are robust to alternative measures and addressed the issue of endogeneity.

In this research, we support previous evidence of acquiring firms manipulating their earnings in M&As activities (Erickson and Wang, 1999; Shleifer and Vishny, 2003; Louis, 2004). Consistent with Zang (2012) and Geert et al. (2015), our findings indicate that firms change their preference in different earnings management strategies when they encounter various eco-political changes. Hence, diversity in earnings management cannot be fully covered by focusing on accrual-based earnings management only. Our findings also advocate that enhancing scrutiny and increasing constrains do not prevent earnings management, but to some extent may reduce the choice for accrual-based earnings management and increase the likelihood of real earnings management. Furthermore, considering the background of financial crisis, our findings assist to scholars’ expectations (Grave et al., 2012) that M&A activities have performed well for the last ten years and maintained an impressive level of trade even after financial crisis. In the end, we have detected both accrual-based and real earnings management around financial crisis. The results imply that managers in domestic takeovers switch accrual-based to real earnings management during financial crisis. In contrast, managers in cross-border takeovers prefer to engage in real earnings management during financial crisis. These results also have several important implications. In managerial level, the findings may help external capital providers or investors in evaluating the pervasiveness of earnings management and the faithfulness, integrity of financial statements of acquiring firms. In policy level, it is worthwhile for standard setters to reflect existing governance systems and accounting regulations including the disclosure requirements to enhance quality of financial statements particularly for the industry where earnings management is prevalent. The policy makers should also consider other advance policies to restrict the real earnings management as well.

This study has its own limitations. If we could avoid the data limitation then we could run our estimates on balanced panel for the two periods which may provide better understanding of the research question. Scholars argue that pure domestic M&As have become obsolete as they have been impacted by the afore-identified international variables (Reynolds and Teerikangas, 2015). We cannot capture this in our study. There is an underlying assumption in our empirical analysis that each types of M&As are uniformly related to choices of earnings management. Whereas, even within domestic or cross-border takeovers managers may still have different choices of earnings management. Consequently, in practice, accrual-based and real earnings management may be conducted together or alternatively, depending on the each firm’s own economic situation. Additionally, we only examine the level of earnings management and there are some aspects worth to be considered such as timeliness, value relevance and earnings conservatism (Dechow et al., 2010). Moreover, changes in the stock market in 2005 and reform in governance may moderate managers’ consideration of earnings management. In future studies we will try to address the above-mentioned issues and will try to consider corporate governance changes at international level to enrich our model.

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**Appendix 1**

***Definition of Merger, Consolidation and Acquisition***

Merger is a transaction where one company is assimilated by one or several companies with co-equal basis. As a result, the legal existence of target company will disappear; this can be expressed as A+B=A (Berkovitch and Narayanan, 1993). Similarly, consolidation is an action in which two different companies or more by merging create an entirely new company. There is no obvious distinction between the acquiring and the target company due to both parties terminate their original legal existence, expressed as A+B=C (Hillier, 2013). Consolidation is usually used as an alternative to merger. In a narrow sense, Hillier (2013) points out a slight difference between these two concepts. The starting point of consolidation is kind and friendly in general and also involve parties who are volunteer to reach agreements.

Acquisition is a strategy where acquiring firms buy assets or shares of the target company in order to gain control. Usually, acquiring firms can have absolute controlling power when it holds more than 50% shares of the target company. After acquisition, the target company still maintains its legal existence (Hillier, 2013).

**Appendix 2**

***Waves of M&As around the world and its development in China***

M&A is an approach used for business expansion and reasonable utilization of economic resources. Furthermore, it is an effective method to optimize the allocation in the capital market. By M&As, the core competitiveness of firms could be enhanced as well as the value of the firms. Even though there are different views about motives in M&As, an agreement among scholars is that the ultimate prospective of conducting M&As is creating positive value to the firm and seeking improved financial performance. In the real world, the ideal prospect is not always consistent with managers’ expectation. Jensen and Ruback (1983) look at changes in the abnormal return of firms’ stock price before and after takeovers. During their investigation, target firms will gain significant benefit from the successful M&As and acquiring firms do not lose. Whereas the rate of return will suffer decline from the failed M&As and the average decline is 3% of the target firm and 5% of the acquiring firm. Interestingly, Petmezas (2009) indicate that the positive reaction from market participants to M&As announcement just exists in the short-term. The optimistic beliefs in synergy of the combined firm will be substituted for the rational judgment based on the performance of the merged firm over the next one to three years. It might lead to negative post-returns in the long-term. In a word, M&As may not generate expected profit to the combined firm or, even worse, could hurt the shareholders’ value. But based on main motives like: synergy, agency problem and hubris (Berkovitch and Narayanan, 1993), we agree that managers still have a strong incentive to take part in M&As.

**Appendix 3**

***Types of earnings management***

According to previous studies (Cohen and Zarowin, 2010; Dechow et al., 2010), companies manipulate earnings by multiple earnings management strategies. Corresponding to accrual and real parts in financial statements, earnings management can be classified into two types: accrual-based earnings management and real earnings management (Kothari et al., 2012).

When managers aim to obscure true economic performance by choosing accounting policies from a series of accepted policies, accrual-based earnings management happens (Dechow and Skinner, 2000; Geert et al, 2015). The measure of discretionary accruals is indeed one of the most common methods to detect possible accrual-based earnings management. It separates the total accruals into discretionary and non-discretionary accruals. The concept of accruals refers to accounts on financial statements that represent liabilities and non-cash-based assets used in accrual-based accounting including payables, receivables, future tax liability and future interest expense, etc (McLaney and Atrill, 2014). In order to distinguish the discretionary and non-discretionary accruals, there are many economic models, like Healy (1985), DeAngelo (1986), Jones (1991) and modified Jones (Dechow et al, 1995), etc.

Real earnings management is a comparatively new strategy of earnings management. When managers desire to mislead at least some stockholders by real earnings management they alter expenditures, revenue and production cost. According to Graham et al (2005), the implementation of real earnings management is more expensive than accrual-based earnings management. Different from accrual-based earnings management, real earnings management directly influences the consequences of cash flows in the short-term and determinate economic value in the long-term (Geert et al, 2015). Apart from that, accrual-based earnings management is highly constrained by scrutiny from outsiders and the companies’ accounting flexibility. In other words, real earnings management is not easily detected by the existing auditing system and less subject to extensive controls and external monitoring by society. Accrual-based earning management is done at the end of the financial year but real earnings management can be exercised throughout the year (Zang ,2012). Therefore, some studies suggest that due to the lower cost, accrual-based earnings management is more prevalent in practices (Graham et al, 2005; Zang, 2012).

