

**A DECADE OF EARNINGS MANAGEMENT RESEARCHES: A STUDY ON
RESEARCH METHODS AND MARKET REACTIONS TOWARDS
OPPORTUNISTIC BEHAVIOUR**

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ABSTRACT

This study is aimed to investigate the latest developments of Earnings Management (EM) researches around the globe. Furthermore, this study is aimed to describe the development of opportunistic EM researches in terms of (1) research methods used in EM; and (2) investors reactions related to the opportunistic EM.

EM literatures published between 1990 and 2011 were reviewed. For the purpose of quality and focus of the study, 2010 journal ranking provided by the Excellence in Research for Australia (ERA) in the area of accounting (1501) was used to gather literatures through dozens of electronic journal databases subscribed by the University. Summon search engine was used to find related articles on EM; then compiling them in a database using Endnote X5. This study focuses on articles that examine manager's opportunistic behaviour on EM and its market reactions where there were 39 articles matched.

It is noted that EM measurements change overtime and discretionary accrual remains the most popular technique. However, methods that were used in determining discretionary accrual evolved and the discussion on which method is used as the best measurement is still debatable. In order to find representative samples of EM study, discretionary accruals were combined with other types of measurements and events which provide incentives for managers to manipulate earnings. In the short term, investors' reaction to EM is inconsistent. Future research needs to control confounding effects while observing short-term price effect or use an alternative theory in explaining this anomaly. In the long term, investors negatively valued EM and hence the accrual anomaly found by Sloan (1996) is not prolonged.

Keywords: discretionary accruals, opportunistic behaviour, investor's reaction to earnings management, earnings management measurements, and Excellence in Research for Australia (ERA) Journal Ranking.

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1. Introduction

Accounting standards legitimize management to use estimates and judgment in preparing financial statements such as cost flow assumption, depreciation methods, and allowances. This discretionary area enables management to achieve their opportunistic goals or to convey accounting private information (Beaver, 2002). The use of estimates and judgment in preparing financial statements in order to achieve certain goals is known as Earnings Management (EM).

EM definition raised by Healy and Wahlen (1999), Schipper (1989), and Dechow and Skinner (2000) are summarized as follows: (1) the use of management's judgment and estimates in preparing of financial reports in order (2) to obscure or mask the actual company's economic reality. Beaver (2002) said that EM motives are classified into two different categories i.e. opportunistic and signalling. Opportunistic EM is essential as this is the main issue of agency problem (Baiman, 1990). Self-seeking mental owned by the management becomes the basic assumptions of economic theories. Therefore, Francis et al. (1999) suggested that firms with large discretionary have greater agency costs than firms with smaller discretionary. On the other hand, EM that signals private information to capital market does not affect the economy negatively; instead, it can improve market participants to assess firm's value. However, observing the intention of earnings manipulation is difficult (Dechow and Skinner, 2000), therefore this study targets survey on journal articles in their way to detect negative opportunism.

A number of EM reviews have been conducted in the light of EM motives and its measurements. Wilson (2011) focused solely on discretionary behaviour in Australian companies and did not indicate the Australian capital market responses to EM. Yang et al. (2012) discussed EM motives in China, its measures, and its association with corporate governance. Although Dechow et al. (2010) provided qualified reviews of earnings quality; they discussed accrual management as a part of earnings quality properties and did not show its capital market consequences. Healy and Wahlen (1999) is considered as a prestigious EM review study though they only examined U.S. corporations. Therefore, this study broadens previous researches in term of global sample which covers an analysis on EM motivations and its related consequences.

The main purpose of this literature study is to get detailed and comprehensive descriptions of the following: (1) motivations behind opportunistic EM, and (2) its consequences to the global capital market in the period between 1990 and 2011 which have been noted by researchers around the globe. This study does not document the research on fraud because it is a violation of accounting standards aggressively (Dechow and Skinner, 2000). The year of 1990 to 2011 was chosen as Dechow and Skinner (2000) indicated that capital market incentives to engage in EM became stronger since 1990. By using Summon Search Engine, initial sample was 1145 journal articles in EM. In order to have similar quality of sample, the sample was sorted based on 2010 ERA's journal ranking in the field of 1501 (accounting) where final sample remains 39 articles which investigate the modus operandi of EM and its related market reaction.

This study contributes to the EM literatures in several ways. This research answers the call for Healy and Wahlen (1999) related to the inconsistency of the EM effect on capital allocation. Literatures show that EM inconsistently effect capital allocation decision in short-term. Moreover, this study provides evidence related to the argument of Dechow and Skinner (2000) on the increase of capital markets incentives in conducting EM. This research is expected to be beneficial to the investors and the capital market regulatory bodies to the extent that discretionary behaviour increase agency cost, and where investors and regulators have a clear interest in seeking EM motivations and its capital market perceptions. By acquiring this knowledge, regulators would have a reliable tool to find opportunist firms and fairly enforce capital market rules.

2. Selection and Characteristics of Studies

Earnings management research has a long history since Watts and Zimmerman (1978) established the foundation of EM hypotheses (see for instance Schipper (1989)) A considerable EM articles resulted through this long time presents a puzzling picture of discretionary behaviour and its consequences (Healy and Wahlen, 1999). A descriptive approach study will provide a helpful tool to arrange the puzzle of EM research in order to have a clear understanding of EM motivations and its capital market consequences.

Abdel-khalik and Ajinkya (1979) said that descriptive research is to transfer data to be more meaningful, to indicate the potential research field, and to provide the basis of discussion that reach general conclusion of a particular problem. This study could be classified as descriptive research since it describes EM literatures to get a clear conclusion in EM motivations and its effects which might indicate potential EM researches. This study applies some criteria in reaching the journal articles that will be analysed. First, this study searches EM scholarly articles published in the period between 1990 and 2011 containing “Earnings Management” or “Earnings Manipulation” or “Income Increasing” or “Income Decreasing” or “Income Smoothing” or “Earnings Increasing” or “Earnings Increasing” or “Earnings Smoothing” or “Accrual Manipulation” or Accrual*¹ in the article title using Summon search engine of the University. The search resulted 1145 articles out of 31 business journal databases. Afterwards, articles database was developed in Endnote X5 and searching the article which matched with following criteria (as shown in Table 1):

1. The articles are published in A, B, and C ranked journals based on 2010 ERA’s journal ranking taken from 1501 (Accounting) field as these journals have a recognized and thorough review process, hence 671 articles that meet this criteria are assumed to have similar quality to be compared with. Furthermore, focusing on 1501 field provides narrower sample in accounting, auditing, and accountability area.
2. The articles should observe earnings manipulation and its capital market effect. To operate this criterion, this study applied 6 keywords: investor* or stock* or share* or return* or pric* or volume* in EndNote X5 search engine and which resulted 470 articles. These articles are assumed to examine the relationship of accrual manipulation and the market responses.