**Table 3.1. Main Variable Definitions**

|  |  |
| --- | --- |
| Variables names | Definition |
| DA | Discretionary accruals measured by the Modified Jones Model. |
| RM\_CFO | The level of abnormal cash flows from operations. |
| RM\_DE | The level of abnormal discretionary expenses, which is the sum of administrative and sale expenses. |
| RM\_PC | The level of abnormal production costs, which is the sum of the costs of goods sold and the changes in inventories. |
| D\_ACCURAL | A dummy proxy of accrual-based earning management that is equal to one if both of DA1 and DA2 are above the industry-year median, and zero otherwise. |
| D\_REAL | A dummy proxy of real earnings management that is equal to one if the sum of reversed CFO, DE and PC is above the industry-year median, and zero otherwise. |
| D\_CRISIS | A dummy variable that is equal to one if the takeover happen between the years from 2008 to 2013, and zero otherwise. |
| TYPE\_MA | A dummy variable that is equal to one if the takeover is domestic, and zero otherwise. |
| MA\_CRSIS | An interaction term that D\_CRISIS multiply the TYPE\_MA. |
| LEVERAGE | Non-current debt divided by the sum of non-current debt and equity. |
| MARKET\_TO\_BOOK | Then market capitalization to common equity. |
| ROA | Return on assets of the firm. |
| SIZE | The logarithm of total assets. |
| RE\_SIZE | The deal amount of takeover divided by total assets. |
| INFLATION | The logarithm of a country’s average percentage change in consumer prices |
| GDP/CAP | The logarithm of the changes in gross domestic product per capita. |
| RF\_RATE | Risk free rate that is available in CSAMR from 2004 to 2013. |
| EX\_RATE | Exchange rate for Renminbi to dollars that is available in CSAMR from 2004 to 2013. |
| D\_CASH | A dummy variable that is given to one if the takeover is paid by cash, and zero otherwise. |
| D\_INDUSTRY | A dummy variable that is given to one if the acquirer and the target firm are in the same industry, and zero otherwise. |
| OPENNESS | The ratio of the sum of export and imports to GDP. |
| STOCK RETURN | Local stock market return that is available in CSAMR from 2004 to 2013. |
| MARKET CAPITALIZATION | Market capitalization as the percentage of GDP from 2004 to 2013. |

**Table 3.2. Summary statistics for different sample group (2004-2013)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 3.2 Panel A(Full sample)** | | | Summary statistics | | | | |
| Variables | | Obs. | Mean | Median | Std.Dev | Min | Max |
| *Dependent variables* | | |  |  |  |  |  |
| DA1 |  | 1948 | -0.009855 | -0.015989 | 0.055059 | -0.287567 | 0.296477 |
| DA2 |  | 1948 | -0.009892 | -0.015160 | 0.053708 | -0.292847 | 0.295533 |
| RM\_CFO |  | 1948 | 0.061296 | 0.059482 | 0.057201 | -0.157597 | 0.654208 |
| RM\_DE |  | 1948 | -0.011068 | -0.010065 | 0.009209 | -0.208907 | 0.000903 |
| RM\_PC |  | 1948 | 0.063724 | 0.045983 | 0.075366 | -0.119765 | 1.167780 |
| D\_ACCRUAL | | 1948 | 0.974846 | 1.000000 | 0.156633 | 0.000000 | 1.000000 |
| D\_REAL |  | 1948 | 0.597023 | 1.000000 | 0.490622 | 0.000000 | 1.000000 |
| *Independent variables* | | | 0.013495 | -0.003433 |  |  |  |
| MA\_CRISIS | | 1948 | 0.523101 | 0.000000 | 0.499594 | 0.000000 | 1.000000 |
| DUMMY\_CRISIS | | 1948 | 0.555441 | 0.000000 | 0.497044 | 0.000000 | 1.000000 |
| TYPE\_MA | | 1948 | 0.954825 | 1.000000 | 0.207740 | 0.000000 | 1.000000 |
| *Control variables* | |  |  |  |  |  |  |
| LEVERAGE | | 1948 | 0.170457 | 0.126123 | 0.370819 | -13.406589 | 3.030547 |
| MTB |  | 1948 | 1.609264 | 1.119482 | 1.811544 | 0.105211 | 32.792261 |
| ROA |  | 1948 | 0.038516 | 0.032121 | 0.063262 | -0.585995 | 0.713431 |
| SIZE |  | 1948 | 9.560288 | 9.500745 | 0.529790 | 7.885456 | 11.937756 |
| RELATIVE\_SIZE | | 1948 | 0.169783 | 0.040033 | 2.674010 | -73.155581 | 26.518870 |
| DUMMY\_INDUSTRY | | 1948 | 0.671803 | 1.000000 | 0.469678 | 0.000000 | 1.000000 |
| DUMMY\_CASH | | 1948 | 0.882383 | 1.000000 | 0.322237 | 0.000000 | 1.000000 |
| INFLATION | | 10 | 3.182000 | 3.325000 | 1.947360 | -0.683000 | 5.900000 |
| GDP/CAP | | 10 | 3.532058 | 3.579841 | 0.205258 | 3.175570 | 3.844595 |
| RISK\_FREE RATE | | 10 | 3.338470 | 3.511667 | 1.168833 | 1.585833 | 5.139167 |
| EX\_RATE |  | 10 | 0.141240 | 0.143900 | 0.013639 | 0.120800 | 0.161500 |
| Note: See Table 1 for variable definitions. | | | | | | | |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 3.2 Panel B (Domestic)** | | | Summary statistics | | | | |
| Variables | | Obs. | Mean | Median | Std.Dev | Min | Max |
| *Dependent variables* | | |  |  |  |  |  |
| DA1 |  | 1860 | -0.009874 | -0.016312 | 0.055148 | -0.287567 | 0.296477 |
| DA2 |  | 1860 | -0.009870 | -0.015602 | 0.053703 | -0.292847 | 0.295533 |
| RM\_CFO |  | 1860 | 0.061025 | 0.059581 | 0.057046 | -0.157597 | 0.654208 |
| RM\_DE |  | 1860 | -0.011077 | -0.010054 | 0.009301 | -0.208907 | 0.000903 |
| RM\_PC |  | 1860 | 0.063942 | 0.045946 | 0.076407 | -0.119765 | 1.167780 |
| D\_ACCRUAL | | 1860 | 0.974194 | 1.000000 | 0.158600 | 0.000000 | 1.000000 |
| D\_REAL |  | 1860 | 0.594624 | 1.000000 | 0.491097 | 0.000000 | 1.000000 |
| *Independent variables* | | |  |  |  |  |  |
| MA\_CRISIS | | 1860 | 0.547849 | 1.000000 | 0.150291 | 0.000000 | 1.000000 |
| DUMMY\_CRISIS | | 1860 | 0.547849 | 1.000000 | 0.500284 | 0.000000 | 1.000000 |
| TYPE\_MA | | 1860 | 1.000000 | 1.000000 | 0.000000 | 1.000000 | 1.000000 |
| *Control variables* | |  |  |  |  |  |  |
| LEVERAGE | | 1860 | 0.171524 | 0.126723 | 0.378102 | -13.406589 | 3.030547 |
| MTB |  | 1860 | 1.603199 | 1.119482 | 1.793197 | 0.105211 | 32.792261 |
| ROA |  | 1860 | 0.037851 | 0.031722 | 0.063313 | -0.585995 | 0.713431 |
| SIZE |  | 1860 | 9.554116 | 9.497705 | 0.530252 | 7.885456 | 11.937756 |
| RELATIVE\_SIZE | | 1860 | 0.171338 | 0.040976 | 2.734328 | -73.155581 | 26.518870 |
| DUMMY\_INDUSTRY | | 1860 | 0.674018 | 1.000000 | 0.468867 | 0.000000 | 1.000000 |
| DUMMY\_CASH | | 1860 | 0.880581 | 1.000000 | 0.324368 | 0.000000 | 1.000000 |
| INFLATION | | 10 | 3.182000 | 3.325000 | 1.947360 | -0.683000 | 5.900000 |
| GDP/CAP | | 10 | 3.532058 | 3.579841 | 0.205258 | 3.175570 | 3.844595 |
| RISK\_FREE RATE | | 10 | 3.338470 | 3.511667 | 1.168833 | 1.585833 | 5.139167 |
| EX\_RATE |  | 10 | 0.141240 | 0.143900 | 0.013639 | 0.120800 | 0.161500 |
| Note: See Table 1 for variable definitions. | | | | | | | |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 3.2 Panel C (Cross-border)** | | | Summary statistics | | | | |
| Variables | | Obs. | Mean | Median | Std.Dev | Min | Max |
| *Dependent variables* | | |  |  |  |  |  |
| DA1 |  | 88 | -0.009458 | -0.009952 | 0.053439 | -0.163540 | 0.250071 |
| DA2 |  | 88 | -0.010353 | -0.011856 | 0.054122 | -0.166736 | 0.252278 |
| RM\_CFO |  | 88 | 0.067020 | 0.058793 | 0.060427 | -0.074123 | 0.376541 |
| RM\_DE |  | 88 | -0.010868 | -0.010323 | 0.007039 | -0.044296 | -0.000889 |
| RM\_PC |  | 88 | 0.059102 | 0.051292 | 0.048457 | 0.004088 | 0.225316 |
| D\_ACCRUAL | | 88 | 0.988636 | 1.000000 | 0.106600 | 0.000000 | 1.000000 |
| D\_REAL |  | 88 | 0.647727 | 1.000000 | 0.480416 | 0.000000 | 1.000000 |
| *Independent variables* | | |  |  |  |  |  |
| MA\_CRISIS | | 88 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| DUMMY\_CRISIS | | 88 | 0.715909 | 1.000000 | 0.453565 | 0.000000 | 1.000000 |
| TYPE\_MA | | 88 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| *Control variables* | |  |  |  |  |  |  |
| LEVERAGE | | 88 | 0.147932 | 0.088807 | 0.148577 | 0.000043 | 0.682427 |
| MTB |  | 88 | 1.737382 | 1.115887 | 2.171271 | 0.303743 | 15.732670 |
| ROA |  | 88 | 0.052559 | 0.043333 | 0.060842 | -0.077541 | 0.308747 |
| SIZE |  | 88 | 9.690652 | 9.624070 | 0.505426 | 8.884869 | 10.821647 |
| RELATIVE\_SIZE | | 88 | 0.136945 | 0.023629 | 0.514346 | 0.000000 | 4.713249 |
| DUMMY\_INDUSTRY | | 88 | 0.625000 | 1.000000 | 0.486897 | 0.000000 | 1.000000 |
| DUMMY\_CASH | | 88 | 0.920455 | 1.000000 | 0.272139 | 0.000000 | 1.000000 |
| INFLATION | | 10 | 3.182000 | 3.325000 | 1.947360 | -0.683000 | 5.900000 |
| GDP/CAP | | 10 | 3.532058 | 3.579841 | 0.205258 | 3.175570 | 3.844595 |
| RISK\_FREE RATE | | 10 | 3.338470 | 3.511667 | 1.168833 | 1.585833 | 5.139167 |
| EX\_RATE |  | 10 | 0.141240 | 0.143900 | 0.013639 | 0.120800 | 0.161500 |
| Note: See Table 1 for variable definitions. | | | | | | | |

**Table 3.3. Pearson correlations with main variables**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 3.3 Panel A (Full sample)** | | | Pearson correlations for dependent variables | | | |  |  | |
|  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 1. | DA1 | 1 |  |  |  |  |  |  | |
| 2. | DA2 | 0.974113\*\*\* | 1 |  |  |  |  |  | |
| 3. | RM\_CFO | -0.429793\*\*\* | -0.470032\*\*\* | 1 |  |  |  |  | |
| 4. | RM\_DE | 0.094429\*\*\* | 0.098235\*\*\* | -0.240268\*\*\* | 1 |  |  |  | |
| 5. | RM\_PC | 0.064791\*\*\* | 0.04304\*\* | 0.220591\*\*\* | -0.273126\*\*\* | 1 |  |  | |
| 6. | D\_ACCRUAL | -0.003317 | 0.031644 | -0.099281\*\*\* | 0.002912 | -0.029859 | 1 |  | |
| 7. | D\_REAL | 0.31593\*\*\* | 0.328243\*\*\* | -0.342371\*\*\* | -0.026101 | 0.43253 | -0.145377\*\*\* | 1 | |
| \*\*\* and \*\* indicate statistical significance at the 1 percent level and 5 percent level (two-tailed) | | | | | | | | |
| See Table 1 for variable definitions. | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 3.3 Panel B (Domestic sample)** | | | Pearson correlations for dependent variables | | | |  | |  | | |
|  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | |
| 1. | DA1 | 1 |  |  |  |  |  |  | | |
| 2. | DA2 | 0.973314\*\*\* | 1 |  |  |  |  |  | | |
| 3. | RM\_CFO | -0.424026\*\*\* | -0.464749\*\*\* | 1 |  |  |  |  | | |
| 4. | RM\_DE | 0.09514\*\*\* | 0.09894\*\*\* | -0.242456\*\*\* | 1 |  |  |  | | |
| 5. | RM\_PC | 0.069938\*\*\* | 0.048358\*\* | 0.221829\*\*\* | -0.280285\*\*\* | 1 |  |  | | |
| 6. | D\_ACCRUAL | -0.003023 | 0.031671 | -0.103101\*\*\* | 0.006529 | -0.031713 | 1 |  | | |
| 7. | D\_REAL | 0.312962\*\*\* | 0.325223\*\*\* | -0.338775\*\*\* | -0.036971 | 0.433385 | 0.086619\*\*\* | 1 | | |
| \*\*\* and \*\* indicate statistical significance at the 1 percent level and 5 percent level (two-tailed) | | | | | | | | | |
| See Table 1 for variable definitions. | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 3.3 Panel C**  **Cross-border sample)** | | | Pearson correlations for dependent variables | | | |  | |  | |
|  |  | 1 | 2 | 3 | 4 | 5 | | 6 | | 7 | |
| 1. | DA1 | 1 |  |  |  |  | |  | |  | |
| 2. | DA2 | 0.992434\*\*\* | 1 |  |  |  | |  | |  | |
| 3. | RM\_CFO | -0.554441\*\*\* | -0.577838\*\*\* | 1 |  |  | |  | |  | |
| 4. | RM\_DE | 0.07633147 | 0.082700354 | -0.19965\*\* | 1 |  | |  | |  | |
| 5. | RM\_PC | -0.107457\*\*\* | -0.130923\*\* | 0.22185\*\* | 0.04305398 | 1 | |  | |  | |
| 6. | D\_ACCRUAL | -0.014223254 | 0.034700506 | -0.008997296 | -0.15287075 | 0.0756631 | | 1 | |  | |
| 7. | D\_REAL | 0.383915\*\*\* | 0.396678\*\*\* | -0.431768\*\*\* | 0.283412\*\*\* | 0.459042\*\*\* | | 0.088584 | | 1 | |
| \*\*\* and \*\* indicate statistical significance at the 1 percent level and 5 percent level (two-tailed) | | | | | | | | | | |
| See Table 1 for variable definitions. | | | | | | | | | | |