¹ “or” connector is useful to broaden and retrieve more results that match with any keywords. The quotation (“.”) is used to find phrases with exact order and the use of truncation symbol (*) enable us to list any form of word (accrual or accruals).

- Since accruals or income smoothing is widely used in value relevance study², this study eliminates 431 articles that investigate the relationship of accrual or income smoothing with market valuation *per se* through reading the abstract, introduction, and conclusion of each article. Thus, final sample of this study is 39 articles.

Appendix 3 shows the list of selected studies and their respective publication details. A-ranked journals contribute 26 articles (67%) from ten journals. Meanwhile, B-Ranked academic journal portion is 26% or ten articles were published by 7 journals. The rest of 8% is taken from two C-ranked journals where there were three articles found. This indicates that the articles published in A-ranked journals employ more comprehensive techniques to examine accrual manipulation by revealing the presence of EM in the sample and examine its market consequences. However, the list does not lead us to the conclusion of the superiority of one over another journal; for instance, B-ranked articles generate more evidence from more various sample country than its counterparts.

Table 1 - Sample Selection Process

Initial sample from Summon search engine using 10 keywords	1145	100%	peer-reviewed articles from 1990 to 2011
Articles from unranked journals based on 2010 ERA's ranking	(474)	41%	articles
Articles from A, B, and C ranked journals	A: 470 B: 164 C: 37	41% 14% 4%	Articles
EndNote X5 searching using 6 keywords	470	59%	EM articles that observe market valuation (reaction)
Value relevance of accrual or income smoothing studies	(431)		Articles that searched the relationship between EM and stock value without investigating the motives of EM and the link between EM motives and market reactions
Final sample	39		Articles

The literatures cover 8 decade periods in describing EM and its implication. The observation period of Li (2011) considered as the longest. This study uses sample of U.S. companies in the period between 1926 and 1998. Starting from 1960s, EM and capital markets in each decade have been explored, though none of literatures use 1950s data, while the most recent study covers 2006 data (see appendix 2).

Regarding to country of study, there are 29 studies (74%) utilize U.S. firms as their sample. However, studies that examine accrual manipulation and investor reaction in China contribute 15%. It indicates a phenomenal development of Chinese capital market and provides many research opportunities (Kimbrow, 2005). Japan, Hong-Kong, and New Zealand studies supply 5% and 3%, respectively.

²DUMONTIER, P. & RAFFOURNIER, B. 2002. Accounting and capital markets: a survey of the European evidence. *European Accounting Review*, 11, 119-151. and BEAVER, W. H. 2002. Perspectives on Recent Capital Market Research. *The Accounting Review*, 77, 453-474. highlight the definition and criteria of value relevance study. It does not necessarily associate with discretionary behaviour study although they use similar variables (e.g. discretionary behaviour)

3. Results

3.1. Earnings Management Measures

Accrual manipulation is still difficult to be directly observed by archival researches since it is related to managers' intention (Dechow and Skinner, 2000). Researcher generally relies on accrual as the proxy of EM. Table 2 shows total accrual measurements used in the literatures while appendix 3 shows 26 literatures that use accrual to measure EM.

3.1.1. Measurement on Total Accrual

Discretionary (abnormal) accruals are unanimously used as the proxy of management discretion in preparing financial reports. Discretionary accruals (DA) are derived by subtracting non-discretionary accruals (NDA) from total accruals (TA) (Jones, 1991, DeAngelo, 1986).

$$DA_{it} = TA_{it} - NDA_{it} \dots\dots\dots(1)$$

The literatures use different sources to define total accruals although they rely on concept that total accruals are the change of non-cash working capital that susceptible to earnings manipulation. Jones (1991) define total accruals (TA) as:

$$TA = [\Delta Cur.As - \Delta cash] - [\Delta CMLTD - \Delta TP] - Depr \dots\dots\dots(2)$$

Where, $\Delta Cur.As$: change in current assets; $\Delta cash$: change in cash; $\Delta CMLTD$: change in current maturities long-term debt; ΔTP : change in tax payable; and $Depr$: depreciation expense. Table 2 presents modified Jones (1991) model in measuring total accruals.

Table 2 – Measurements on Total Accrual

Total Accruals Measures	Description
<i>Balance sheet approach</i>	
Perry and Williams (1994) (PW, hereafter) TA= $[\Delta Cur.As - \Delta cash] - [\Delta Cur.Liab - \Delta CMLTD] - Depr$ Where, $\Delta Cur.Liab$: change in current liabilities	Income tax payable is not removed from total accruals as Jones (1991) because it is important for accruals management strategy (Perry and Williams, 1994).
Teoh et al. (1998b) (Teoh 1, hereafter) CA= $\Delta[Cur.As - cash] - \Delta[Cur.liab - CMLTD]$, or *Narrow: CA= $\Delta[AR + INV + OCA] - \Delta[AP + TP] + OCL$ Where, CA= current accruals; AR: accounts receivable; INV: inventory; OCA: other current assets; AP: account payable; OCL: other current liabilities	Managers have more discretion over current accruals than non-current accruals; hence depreciation is eliminated from the equation.
<i>Cash flow approach</i>	
Subramanyam (1996), Hribar and Collins (2002) (HC1, hereafter) TA= (Income before extraordinary item) – (operating cash flow) Teoh et al. (1998b) (Teoh 2, hereafter)	For data that have cash flow statement (after 1987). The difference between earnings and cash flow considered as accruals.

TA= (Net Income) – (operating cash flow)

Koerniadi and Tourani-Rad (2008)

TA= (Operating income) – (operating cash flow)

Hribar and Collins (2002) (HC2, hereafter)

*Narrow: TA= – (ΔAR + ΔINV + ΔAP + ΔTP + ΔOCA + Depr)

The data are taken from the statement of cash flow (prepared using indirect method). It reveals the changes in working capital accounts and depreciation to avoid non-operating changes effect.

**Narrow: using narrow definition of current assets i.e. AR and INV that might not be applicable for certain industries*

The evolution of total accrual is due to some factors. First, database could also be problematic. Li (2011) manually collected the financial data from 1926 to 1960 since COMPUSTAT is available after 1961. Second, the availability of data is critical. After 1987, cash flow statement is available. Since it reconciles accrual based earnings and cash basis accounting, the difference between operating income and net cash flow from operation is considered as total accruals. In analysing accrual data before 1987, researchers, such as Subramanyam (1996) and Teoh et al. (1998a), utilize ‘fund flow from operations’ as in 1971 FASB mandated U.S. firms to report sources and uses of fund. However, researches that use data before 1987 or 1971 should rely on balance sheet approach although Hribar and Collins (2002) criticized the use of it.