**Table 3.4. Multilevel Probit regression with TYPE\_MA as dependent variables**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 3.4 Panel A.** | | Probit regression with TYPE\_MA as dependent variables | | | | |
| Dependent variable | | | TYPE\_MA | Z-Statistic | Prob. | Marginal effect |
| DUMMY\_CRISIS | |  | -0.40577 | -3.53659 | 0.0004 | -0.03781 |
| INFLATION | |  | -6.63653 | -0.73328 | 0.46340 | -0.61845 |
| RISKFREE |  |  | -0.15547 | -1.26241 | 0.20680 | -0.01449 |
| C |  |  | 15.76783 | 0.87553 | 0.38130 |  |
|  |  |  |  |  |  |  |
| McFadden R-squared | | | 0.022961 |  |  |  |
| Obs |  |  | 1948 |  |  |  |
| See Table 1 for variables definitions. | | | | | | |

**Table 3.5. Multilevel linear regression with all earnings management measures with fixed and random effect**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Time period:2004-2007, before crisis | | | | | | | | |
| Model: OLS with fixed effect | | | | | | | | |
| **Table 3.5 Panel A1.** | Multilevel linear regression with DA1, DA2, RM\_CFO, RM\_DE, RM\_PC as dependent variables | | | | | | | |
| Dependent variable |  | DA1 | DA2 | RM\_CFO | RM\_DE | RM\_PC | D\_ACCRUAL | D\_REAL |
| TYPE\_MA |  | 0.068359\*\*\* | 0.063516\*\*\* | -0.03881\*\* | -0.000271 | 0.019386 | 0.011698\*\* | -0.291418\*\* |
| DUMMY\_CASH |  | 0.005643 | 0.008779 | -0.015479 | -0.000232 | 0.009072 | -0.026596 | 0.17529\*\* |
| DUMMY\_INDUSTRY |  | 0.001909 | 0.002083 | -0.010006 | -0.000118 | 0.005833 | -0.021258 | -0.013734 |
| EXCHANGE\_RATE |  | -1.342006 | -1.609685 | 0.135389 | -0.138711 | -1.937881\*\*\* | -10.29804\*\*\* | -92.03661\*\*\* |
| GDP\_CAP |  | 0.176434\* | 0.19026\*\* | -0.014577 | 0.008163\* | 0.16606\*\*\* | 0.622269 | 6.393565\*\*\* |
| LEVERAGE |  | 0.011095 | 0.014862 | -0.001475 | -0.002833 | -0.006462 | 0.024082 | 0.275951 |
| MTB |  | 0.005171\* | 0.005618\*\* | -0.001131 | -0.000332\*\* | 0.00057 | -0.007686 | 0.026847 |
| RELATIVE\_SIZE |  | -0.002009 | -0.001913 | -0.000408 | -0.0000203 | 0.000902 | 0.001795 | -0.001539 |
| ROA |  | -0.094829 | -0.106738 | 0.096888\* | 0.002284 | 0.015778 | 0.66605\*\*\* | -0.214579 |
| SIZE |  | -0.02371\*\* | -0.013841 | 0.013682 | 0.001107 | -0.080415\*\*\* | 0.063206\*\* | -0.391834\*\*\* |
| Constant |  | -0.283641\* | -0.38707\*\* | 0.018268 | -0.029174\*\* | 0.500948\*\*\* | -0.332655 | -5.809843\*\*\* |
|  |  |  |  |  |  |  |  |  |
| Adjusted R2 |  | 0.096874 | 0.106662 | 0.133564 | 0.0175571 | 0.0349953 | 0.0145039 | 0.0299638 |
| Obs |  | 621 | 621 | 621 | 621 | 621 | 621 | 621 |
| \*\*\*, \*\* and \* indicate statistical significance at the 1 percent level and 5 percent level, 10 percent level (two-tailed). | | | | | | | | |
| See Table 1 for variable definitions. | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Time period:2004-2007, before crisis | | | | | | | | |
| Model: OLS with random effect | | | | | | | | |
| **Table 3.5 Panel A2.** | Multilevel linear regression with DA1, DA2, RM\_CFO, RM\_DE, RM\_PC as dependent variables | | | | | | | |
| Dependent variable |  | DA1 | DA2 | RM\_CFO | RM\_DE | RM\_PC | D\_ACCRUAL | D\_REAL |
| TYPE\_MA |  | 0.026828\*\*\* | 0.029159\*\*\* | -0.037795\*\* | 0.000618 | -0.003938 | 0.024269\*\* | -0.079302\*\* |
| DUMMY\_CASH |  | 0.000619 | 0.002536 | -0.00222 | -0.000203 | 0.01002\*\* | -0.019574 | 0.093094\*\*\* |
| DUMMY\_INDUSTRY |  | -0.001523 | -0.001517 | 0.000932 | 0.000207 | -0.005967 | 0.000175 | -0.023486 |
| EXCHANGE\_RATE |  | -3.218688\*\*\* | -3.181281\*\*\* | 0.573284 | -0.130333\*\* | -13.83527 | -7.172484\*\*\* | -105.5307\*\*\* |
| GDP\_CAP |  | 0.295649\*\*\* | 0.291127\*\*\* | -0.026829 | 0.007885\* | 0.878106\*\*\* | 0.407057\*\*\* | 6.781622 |
| LEVERAGE |  | -0.00359 | -0.002604 | 0.009365 | -0.000671 | 0.001394\*\*\* | 0.018702 | 0.113372 |
| MTB |  | 0.001081 | 0.00155 | -0.001064 | -0.0000304 | -0.001754\* | -0.002644 | 0.008249 |
| RELATIVE\_SIZE |  | -0.00077 | -0.000684 | -0.000512 | 0.0000631 | -0.000761 | -0.000272 | -0.005761 |
| ROA |  | -0.0388 | -0.055836\* | 0.033187\* | -0.000876 | -0.001304 | 0.206294\*\*\* | -0.153261 |
| SIZE |  | -0.006816 | -0.00355 | -0.000203 | 0.000499 | -0.011565\*\*\* | 0.015788 | -0.065531\* |
| C |  | -0.545185\*\*\* | -0.569852\*\*\* | 0.113336 | -0.025413\*\*\* | -0.982679\*\*\* | 0.430335\* | -8.081716\*\*\* |
|  |  |  |  |  |  |  |  |  |
| Adjusted R2 |  | 0.064238 | 0.058003 | 0.017612 | 0.0966 | 0.0327141 | 0.014688 | 0.0275731 |
| Obs |  | 621 | 621 | 621 | 621 | 621 | 621 | 621 |
| \*\*\*, \*\* and \* indicate statistical significance at the 1 percent level and 5 percent level, 10 percent level (two-tailed). | | | | | | | | |
| See Table 1 for variable definitions. | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 3.5 Panel B1.** | Multilevel linear regression with DA1, DA2, RM\_CFO, RM\_DE, RM\_PC as dependent variables | | | | | | | |
| Dependent variable |  | DA1 | DA2 | RM\_CFO | RM\_DE | RM\_PC | D\_ACCRUAL | D\_REAL |
| TYPE\_MA |  | 0.00741 | 0.00641 | 0.011496 | -0.002888\* | 0.019386\*\* | -0.000543 | -0.029696\* |
| DUMMY\_CASH |  | -0.006122 | -0.007997 | -0.002558 | -0.000215 | 0.009072 | -0.013117 | -0.042336 |
| DUMMY\_INDUSTRY |  | 0.003048 | 0.003647 | -0.001221 | 0.001609\* | 0.005833 | 0.006613 | 0.0711\* |
| EXCHANGE\_RATE |  | -14.14821\*\*\* | -14.15058\*\*\* | 6.557345\*\*\* | -2.357696\*\*\* | -1.937881 | 4.583898\*\* | -93.45614\*\*\* |
| GDP\_CAP |  | 0.941688\*\*\* | 0.944828\*\*\* | -0.516399\*\*\* | 0.149099\*\*\* | 0.16606 | -0.41716 | 6.245161\*\*\* |
| LEVERAGE |  | -0.024833 | -0.02096 | 0.011357 | -0.008308\* | -0.006462 | 0.015681 | -0.152163 |
| MTB |  | -0.002734 | -0.002294 | 0.000381 | 0.001358\* | 0.00057 | -0.00352 | 0.031486 |
| RELATIVE\_SIZE |  | -0.0000199 | -0.00000000872\*\*\* | 0.001325 | 0.000156 | 0.000902 | 0.0000099 | 0.015746 |
| ROA |  | -0.110398\* | -0.109536\* | 0.080802 | -0.009766 | 0.015778 | -0.113688 | 0.022049 |
| SIZE |  | -0.011365 | -0.008925 | -0.045182 | 0.006742 | -0.080415\*\* | 0.12141\*\* | -0.093927 |
| C |  | -1.212815\*\*\* | -1.24703\*\*\* | 1.396372\*\*\* | -0.266314\*\*\* | 0.500948\* | 0.656768\* | -7.252105\*\*\* |
|  |  |  |  |  |  |  |  |  |
| Adjusted R2 |  | 0.070668 | 0.077473 | 0.134453 | 0.0331931 | 0.0349953 | 0.0120501 | 0.092674 |
| Obs |  | 1327 | 1327 | 1327 | 1327 | 1327 | 1327 | 1327 |
| \*\*\*, \*\* and \* indicate statistical significance at the 1 percent level and 5 percent level, 10 percent level (two-tailed). | | | | | | | | |
| See Table 1 for variable definitions. | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 3.5 Panel B2.** | Multilevel linear regression with DA1, DA2, RM\_CFO, RM\_DE, RM\_PC as dependent variables | | | | | | | |
| Dependent variable |  | DA1 | DA2 | RM\_CFO | RM\_DE | RM\_PC | D\_ACCRUAL | D\_REAL |
| TYPE\_MA |  | -0.006509 | -0.005731 | 0.003626 | -0.000957\* | 0.011905\*\* | -0.01387 | -0.066717 |
| DUMMY\_CASH |  | 0.002698 | 0.002726 | -0.013429\*\*\* | 0.0000879 | -0.003086 | 0.014881 | 0.013508 |
| DUMMY\_INDUSTRY |  | 0.001352 | 0.001136 | 0.001888 | 0.00058 | -0.000596 | 0.009845 | -0.019891 |
| EXCHANGE\_RATE |  | 0.84264\*\*\* | 0.841052\*\*\* | 6.123992\*\*\* | -2.454888\*\*\* | -3.20475\*\*\* | 0.589401 | -88.37747\*\*\* |
| GDP\_CAP |  | -12.35566\*\*\* | -12.32086\*\*\* | -0.516489\*\*\* | 0.153298\*\*\* | 0.149575\*\* | -0.091621 | 5.719982\*\*\* |
| LEVERAGE |  | -0.007928\*\* | -0.008019\*\*\* | 0.00805\*\* | -0.000835 | 0.003201 | 0.003396 | -0.013855 |
| MTB |  | 0.000208 | 0.000322 | -0.000426 | 0.000415\* | -0.001383 | 0.005953\* | 0.004088 |
| RELATIVE\_SIZE |  | 0.00068 | 0.000631 | -0.000822 | 0.0000763 | -0.001644 | -0.001061 | 0.002638 |
| ROA |  | 0.006657 | 0.010188 | 0.029457 | -0.001664 | 0.034615\* | -0.166478 | -0.21626 |
| SIZE |  | 0.000464 | 0.001143 | -0.001265 | 0.001248 | 0.00067 | 0.026569\*\* | -0.01874 |
| C |  | -1.241452\*\*\* | -1.248398\*\*\* | 1.057255\*\*\* | -0.215391\*\*\* | -0.004998 | 0.955204\*\* | -6.736251\*\*\* |
|  |  |  |  |  |  |  |  |  |
| Adjusted R2 |  | 0.090699 | 0.093681 | 0.067091 | 0.057168 | 0.0895 | 0.0251 | 0.039106 |
| Obs |  | 1327 | 1327 | 1327 | 1327 | 1327 | 1327 | 1327 |
| \*\*\*, \*\* and \* indicate statistical significance at the 1 percent level and 5 percent level, 10 percent level (two-tailed). | | | | | | | | |
| See Table 1 for variable definitions. | | | | | | | | |