Third, the definition of each data used in total accrual model might vary among researchers. For instance, total accrual model of Teoh et al. (1998a) was defined as net income (COMPUSTAT item #172) minus operating cash flows (#308) while Subramanyam (1996) and Marquardt and Wiedman (2004) definition was net income (#18) minus operating cash flows (#308). They used the same term of ‘net income’ but they were different in their way to define net income and it might cause variation in accrual data. Fourth, differences of industry would bring the same problem as certain industry has specific financial statements form and financial terms as well. Therefore, more than 50% of the literatures choose to exclude specific industries firms (financial institutions) and almost all employ general formula of TA rather than the narrow version in order to have more flexibility in calculating total accruals.

3.1.2. Discretionary and Non-Discretionary Accruals

Operational definition of discretionary accruals evolves. Healy (1985) used total accrual to measure EM although he called it as DA. DeAngelo (1986) eliminated the bias of nondiscretionary accrual (NDA) from the total accrual and called the measure as DA. Finally, Jones (1991) expanded DA measurement, and thereafter was modified by Dechow et al. (1995), Teoh et al. (1998a), and Kothari et al. (2005).

Originally, Jones (1991) model defines discretionary/abnormal accrual as the difference between total accruals and estimated/expected/normal accruals:

$$u_{it} = \frac{TA_{it}}{A_{it-1}} - \left[\alpha_1 \left(\frac{1}{A_{it-1}} \right) + \beta_{1it} \left(\frac{\Delta REV_{it}}{A_{it-1}} \right) + \beta_{2it} \left(\frac{PPE_{it}}{A_{it-1}} \right) \right] \dots \dots \dots (3)$$

where: u = discretionary accruals; TA= total accrual scaled by lagged total assets; ΔREV = change in total revenues between current and previous year; PPE= gross property plan and

equipment; α_1, β_1 , and β_2 are estimated using following models and previous year data in time-series way, although DeFond and Jiambalvo (1994) use the model cross-sectionally:

$$\frac{\Delta A_{it}}{A_{it-1}} = \alpha_1 \left(\frac{1}{A_{it-1}} \right) + \beta_{1it} \left(\frac{\Delta REV_{it}}{A_{it-1}} \right) + \beta_{2it} \left(\frac{PPE_{it}}{A_{it-1}} \right) + \varepsilon_{it} \dots \dots \dots (4)$$

Jones (1991) attempted to control the effect of economic conditions variations on the company's accrual by including changes in revenues and gross property, plant, and equipment (PPE) to the model. Change in income is taken because it is relatively objective as a measure of the company's operations before accrual manipulation. Meanwhile, PPE incorporated into the model to control nondiscretionary depreciation. All variables in the model are scaled by total assets to reduce heteroskedasticity. However, Jones (1991) model implicitly assumes that revenue is not manipulated. Only 7 of the literatures used original type of Jones model.

Modified Jones model proposed by Dechow et al. (1995) was used by 8 studies. Dechow et al. (1995) modified Jones model by subtracting the change in receivables from the changes in revenue to uncover revenue manipulation in particular period. NDA_{it} is calculated as follows:

$$NDA_{it} = \alpha_{it} \left(\frac{1}{A_{it-1}} \right) + \beta_{1it} \left(\frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} \right) + \beta_{2it} \left(\frac{PPE_{it}}{A_{it}} \right) \dots \dots \dots (5)$$

where, ΔREV_{it} = change in total revenue for firm i in year t ; ΔREC_{it} = change in net receivables for firm i in year t ; PPE_{it} = gross property, plant, and equipment for firm i at the end of year t ; α_{it} , β_{1it} , and β_{2it} = parameters for firm i in year t that are estimated use Jones (1991) model, equation 4, either in cross-sectional or time-series.

Although many researchers advocate the use of modified Jones, for example Dechow et al. (1995) and Park and Park (2004), it is subjects of criticism. Guenther (1994) said that managers tend to manage short-term accruals since it is related with day-to-day operation and more material in number. Managing income through depreciation could not be too frequent and the 'benefit' of adopting aggressive depreciation method would not be longer than economic life of assets (Chen et al., 2010). Teoh et al. (1998a) modified NDA formula by eliminating PPE that represents long-term accruals. DA model of Teoh et al. (1998a) is used by 8 studies of the literatures. These studies assume that current accruals are more susceptible to be manipulated than aggregate accruals. Non-discretionary current accruals model according to Teoh et al. (1998a) is:

$$NDCA_{it} = \alpha_{it} \left(\frac{1}{A_{it-1}} \right) + \beta_{1it} \left(\frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} \right) \dots \dots \dots (6)$$

Where NDCA= non-discretionary current accruals and α_{it} and β_{1it} are estimated using this model:

$$\frac{\Delta A_{it}}{A_{it-1}} = \alpha_1 \left(\frac{1}{A_{it-1}} \right) + \beta_{1it} \left(\frac{\Delta REV_{it}}{A_{it-1}} \right) + \varepsilon_{it} \dots \dots \dots (7)$$

Current accruals or CA is defined by Teoh et al. (1998b) in Table 2.

When performance of a company is important to be observed, Kothari et al. (2005) proposed a ROA-adjusted modified Jones' model. Their model assumes that discretionary accruals of firms experiencing abnormal performance are not comparable with their counterparts (Chou et al., 2010). The model is as follows:

$$\frac{\Delta A_{it}}{A_{it-1}} = \alpha_0 + \beta_{1i} \left(\frac{1}{A_{it-1}} \right) + \beta_{2i} \left(\frac{\Delta REV_{it}}{A_{it-1}} \right) + \beta_{3i} \left(\frac{PPE_{it}}{A_{it-1}} \right) + \beta_{4i} (ROA_{it}) + \varepsilon_{it} \dots\dots\dots (8)$$

Kothari *et al.* (2005) also suggested that estimation model should be tested in cross-sectional with respect to the similarity level of ROA when compiling a portfolio. This model is used by 8 of the literatures. However, Dechow et al. (2010) suggest that this model will reduce the power of test of discretionary accruals.

The issue of estimating specific-firm parameters whether use cross-section or time-series regression is important to discuss. Appendix 3 indicates that none of the literatures employ time-series estimation and it confirms Wilson (2011). Both cross-sectional and time-series approaches have their limitations. Although cross-sectional model may maximize sample size and avoids the survivorship bias problem (Ching et al., 2006, Koerniadi and Tourani-Rad, 2008), this method could not perfectly capture the behaviour of normal accrual due to the differences in the assets structure and operation within portfolio that is strictly selected (Wilson, 2011). On the other hand, time-series model will overcome variation problem in portfolio basis but it faces data survivorship problem that challenges the power of statistical prediction (DeFond and Jiambalvo, 1994). Moreover, unusual events of a company, such as merger and acquisition, will disguise the normal accrual prediction (Wilson, 2011).

3.1.3. Accounting Methods

Due to some problems and debates in accrual measurement, McNichols (2000) suggests departing from extensive reliance on accrual in investigating EM. In addition to accrual, adoption of a particular accounting methods or transaction could be the symptom of earnings manipulation. This approach is used by six of the literatures in finding EM.

Management discretion in applying accounting methods could be used to uncover EM. Cheng and Coulombe (1993) examined the use of income increasing accounting change to avoid adversity due to changes in economic environments. Cohen et al. (2011) find evidence that warranty accruals are used by management to accomplish earnings goals. Haw et al. (2005) and Kao et al. (2009) found that IPO firms manage income through below-line-item or non-core earnings since these items are more flexible to be controlled such as investments gains/losses and unusual non-operating items.

Table 3 - Alternative Ways to Findings on Earnings Management

No	Authors	EM Proxy	Rationale
Panel A: Finding Earnings Management through Accounting Methods			
1	Aharony, <i>et al.</i> (2010)	Related-party transaction	Increase profit from related parties (holding companies)
2	Cheng & Coulombe (1993)	Accounting Change	Voluntary income increasing accounting changes are under

3	Cohen, <i>et al.</i> (2011)	Abnormal warranty expenses	management discretion The accrued warranty expense is based on managers' estimate
4	Hribar, <i>et al.</i> (2006)	Accretive stock repurchases	It technically increase EPS
5	Marquardt & Wiedman (2005)	Contingent convertible bonds (COCOs) Issuance	Accounting standard allow to exclude COCOs from diluted EPS calculation
6	Kao, <i>et al.</i> (2009) and Haw <i>et al.</i> , (2005)	Non-core earnings/below-the-line items	More flexible to execute than accruals both in timing and magnitude and can recur overtime

Panel B: Earnings Management in the Financial Industry

1	Ahmed, <i>et al.</i> (1999)	Loan loss provision	It is relatively large, related to regulatory capital for banks, and under management discretion.
2	Beaver & McNichols (2001)	Development reserve	It is estimated by P & C insurers under their expectation
3	Christensen, <i>et al.</i> (1999)	IRIS Ratios Achievement	IRIS ratios become <i>ex ante</i> reporting target.
4	Warfield & Linsmeier (1992)	Securities gain/loss	The timing of securities gain/loss realization is under management judgment.

In order to meet earnings target, managers could structure a particular transaction opportunistically. Aharony et al. (2010) found that parent companies engage in related party transactions with their IPO subsidiaries in order to meet IPO regulation threshold. Hribar et al. (2006) provided evidence that firms that would have missed earnings target tend to conduct unusual stock repurchase. By investigating convertible bonds issuance from 2000 to 2002, Marquardt and Wiedman (2005) found that managers tend to issue COCOs when their bonus plans are sensitive to EPS results

3.1.4. Earnings Management of the Financial Industry

Finance industry has specific regulation and risk and hence has different accrual behaviour. Four of the literatures, shown in Table 3, examine the use of specific accruals in this industry. Loan loss provisions are essential accruals for banks and related to regulatory capital. However, Ahmed et al. (1999) found that managers tend to use loan loss provision to manage capital rather than to manipulate earnings. Moreover, the timing of securities transaction gain or loss realization (through sales) can influence banks' earnings figure and it is used to smooth income in the near fiscal year end (Warfield and Linsmeier, 1992).

Insurance industry also has specific accruals that mainly rely on management estimates. Beaver and McNichols (2001) found an indication that development reserve is used by property and casualty insurer to smooth income. The solvency of property and liability insurers in U.S. is assessed by National Association of Insurance Commissioners (NAIC) which uses a group of financial ratios that called Insurance Regulatory Information System (IRIS) ratios. Christensen et al. (1999) asserted that IRIS ratios become *ex ante* reporting target and provide incentive to manage earnings.

3.1.5. Unusual Positive Earnings

Two of the literatures provide evidence that unusual positive earnings could detect EM. Fung et al. (2008) indicated significant positive earnings before right issues announcement then

decline for several years after. They showed that firms engage in EM to meet regulatory threshold for issuing rights. Myers et al. (2007) showed that firms which have at least twenty consecutive quarters of positive EPS, or earnings strings, are more likely to engage in EM. When the strings are broken since accruals could not be managed for long-terms, earnings decrease and followed by stock price declines.

The frequency distributions of income might be applied to observe opportunistic behaviour around particular earnings threshold (Kimbrow, 2005). For instance, Burgstahler and Dichev (1997) utilize this measure to indicate earnings manipulation in avoiding losses. Although this measure is not immune from criticism (see, for instance, Dechow et al. (1995); Durstchi and Easton (2009, 2005)), many literatures still take the advantage of this proxy and arbitrate the weaknesses through sensitivity analysis.

3.2. Incentives of EM and Market Responses

To describe incentives of earnings management, this study grouped the literatures based on the themes they discussed or the context in which earnings management is found. However, some papers used more than one context to find earnings management such as insider trading in secondary equity offerings or regulation in IPO, therefore these papers would be accounted in two themes. On the other hand, there were papers that did not have any specific theme and would be discussed separately or included in the determined theme.

3.2.1. External Financing

In order to reach external financing, managers have the opportunity to cosmetically improve the financial performance. There are 14 literatures that find EM in stock financing context and 2 examine EM in bonds financing.

Table 4 shows that the stock financing dominates EM studies. Aharony et al. (2010) proved that managers in China using tunnelling to increase profit of IPO subsidiaries while Kao et al. (2009) demonstrated that Chinese companies do income increasing to meet regulatory minimum ROA before IPO. Kimbro (2005) presented interesting evidence where Chinese companies decreased income in obtaining financing through IPO to save profits and realize when needed in the future.