**Table 3.6. Multilevel linear regression with all earnings management measures with fixed and random effect**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 3.6 Panel A1.** | Multilevel linear regression with DA1, DA2, RM\_CFO, RM\_DE, RM\_PC as dependent variables | | | | | | | |
| Dependent variable | | DA1 | DA2 | RM\_CFO | RM\_DE | RM\_PC | D\_ACCRUAL | D\_REAL |
| MA\_CRISIS |  | -0.010388\* | -0.010416\* | -0.01593\*\* | 0.002118 | 0.00883\*\* | -0.006224 | 0.048217\* |
| DUMMY\_CASH |  | 0.00325 | 0.002121 | -0.010565\* | -0.000019 | 0.004044 | -0.021407 | 0.04404 |
| DUMMY\_INDUSTRY |  | 0.000264 | 0.000575 | -0.002327 | 0.000334 | 0.000681 | -0.005346 | 0.03163 |
| EXCHANGE\_RATE |  | -6.490961\*\*\* | -6.678384\*\*\* | 1.443133 | -0.750836\*\*\* | -9.979292\*\*\* | -3.941562 | -95.57009\*\*\* |
| GDP\_CAP |  | 0.427823\*\*\* | 0.437431\*\*\* | -0.137243\*\* | 0.043736\*\*\* | 0.6737\*\*\* | 0.223849 | 6.709793\*\*\* |
| LEVERAGE |  | -0.032808\*\* | -0.032957\*\* | 0.00725 | -0.001238 | -0.000977 | 0.023205 | 0.077099 |
| MTB |  | -0.000673\*\* | -0.000714 | 0.004244\*\*\* | -0.000123 | 0.002666\* | 0.001596 | 0.01579 |
| RELATIVE\_SIZE |  | 0.002113\*\*\* | 0.002176\*\*\* | -0.001898\*\* | 0.000139 | -0.001196 | 0.000727 | 0.001932\* |
| ROA |  | -0.014904 | -0.017175 | 0.000103 | 0.00054 | -0.009075 | 0.189085\*\* | 0.21671 |
| SIZE |  | -0.009065\* | -0.003869 | 0.008938 | 0.000974 | -0.014854\* | 0.038986\*\* | -0.192953\*\*\* |
| C |  | -0.517427\*\*\* | -0.573505\*\*\* | 0.250213\*\*\* | -0.069518\*\*\* | -0.773657\*\*\* | 0.383509\* | -7.867124\*\*\* |
|  |  |  |  |  |  |  |  |  |
| Adjusted R2 |  | 0.030339 | 0.04445 | 0.08531 | 0.345131 | 0.33242 | 0.463429 | 0.15128 |
| Obs |  | 1948 | 1948 | 1948 | 1948 | 1948 | 1948 | 1948 |
| \*\*\*, \*\* and \* indicate statistical significance at the 1 percent level and 5 percent level, 10 percent level (two-tailed). | | | | | | | | |
| See Table 1 for variable definitions. | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 3.6 Panel A2.** | Multilevel linear regression with DA1, DA2, RM\_CFO, RM\_DE, RM\_PC as dependent variables | | | | | | | |
| Dependent variable | | DA1 | DA2 | RM\_CFO | RM\_DE | RM\_PC | D\_ACCRUAL | D\_REAL |
| MA\_CRISIS |  | -0.004242\* | -0.00457\*\* | -0.007126\*\* | 0.002079 | 0.008428\*\* | -0.012667 | 0.012509 |
| DUMMY\_CASH |  | 0.001147 | 0.002001 | -0.009286\*\*\* | 0.000223 | 0.002739 | -0.000905 | 0.063605\*\* |
| DUMMY\_INDUSTRY |  | 0.000266 | 0.000179 | 0.000983 | 0.000279 | -0.002755 | 0.005898 | -0.024437\* |
| EXCHANGE\_RATE |  | -6.225117\*\*\* | -6.224224\*\*\* | 2.264576\*\*\* | -0.777733\*\*\* | -11.00804\*\*\* | -3.118497\* | -98.75745\*\*\* |
| GDP\_CAP |  | 0.423541\*\*\* | 0.421671\*\*\* | -0.168433\*\*\* | 0.045442\*\*\* | 0.730559\*\*\* | 0.190203 | 6.819327\*\*\* |
| LEVERAGE |  | -0.008517\*\*\* | -0.008515\*\*\* | 0.008633\*\*\* | -0.000802 | 0.003965 | 0.005691 | 0.00162 |
| MTB |  | -0.000249 | 0.0000864 | 0.001003 | 0.0000458 | -0.000108 | 0.001849 | 0.010124\* |
| RELATIVE\_SIZE |  | 0.0000588 | 0.0000839 | -0.000789\* | 0.0000894 | -0.001335\*\* | -0.000609 | -0.001154 |
| ROA |  | -0.001646 | -0.008533 | 0.022612 | 0.001662 | 0.000693 | 0.019135 | -0.267382 |
| SIZE |  | -0.002593 | -0.000819 | 0.001526 | 0.00082\* | -0.002977 | 0.020957\*\*\* | -0.026746 |
| C |  | -0.601399\*\*\* | -0.61305\*\*\* | 0.320273\*\*\* | -0.070803\*\*\* | -0.93456\*\*\* | 0.545367\*\*\* | -9.303975\*\*\* |
|  |  |  |  |  |  |  |  |  |
| Adjusted R2 |  | 0.041923 | 0.044093 | 0.012249 | 0.016725 | 0.069889 | 0.04459 | 0.157649 |
| Obs |  | 1948 | 1948 | 1948 | 1948 | 1948 | 1948 | 1948 |
| \*\*\*, \*\* and \* indicate statistical significance at the 1 percent level and 5 percent level, 10 percent level (two-tailed). | | | | | | | | |
| See Table 1 for variable definitions. | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 3.7**  **Panel A1.** | Multilevel linear regression with DA1, DA2, RM\_CFO, RM\_DE, RM\_PC as dependent variables | | | | | | | |
| Dependent variable | | DA1 | DA2 | RM\_CFO | RM\_DE | RM\_PC | D\_ACCRUAL | D\_REAL |
| DUMMY\_CRISIS |  | -0.025006\*\*\* | -0.025205\*\*\* | -0.019618\*\*\* | 0.000116 | 0.039131\*\*\* | -0.014478 | 0.245867\*\*\* |
| DUMMY\_CASH |  | 0.002453 | 0.003371 | -0.010551\*\* | 0.000321 | 0.000936 | -0.000994 | 0.051602 |
| DUMMY\_INDUSTRY | | 0.001001 | 0.000893 | 0.000185 | 0.000111 | -0.003955 | 0.007798 | -0.011587 |
| EXCHANGE\_RATE |  | -5.396207\*\*\* | -5.375722\*\*\* | 2.547622\*\*\* | -0.59348\*\*\* | -11.29627\*\*\* | -4.905334\*\* | -103.9912\*\*\* |
| GDP\_CAP |  | 0.426844\*\*\* | 0.424762\*\*\* | -0.211388\*\*\* | 0.037179\*\*\* | 0.686523\*\*\* | 0.254482\* | 6.674947\*\*\* |
| LEVERAGE |  | -0.007622\*\* | -0.007579\*\* | 0.008212\*\* | -0.000736 | 0.003282 | 0.005056 | -0.00325 |
| MTB |  | 0.000123 | 0.000467 | 0.000668 | 0.0000927 | -0.001038 | 0.001454 | 0.00376 |
| RELATIVE\_SIZE |  | -0.0000326 | -0.00000318 | -0.000706 | 0.0000898 | -0.001366\*\*\* | -0.00058 | -0.000485 |
| ROA |  | -0.0104 | -0.018503 | 0.030146 | 0.00117 | 0.010187 | 0.018984 | -0.213989\* |
| SIZE |  | -0.002392 | -0.000623 | 0.000432 | 0.000504 | -0.001883 | 0.019589\*\* | -0.034329\*\*\* |
| C |  | -0.71942\*\*\* | -0.732743\*\*\* | 0.438542\*\*\* | -0.063579\*\*\* | -0.759602\*\*\* | 0.568776\*\*\* | -8.084812 |
|  |  |  |  |  |  |  |  |  |
| Adjusted R2 |  | 0.058535 | 0.062065 | 0.025214 | 0.012228 | 0.086462 | 0.09774 | 0.177821 |
| Obs |  | 1860 | 1860 | 1860 | 1860 | 1860 | 1860 | 1860 |
| \*\*\*, \*\* and \* indicate statistical significance at the 1 percent level and 5 percent level, 10 percent level (two-tailed). | | | | | | | | |
| See Table 1 for variable definitions. | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 3.7**  **Panel A2.** | Multilevel linear regression with DA1, DA2, RM\_CFO, RM\_DE, RM\_PC as dependent variables | | | | | | | |
| Dependent variable | | DA1 | DA2 | RM\_CFO | RM\_DE | RM\_PC | D\_ACCRUAL | D\_REAL |
| DUMMY\_CRISIS |  | 0.051843 | 0.053588 | -0.050677\*\* | 0.003251 | 0.059331\*\*\* | -0.007191 | 0.53704\*\*\* |
| DUMMY\_CASH |  | -0.017974 | -0.018621 | 0.016048 | -0.001671 | -0.007029 | -0.019697 | -0.211879 |
| DUMMY\_INDUSTRY | | -0.026793\*\*\* | -0.027478\*\* | 0.03552\*\*\* | 0.001361 | 0.010672\*\* | -0.017329 | -0.216008\*\* |
| EXCHANGE\_RATE |  | 2.273331 | 3.04711 | 0.326132 | -0.307448 | -9.158955\* | 0.821103 | -33.85718 |
| GDP\_CAP |  | -0.189056 | -0.245473\* | -0.010293 | 0.009767 | 0.441976 | -0.09083 | 1.751333 |
| LEVERAGE |  | -0.070592\* | -0.074492\* | 0.086893\* | -0.00933\* | 0.009004 | 0.008442 | -0.435588\* |
| MTB |  | 0.005165\* | 0.00551\*\* | -0.002727 | 0.0000974 | -0.000744 | 0.000713 | 0.043888 |
| RELATIVE\_SIZE |  | 0.026331\*\* | 0.024601 | -0.015893 | 0.001376 | -0.003361 | 0.004094 | -0.039736 |
| ROA |  | -0.084752 | -0.067976 | 0.113539 | -0.006079 | 0.023936 | 0.10077 | -0.726289 |
| SIZE |  | 0.01543\* | 0.018029\* | 0.002079 | 0.004049\*\* | -0.014854\* | 0.03389\* | 0.003308 |
| C |  | 0.189696 | 0.253018 | 0.023204 | -0.040195 | -0.086567 | 0.89461 | -0.744839 |
|  |  |  |  |  |  |  |  |  |
| Adjusted R2 |  | 0.117227 | 0.122614 | 0.119364 | 0.0721 | 0.189497 | 0.038896 | 0.177171 |
| Obs |  | 88 | 88 | 88 | 88 | 88 | 88 | 88 |
| \*\*\*, \*\* and \* indicate statistical significance at the 1 percent level and 5 percent level, 10 percent level (two-tailed). | | | | | | | | |
| See Table 1 for variable definitions. | | | | | | | | |