Table 4 - Financing and Regulation Incentives and Market Pricing of EM

No	Authors	Year of Study	Country of Study	Context of Study	Incentives of EM	Modus Operandi	Short-term Reaction	Long-term Reaction
<i>Panel A External Financing and EM</i>								
1	Aharony, <i>et al.</i> (2010)	1999-2001	China	IPO & Accounting Method	Stock financing	Increasing	-	Negative
2	Chang, <i>et al.</i> (2010)	1989-2003	US	IPO & Underwriter Role	Stock financing	Increasing	-	Not-Respond
3	DuCharme, <i>et al.</i> (2001)	1982-1987	US	IPO	Stock financing	Increasing	Positive	Negative
4	Kao, <i>et al.</i> (2009)	1996-1999	China	IPO & Regulation	Stock financing & pass regulation threshold	Increasing	Negative	Negative
5	Kimbrow (2005)	1995-2002	China	IPO	Stock financing	Decreasing	Positive	-
6	Li (2011)	1926-1998	US	IPO	Stock financing	Increasing	-	Negative
7	Teoh, <i>et al.</i> (1998)	1980-1990	US	IPO	Stock financing	Increasing	-	Negative
8	Chen, <i>et al.</i> (2010)	1997-2003	US	Seasoned Equity Offering	Stock financing	Increasing	-	Negative
9	Ching, <i>et al.</i> (2006)	1993-2000	Hong-Kong	Seasoned Equity Offering	Stock financing	Increasing	Not-Respond	Not-Respond
10	Chou, <i>et al.</i> (2010)	1980-2000	US	Private Equity Placements	Stock financing	-	-	Not-Respond
11	Fung, <i>et al.</i> (2008)	1993-2000	China	Seasoned Equity Offering & Regulation	Stock financing & pass regulation threshold	Increasing	Positive	-
12	Haw, <i>et al.</i> (2005)	1996-1998	China	Seasoned Equity Offering & Regulation	Stock financing & pass regulation threshold	Increasing	Negative	-
13	He, <i>et al.</i> (2010)	1977-1999	Japan	Private Equity Placements	Stock financing	Increasing	-	Negative
14	He, <i>et al.</i> (2011)	1989-2001	US	Private Equity Placements	Stock financing	Increasing	-	Negative
15	Marquardt & Wiedman (2004)	1984-1991	US	Secondary equity offerings & Insider trading	Stock financing & increasing manager's wealth	Increasing	Negative	-
17	Chou, <i>et al.</i> (2009)	1981-1998	US	Bonds issuance	Bond financing & convertible bonds benefits	Increasing	-	Negative
16	Marquardt & Wiedman (2005)	2000-2002	US	Bonds issuance	Bond financing & avoiding EPS dilution	Increasing	Not-Respond	-
<i>Panel B Regulation and EM</i>								
1	Altamuro, <i>et al.</i> (2005)	1997-1999	US	Regulation in capital market	Meet benchmark	-	Positive	-
2	Christensen, <i>et al.</i> (1999)	1989-1992	US	Regulation in finance industry	Pass regulation threshold	Increasing	Negative	-
3	Fung, <i>et al.</i> (2008)	1993-2000	China	Regulation in seasoned equity offering	Stock Financing & Pass regulation threshold	Increasing	Positive	-
4	Haw, <i>et al.</i> (2005)	1996-1998	China	Regulation in seasoned equity offering	Stock Financing & Pass regulation threshold	Increasing	Negative	-
5	Kao, <i>et al.</i> (2009)	1996-1999	China	Regulation in IPO	Stock Financing & Pass regulation threshold	Increasing	Negative	Negative
6	Li, <i>et al.</i> (2011)	1988-2002	China	Regulation in capital market	To pass regulatory threshold	Big-bath	-	Positive

Besides the IPO, many researchers also discover EM in seasoned or secondary equity offerings (SOE). Marquardt and Wiedman (2004) stated that SOE provides two EM incentives i.e. managers may sell their shares in SOE and the increase of stock prices can be directed through EM. All literatures agreed that EM in SOE and private equity placement is for financing purpose, passing SOE regulations (Fung et al., 2008, Haw et al., 2005), and increasing managers' wealth (Marquardt and Wiedman, 2004).

Companies could also receive funding through bonds. Marquardt and Wiedman (2005) suggested that managers prefer issuing Contingency Convertible Bonds (COCOs) because it will not erode EPS and its transaction costs as same as ordinary bonds. Chou et al. (2009) convinced that convertible bonds might mitigate the problems related to bonds or equity financing. Both of them find that managers engage in income increasing before issuing convertible bonds in order to enjoy higher issuance price.

Under the efficient market assumptions, investors should recognize this manipulation and respond rationally. However, eight studies that observe the short-term responses of investors to EM show conflicting results. DuCharme et al. (2001) and Kimbro (2005) proved that pre-IPO EM is positively associated with initial market value of the firm might be due to earnings bias as DA are the components of earnings. Fung et al. (2008) found that investors in China positively respond to income increasing right issues. Fung *et al.* (2008) assumed that positive and significant earnings before rights issues date and decline for several years after right issues is an evidence of EM.

Three studies find the negative reaction to EM. Marquardt and Wiedman (2004) indicated that U.S. investors negatively respond to the companies that engage insider trading. Kao et al. (2009) and Haw et al. (2005) specified that pre-event DA negatively related with return in the event date in China. However, Ching et al. (2006) and Marquardt and Wiedman (2005) did not find any evidence that investors recognize EM. Thus, investors' sophistication remains questionable.

Although short-term investor reaction to EM is still not conclusive, EM is negatively priced in long term since income increasing accruals will not last long. Chou et al. (2010) stated that firms conducting aggressive EM experience worse post-offerings stock return. Meanwhile, Ching et al. (2006) asserted that investor prices the DA at the event date and thus there is no subsequent impact on stock returns. However, these evidences are from value relevance study and not related to capital market efficiency (Dumontier and Raffournier, 2002, Beaver, 2002).

Specifying statistical test of market reaction toward EM is an important issue. Researchers should specify the EM measures that can be easily recognized by investors although the 'easy' term relatively depends on investor sophistication. In addition, short-term market test such as event study would be useful to observe investor reaction to EM (Baber et al., 2006). To sum up, the question of Healy and Wahlen (1999) regarding the inconsistency effect of EM on resource allocation remains unanswered.

3.2.2. Regulation

Table 4 panel B shows the six papers which prove that the regulation could lead to EM. Both, Fung et al. (2008) and Haw et al. (2005), found that Chinese managers engage in EM to comply with regulatory ROE of 10% before rights issues or SOEs. Haw et al. (2005) indicated that Chinese managers use non-operating items to increase income. Kao et al. (2009) and Fung et al. (2008) said that all Chinese IPO firms decrease in profitability after using non-core earnings to increase income. Li et al. (2011) showed that Chinese companies

do 'big-bath' to avoid delisting rule. Meanwhile, Altamuro et al. (2005) proved that the regulations of U.S. capital markets affect aggressiveness in managing profits.