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| **Table 3.8**  **Panel A1.** | Multilevel linear regression with DA1, DA2, RM\_CFO, RM\_DE, RM\_PC as dependent variables | | | | | | | |
| Dependent variable | | DA1 | DA2 | RM\_CFO | RM\_DE | RM\_PC | D\_ACCRUAL | D\_REAL |
| TYPE\_MA |  | 0.0259356\*\*\* | 0.0281242\*\*\* | -0.036746\*\*\* | 0.000511 | -0.0041831 | 0.025744\*\* | -0.0776154\*\* |
| Leverage |  | -0.0042384 | -0.0032004 | 0.0108942 | -0.0006516 | 0.0006714 | 0.0207558\* | 0.1111323 |
| ROA |  | -0.0388109\* | -0.0547021\* | 0.0305616\* | -0.0012848 | -0.0021647 | 0.1997481 | -0.1510476\*\* |
| MTB |  | 0.0010088 | 0.0014579 | -0.0010042\* | -0.000016 | -0.0017362\* | -0.0025986 | 0.0081325 |
| Size |  | -0.0064213\* | -0.0031591 | -0.0012682 | 0.0005298\* | -0.0108738\*\*\* | 0.015112\* | -0.0639764 |
| RE\_SIZE |  | -0.0007578 | -0.0006841 | -0.0005236 | 0.0000723\* | -0.0007873\* | -0.0002981 | -0.0058217 |
| Dummy\_CASH |  | 0.0004177 | 0.0022553 | -0.0009737 | -0.000263 | 0.0103175\*\* | -0.0189943\*\* | 0.092314 |
| Dummy\_Industry |  | -0.0017853 | -0.0017694 | 0.0018774 | 0.0002347 | -0.0059898\* | 0.0023783 | -0.0238199 |
| GDPCAP |  | 0.296948\*\*\* | 0.2920264\*\*\* | -0.0307679 | 0.0081499\* | 0.8775763\*\*\* | 0.3830517\*\*\* | 6.782115\*\*\* |
| EX\_RATE |  | -3.237418\*\*\* | -3.196283\*\*\* | 0.6465726 | -0.1351882\*\* | -13.83262\*\*\* | -6.879388\*\*\* | -105.5861\*\*\* |
| Intercept |  | -0.5493847\*\*\* | -0.572976\*\*\* | 0.1239305\*\* | -0.0258356\*\*\* | -0.9877303\*\*\* | 0.4788118\*\*\* | -8.08772\* |
|  |  |  |  |  |  |  |  |  |
| Adjusted R2 |  | 0.0637 | 0.0679 | 0.017 | 0.0108 | 0.3307 | 0.0248 | 0.283 |
| Obs |  | 621 | 621 | 621 | 621 | 621 | 621 | 621 |
| \*\*\*, \*\* and \* indicate statistical significance at the 1 percent level and 5 percent level, 10 percent level (two-tailed). | | | | | | | | |
| See Table 1 for variable definitions. | | | | | | | | |