In short-term, investors non-monotonically price EM for regulation purposes. Haw et al. (2005) and Kao et al. (2009) agreed that Chinese investors negatively priced EM. Christensen et al. (1999) asserted that when earnings are perceived too noisy due to EM, earnings will be less informative. However, Altamuro et al. (2005) suggested that investors fail to recognize EM. Fung et al. (2008) also find that EM in right issues lead to positive reaction from Chinese investors. Fung et al. (2008) also found that EM in right issues lead to positive reaction from Chinese investors due to higher subscription price bias. Could it be concluded that investors are not rational related to EM or the effect of EM on capital market is not monotonic?

As indicated in Table 4 - Panel B, long-term pricing of EM produces conflicting results as well. Kao et al. (2009) stated that investors do price correction in long term. However, Li et al. (2011) find that EM is positively associated with stock return either in China or U.S. These evidences need to be re-examined in the context of questioning the efficiency of the capital market.

3.2.3. Individual Opportunistic Behaviour

It is believed that individual opportunism may induce EM (Watts and Zimmerman, 1978). Four studies in Table 5 panel A demonstrates that EM performed to achieve individual goals i.e. increase managers' wealth (Bartov and Mohanram, 2004, Beneish and Vargus, 2002, Marquardt and Wiedman, 2004, Park and Park, 2004). Through insider trading, managers are able to sell their shares at higher price after increasing income. Bartov and Mohanram (2004) indicated that managers exercise stock options to increase the value of their wealth. Collins and DeAngelo (1990) suggested that evaluated managers during proxy contest are likely to increase earnings to have more favourable picture.

Three papers suggest that investors, in short-term, are not able to anticipate EM efforts to influence stock prices. Bartov and Mohanram (2004) showed that returns increase significantly when the stock option exercised and decrease thereafter following the decline in profits. Collins and DeAngelo (1990) also found that the value relevance of earnings before and during the proxy contest is not declining. Furthermore, Marquardt and Wiedman (2004) showed that insider trading stock return is greater than non-traders.

In the long term, opportunistic EM is not consistently priced by investors. Park and Park (2004) and Bartov and Mohanram (2004) indicated that EM is negatively affected stock returns due to lower earnings in the long run. Beneish and Vargus (2002) explicitly stated that investors fail to interpret insider trading information due to difficulties in distinguishing liquidity-motivated selling from opportunistic selling.

3.2.4. Firms Opportunism

Table 5 of Panel B shows researches on EM which stem from opportunistic firm's interests. Cheng and Coulombe (1993) proved that income increasing accounting change is to avoid adversity while Coles et al. (2006) suggested that managers cancel stock option then reissue it in order to avoid recording compensation expense. Hribar et al. (2006) altered that stock repurchase is conducted to avoid EPS dilution and Koerniadi and Tourani-Rad (2008) reveal that stock dividend is to avoid cash-outflow. EM could also be conducted through managing

the company's ownership structure to protect managers from external monitoring (Chung et al., 2004).

The investors' reaction to EM which easily identified, such as accounting change, stock option cancellation, or stock repurchase, indicating that investors are not fooled. Investors negatively respond stock repurchase which is conducted to increase EPS (Hribar et al., 2006). However, accounting method change and stock option delaying are not quickly responded by investors. Cheng & Coulombe (1993) suggest that investors who have prior information on firms' adversity would not or negatively respond accounting change.

3.2.5. Other Incentives

Table 5 panel C presents five studies that are classified as other incentives because they do not observe specific EM motives. For example, Louis and Robinson (2005) demonstrated that the purpose of the stock split is to signalling the capital markets. Meanwhile, Cohen et al. (2011) found a signalling motive behind reporting abnormal warranty expense. The rest three papers suggested that specific accruals in finance industry tend to non-opportunistic behaviour (Ahmed et al., 1999, Beaver and McNichols, 2001, Warfield and Linsmeier, 1992).

Although the setting of these studies is not under opportunistic EM, the reaction of investors to such accrual management tends to be negative. Ahmed et al. (1999) indicated that discretionary loan loss provision is negatively related to the annual return. Cohen et al. (2011) found the same fact with abnormal warranty expense. Warfield and Linsmeier (1992) discovered that investors negatively price securities transaction gain/loss. However, Louis and Robinson (2005) suggested that DA of stock split actors positively priced by investors. It seems that investors recognize these special accruals more as opportunistic EM tools rather than signalling.

3.3. Investor Sophistication and Moderating Variables

Researchers assume that investors are sophisticated to process EM information and rationally respond it. However, the results are not consistent although using the same efficient market assumptions. Balsam et al. (2002) said that the sophisticated investors are able to recognize EM and proportionally respond it. However, Bartov and Mohanram (2004) indicated that sophisticated investors could not uncover EM in the stock option exercise timing. Moreover, Chen et al. (2010) suggested that sophisticated private equity investors do not ask for fair compensation in buying overpriced stocks. Thus, the assumption of investor sophistication of efficient market hypothesis remains questionable.

To assist investor in evaluating EM information, preparers might provide disclosure of financial statement or hire reputable underwriter. Baber et al. (2006) proposed that price reaction is more significant when the balance sheet and/or cash flow disclosures are released concurrently with earnings announcement. Submission of 10-Q filings in U.S. capital market is assumed by Balsam et al. (2002) providing more information for investors in examining EM. In addition to disclosure, Chang et al. (2010) suggested that IPO firms that use prestigious underwriters tend to have a less aggressive EM and enjoy better stock price.

The findings of the literatures tend to challenge the efficient market hypothesis (see Appendix 1). By using U.S. IPO sample, Li (2011) showed that accruals anomaly cannot be explained by behavioural theory instead, it occurs in certain periods and certain stock exchanges. Papanastopoulos et al. (2011) indicated that the external financing anomaly is

triggered by investors who misunderstand the manager's overinvestment. However, the power of behaviour theory in explaining accrual anomaly remains unanswered.

Table 5 - Incentives on Opportunistic Behaviour and Market Pricing of EM

No	Authors	Year of Study	Country of Study	Context of Study	Incentives of EM	Modus Operandi	Short-term Reaction	Long-term Reaction
<i>Panel A Individual Opportunism</i>								
1	Bartov & Mohanram (2004)	1992-2001	US	Stock option	Manager's wealth	Increasing	Positive	Negative
2	Beneish & Vargus (2002)	1985-1996	US	Insider trading	Manager's wealth	Increasing	-	Positive
3	Collins & DeAngelo (1990)	1970-1987	US	Managerial Change	To have more favourable picture	Increasing	Positive	-
4	Marquardt & Wiedman (2004)	1984-1991	US	Insider trading in secondary equity offerings	Manager's wealth	Increasing	Positive	-
5	Park & Park (2004)	1998-2000	US	Insider trading	Manager's wealth	Increasing	-	Negative
<i>Panel B Firms Opportunism</i>								
6	Cheng & Coulombe (1993)	1977-1984	US	Accounting Change	Avoiding adversity	Accounting Change	Not-Respond	-
7	Chung, <i>et al.</i> (2004)	1975-1998	Japan	Ownership structure	managerial opportunism	Ownership structuring	-	Negative
8	Coles, <i>et al.</i> (2006)	1999-2000	US	Stock option	Avoiding compensation charges	Decreasing	Not-Respond	Not-Respond
9	Hribar, <i>et al.</i> (2006)	1988-2001	US	Stock repurchase	Avoiding EPS dilution	Stock repurchase	Negative	-
10	Koerniadi & Tourani-Rad (2008)	1989-2003	New Zealand	Stock Dividend	Avoiding cash dividends (outflow)	Increasing	-	Negative
<i>Panel C Other Incentives</i>								
11	Ahmed, <i>et al.</i> (1999)	1986-1995	US	Bank's loan loss provisions	Signalling	-	Negative	-
12	Beaver & McNichols (2001)	1988-1997	US	Insurer's loss provisions	Smooth income benefits	Smoothing	-	Not-Respond
13	Cohen, <i>et al.</i> (2011)	2003-2006	US	Warranty expense	Signalling	-	Negative	-
14	Louis & Robinson (2005)	1990-2002	US	Stock Split	Signalling	Increasing	Positive	-
15	Warfield & Linsmeier (1992)	1980-1985	US	Bank's securities gain/loss	Tax planning benefits & Smooth income benefits	Smoothing	Negative	-

4. Conclusion

This study aims to describe the development of EM researches, especially related to opportunistic EM which could be described in two different respects: (1) the way to find EM practices; and (2) the reaction of investors to the opportunistic EM. To control the quality of literatures and focus on accounting issues, this study reviews 39 literatures of accounting journals (classified in 1501 ERA journal ranking) that use sample from developed and emerging markets. The review of the EM measurements is to provide inputs to researchers and regulatory bodies about the techniques in uncovering the hidden practice of EM. The description of the investors' reaction to EM is to advice regulators and investors about market efficiency in finding earnings manipulation practices in order to prevent financial disaster.

Methods in finding EM evolve following the development of the business environment. Accruals evolve from total accrual to discretionary accruals. Techniques to determine discretionary accrual change from Jones (1991) to modified Jones (Dechow *et al.*, 1995; Teoh *et al.* 1998a, b; Kothari *et al.* 2005). Researchers or regulators need to consider events or accounting techniques or income distribution that could be used to detect EM. Discretionary accruals are more powerful when used together with other proxy of EM such as earnings string, accounting change, or related party transactions. In addition, the occasions where discretionary accruals are found also help researchers in finding EM, for example IPO, stock dividend, SOE, convertible bonds issue, or the implementation of specific regulations.

It is difficult to determine whether the stock market though in the U.S., efficient or not. Short-term investors' reactions to EM are inconsistent. Researchers need to control confounding effects when observing short-term stock market reaction to EM. Regression analysis in short-event window and event study are more powerful to determine whether investors react rationally or not. In the long run, EM tends to be negatively priced by investors due to the natural decline in accruals and investors' disappointment to diminishing earnings. Although efficient market assumptions are not conclusive, researchers need to consider alternative theories or methods to explain manipulation behaviour.

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Appendix 1 - Summary of Investors' Reaction to EM

No	Authors	Reaction	Study	Country	Dependent Variable	Independent variable	Methods	Authors' reason
1	Aharony, <i>et al.</i> (2010)	Negative*	1999-2001	China	BHR 1year/2year	Δ RPSALES & Δ RPPUR	Value relevance	Pre-IPO EM is overlooked by investors, resulting in post-IPO stock underperformance
2	Ahmed, <i>et al.</i> (1999)	Negative	1986-1995	US	Annual buy-and-hold return	Discretionary loan-loss provision	Regression analysis	Investors viewing the loan loss provision as an expense rather than as a signal of future profitability
3	Altamuro, <i>et al.</i> (2005)	Positive	1997-1999	US	2-day window abnormal return	Unexpected earnings	Regression analysis before and after adoption SAB 101	Investors fail to recognize manipulation of earnings of EM actors
4	Baber, <i>et al.</i> (2006)	Negative	1992-1995	US	3-day cumulative returns	Discretionary Accruals	Regression analysis	An unfavourable average market reaction when re-reported EPS just meets the forecast
5	Balsam, <i>et al.</i> (2002)	Negative	1996-1998	US	17-day window CAR	Discretionary Accruals	Regression analysis	Investors are able to recognize accruals management
6	Bartov & Mohanram (2004)	Positive	1992-2001	US	6-day window abnormal return	[Executive option exercise]	Event study	It might have been confounded by unusual market performance in a short sub-period
		Negative*	1992-2001	US	Annual Returns	-	Return difference test between ESOP exerciser and non	Disappointing earnings in the post-exercise period
7	Beaver & McNichols (2001)	Not-Respond*	1988-1997	US	abnormal return in the subsequent year	Development reserve	Mishkin test	Loss reserve disclosures better enable investors to assess the persistence of development but are less useful for assessing the persistence of the other components of earnings
8	Beneish & Vargus (2002)	Positive*	1985-1996	US	12 months size adjusted return	discretionary accruals	value relevance	The preceding results suggest that accrual mispricing is largely attributable to income-increasing accruals
9	Chang, <i>et al.</i> (2010)	Not-Respond*	1989-2003	US	3-year BHAR	DCA	Value relevance	Earnings management does not result in declining long-term performance for those IPO firms engaging the services of more prestigious underwriters.
10	Chen, <i>et al.</i> (2010)	Negative*	1997-2003	US	3-year book-to-market- and size-matched buy-and-hold	DCA	Value relevance	Reflects investor disappointment over the realization that the favourable trend in earnings prior to the issue fails to continue after the issue