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| **Table 3.8**  **Panel A2.** | Multilevel linear regression with DA1, DA2, RM\_CFO, RM\_DE, RM\_PC as dependent variables | | | | | | | |
| Dependent variable | | DA1 | DA2 | RM\_CFO | RM\_DE | RM\_PC | D\_ACCRUAL | D\_REAL |
| TYPE\_MA |  | -0.006509 | -0.0057312 | -0.0029099 | -0.02506\* | 0.0099963\*\* | 0.0138702 | -0.0667168\* |
| Leverage |  | -0.0079276\*\* | -0.0080186\*\*\* | 0.0079884\*\* | -0.0007907\* | 0.0029751 | 0.003396 | -0.0138555 |
| ROA |  | 0.0066568 | 0.0101883 | 0.0269052 | -0.0005828 | 0.0365013 | -0.1664783\* | -0.2162602 |
| MTB |  | 0.0002079 | 0.0003218 | -0.0003325 | 0.000347\* | -0.0015608 | 0.005953\* | 0.0040885 |
| Size |  | 0.0004643 | 0.0011433 | -0.0008866 | 0.0009115 | 0.0018308 | 0.026569\*\* | -0.0187405 |
| RE\_SIZE |  | 0.0006796\* | 0.0006305 | -0.000863\* | 0.0000853 | -0.0018355\* | -0.0010605 | 0.0026379 |
| Dummy\_CASH |  | 0.0026979 | 0.0027264 | -0.0137518\*\*\* | 0.0002876 | -0.0048304 | 0.0148806 | 0.0135084 |
| Dummy\_Industry |  | 0.0013523 | 0.0011361 | 0.0019006 | 0.0003037 | -0.0017864 | 0.0098449 | -0.0198905 |
| GDPCAP |  | 0.8426398\*\*\* | 0.8410524\*\*\* | -0.5191848\*\*\* | 0.1556336\*\*\* | 0.1574825\* | -0.091621 | 5.719982\*\*\* |
| EX\_RATE |  | -12.35566\*\*\* | -12.32086\*\*\* | 6.192638\*\*\* | -2.504169\*\*\* | -3.332503\* | 0.5894006 | -88.37747\*\*\* |
| Intercept |  | -1.241452\*\*\* | -1.248398\*\*\* | 1.053977\*\*\* | -0.2138275\*\*\* | -0.0222703 | 0.9552036\*\*\* | -6.736251\*\*\* |
|  |  |  |  |  |  |  |  |  |
| Adjusted R2 |  | 0.0991 | 0.1021 | 0.0559153 | 0.011375 | 0.0859307 | 0.0117 | 0.048 |
| Obs |  | 1327 | 1327 | 1327 | 1327 | 1327 | 1327 | 1327 |
| \*\*\*, \*\* and \* indicate statistical significance at the 1 percent level and 5 percent level, 10 percent level (two-tailed). | | | | | | | | |
| See Table 1 for variable definitions. | | | | | | | | |

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| **Table 3.8**  **Panel B.** | Multilevel linear regression with DA1, DA2, RM\_CFO, RM\_DE, RM\_PC as dependent variables | | | | | | | |
| Dependent variable | | DA1 | DA2 | RM\_CFO | RM\_DE | RM\_PC | D\_ACCRUAL | D\_REAL |
| MA\_Crisis |  | 0.004242\*\* | 0.0045696\*\* | -0.006157\*\* | 0.0023494 | 0.0080187\*\* | -0.0126667 | 0.0125086\* |
| Leverage |  | -0.0085172\*\*\* | -0.0085153\*\*\* | 0.0089053\*\*\* | -0.0008451 | 0.0044642 | 0.0056907 | 0.0016196 |
| ROA |  | -0.0016455 | -0.0085335 | 0.024179 | 0.0013633 | 0.0006025 | 0.0191354 | -0.267382\* |
| MTB |  | -0.0002489 | 0.0000864 | 0.0009573 | 0.0000635 | -0.0003424 | 0.0018486 | 0.0101237\* |
| Size |  | -0.0025932 | -0.0008191 | 0.0013953 | 0.000604 | -0.0016781 | 0.0209567\*\*\* | -0.0267462 |
| RE\_SIZE |  | 0.0000588 | 0.0000839 | -0.0007737 | 0.000089 | -0.0014638\*\*\* | -0.0006092 | -0.0011539 |
| Dummy\_CASH |  | 0.0011474 | 0.0020015 | -0.0089401\*\* | 0.0003511 | 0.0030112 | -0.0009049 | 0.0636048\*\* |
| Dummy\_Industry |  | 0.0002663 | 0.0001792 | 0.0011677 | 0.0001951 | -0.0037896 | 0.0058982 | -0.0244365 |
| GDPCAP |  | 0.4235409\*\*\* | 0.4216711\*\*\* | -0.1753996\*\*\* | 0.0485216\*\*\* | 0.7454665\*\*\* | 0.1902026 | 6.819327\*\*\* |
| EX\_RATE |  | -6.225117\*\*\* | -6.224224\*\*\* | 2.401134\*\*\* | -0.8290332\*\*\* | -11.23673\*\*\* | -3.118497 | -98.75745\*\*\* |
| \_cons |  | -0.6013986\*\*\* | -0.6130503\*\*\* | 0.327038\*\*\* | -0.0725643\*\*\* | -0.966605\*\*\* | 0.5453673\*\*\* | -9.303975\*\*\* |
|  |  |  |  |  |  |  |  |  |
| Adjusted R2 |  | 0.0538959 | 0.0525137 | 0.0568676 | 0.091332 | 0.0727759 | 0.096 | 0.162 |
| Obs |  | 1948 | 1948 | 1948 | 1948 | 1948 | 1948 | 1948 |
| \*\*\*, \*\* and \* indicate statistical significance at the 1 percent level and 5 percent level, 10 percent level (two-tailed). | | | | | | | | |
| See Table 1 for variable definitions. | | | | | | | | |

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| **Table 8 Panel C.** | | Multilevel regression with TYPE\_MA and MA\_CRISIS as dependent variables | | | | |
| Dependent variable | | | TYPE\_MA |  | MA\_CRISS |  |
| Openness |  |  | 0.1682517\*\*\* |  | -4.77757\*\*\* |  |
| stock return |  |  | 0.0200454\*\* |  | -0.3675304\*\*\* |  |
| market capitalization | | | -0.0361469\*\* |  | 0.7423295\*\*\* |  |
| C |  |  | 0.8766031\*\*\* |  | 2.937075\*\*\* |  |
|  |  |  |  |  |  |  |
| F-statistic |  |  | 42.44779 |  | 1790.922 |  |
| Adjust-R square |  |  | 0.22961 |  | 0.7343 |  |
| Obs |  |  | 1948 |  | 1948 |  |
| \*\*\* and \*\* indicate statistical significance at the 1 percent level and 5 percent level (two-tailed). | | | | | | |
| See Table 1 for variables definitions. | | | | | | |

**Figure 3.1. The amount of M&As activities from 2004 to 2013**



Note: Sample means the all M&As activities from 2004 to 2013. SA DO means domestic M&As activities. SA CRO means cross-border activities.

**Figure 3.2. The tendency of M&As activities from 2004 to 2013.**

Note: Sample means the all M&As activities from 2004 to 2013. SA DO means domestic M&As activities. SA CRO means cross-border activities.

1. Corresponding author [↑](#footnote-ref-1)