No	Authors	Reaction	Study	Country	Dependent Variable	Independent variable	Methods	Authors' reason
					abnormal return			
11	Cheng & Coulombe (1993)	Not-Respond	1977-1984	US	Average cumulative abnormal return	[Accounting change]	Lagged market model	It is possible that investors have prior information about the adversity and that change announcements do not have any market impact
12	Ching, <i>et al.</i> (2006)	Not-Respond	1993-2000	Hong-Kong	Calendar-month return	Discretionary Accruals	Return difference t-test among discretionary accruals quintiles	This result implies the stock market is not fooled by the use of discretionary accruals at the time of SEOs
		Not-Respond*	1993-2000	Hong-Kong	12- and 24-month abnormal holding period returns	DCA	Value relevance	The stock market therefore appears to price the impact of discretionary current accruals in stock prices at the time of the SEO and thus there is no subsequent impact on stock returns
13	Chou, <i>et al.</i> (2009)	Not-Respond*	1981-1998	US	3-year buy-and-hold abnormal returns	DCA	Value relevance & abnormal return difference test	limited opportunity or incentive to manage earnings
14	Chou, <i>et al.</i> (2010)	Not-Respond*	1980-2000	US	3-year buy-and-hold abnormal returns	DCA	Value relevance	limited opportunity or incentive to manage earnings
15	Christensen, <i>et al.</i> (1999)	Negative	1989-1992	US	2-day window abnormal return	Firm's incentive to manage earnings	Regression analysis	Reported earnings numbers are significantly less informative to investors when they believe managers' incentives to manage earnings are high
16	Chung, <i>et al.</i> (2004)	Negative*	1975-1998	Japan	Cum-dividend price	discretionary accruals per share	Value relevance & abnormal return difference test	Cross-business shareholding entrenches management behaviour, leaving more room for earnings management through discretionary accounting choices
17	Cohen, <i>et al.</i> (2011)	Negative	2003-2006	US	Closing stock price	Abnormal warranty expense	Regression analysis	Investors understand that warranty liabilities of firms that engaged in earnings management are understated
18	Coles, <i>et al.</i> (2006)	Not-Respond	1999-2000	US	5-day window abnormal	Abnormal discretionary	Regression analysis	The market understands the incentives of managers to report lower accruals during this

No	Authors	Reaction	Study	Country	Dependent Variable	Independent variable	Methods	Authors' reason
		Not-Respond*	1999-2000	US	return 9-month buy-and-hold returns	accruals discretionary accruals	Value relevance	time period the incentive to manipulate with accruals is well-understood and that investors do not respond
19	Collins & DeAngelo (1990)	Positive	1970-1987	US	2-day window abnormal return	Dummy for earnings announcement before proxy contest	Regression analysis	Earnings released during a proxy contest are more informative than in prior periods, perhaps because their prominent role in the corporate governance process reflects their increased usefulness to investors attempting to evaluate managerial performance and/or to predict the contest outcome.
20	DuCharme, <i>et al.</i> (2001)	Positive	1982-1987	US	Value of firm at IPO date	Discretionary Accruals	Regression analysis	The significantly positive coefficients on the managed component of accruals support the value relevance hypothesis
		Negative*	1982-1987	US	3-year BHAR	discretionary accruals	Value relevance	disappointment hypothesis
21	Fung, <i>et al.</i> (2008)	Positive	1993-2000	China	Cumulative abnormal return	-	Event study	The IPO prospectus announcement sends additional positive signals
22	Haw, <i>et al.</i> (2005)	Negative	1996-1998	China	Market-adjusted abnormal return	Discretionary Accruals	Regression analysis	Investors adjust for the lower quality of managed earnings for their investment decisions to some extent, as if they are able to "see through" the quality of managed earnings
23	He, <i>et al.</i> (2010)	Negative*	1977-1999	Japan	3-year BHAR	discretionary accruals	Value relevance	Income-increasing accruals reverse in subsequent periods, investors become disappointed and beat down the stock price
24	He, <i>et al.</i> (2011)	Negative*	1989-2001	US	3-year BHAR	discretionary accruals	Value relevance	When the income-increasing accruals reverse in subsequent periods, investors become disappointed and beat down the stock price to the firms' fundamental values
25	Hribar, <i>et al.</i> (2006)	Negative	1988-2001	US	3-day window abnormal return	Dummy for stock repurchase	Regression analysis	Investors do not favourably price repurchase firms when the buyback is likely to have been motivated by a desire to meet or beat analysts' EPS forecasts
26	Kao, <i>et al.</i> (2009)	Negative	1996-1999	China	Abnormal first-day return	Non-core return on asset	Regression analysis	Chinese investors are doubt about whether good performance in the pricing-period could persist

No	Authors	Reaction	Study	Country	Dependent Variable	Independent variable	Methods	Authors' reason
						(NCROA)		into the future
		Negative*	1996-1999	China	3-year CAR	Dummy for aggressiveness to manage earnings	Value relevance	Price correction is gradual and the trend continues as post-IPO
27	Kimbro (2005)	Positive	1995-2002	China	Market-adjusted abnormal return	Discretionary Accruals	Regression analysis	Create underpricing and manage the ex-ante uncertainty and adverse-selection costs
28	Koerniadi & Tourani-Rad (2008)	Negative*	1989-2003	New Zealand	1 year buy and hold returns	discretionary accruals	Value relevance	The stock mis-pricing in the issue year is corrected when the following period's earnings are lower than anticipated due to the reversal effects of this artificially high discretionary part of accruals
29	Li (2011)	Negative*	1926-1998	US	3-year post-issue buy-and-hold return	DCA	Value relevance	Mis-pricing of discretionary current accruals of IPOs is not pervasive and its challenge to market efficiency has been overstated
30	Li, <i>et al.</i> (2011)	Negative*	1988-2002	China	annual buy-and-hold returns	discretionary accruals	Mishkin test	DA does not significantly overestimate the persistence of accruals
31	Louis & Robinson (2005)	Positive	1990-2002	US	2-day window abnormal return	Discretionary accruals	Regression analysis	Investors positively price the pre-split discretionary accruals at the split announcement, which is consistent with signalling theory
32	Marquardt & Wiedman (2004)	Negative	1984-1991	US	Monthly abnormal return	-	Return difference t-test between insider trader and non-trader	In the presence of earnings management, net income is less value relevant in determining stock price, book value plays a greater role in equity valuation
33	Marquardt & Wiedman (2005)	Not-Respond	2000-2002	US	Cumulative abnormal return	-	Return difference t-test between COCOs issuer and non-issuer	Investors do not perceive the contingent conversion feature itself as providing net benefits or costs to the firm as a whole
34	Myers, <i>et al.</i> (2007)	Positive*	1963-2004	US	market-adjusted return	EPS surprise	value relevance	investors' tendency to be overly optimistic in extrapolating the past performance of growth stocks
35	Papanastasopoulos, <i>et al.</i> (2011)	Negative*	1962-2003	US	1-year ahead size-adjusted	Total accrual	Value relevance	The predictability of stock returns associated with external financing activities can be

No	Authors	Reaction	Study	Country	Dependent Variable	Independent variable	Methods	Authors' reason
					annual returns			explained away by total accruals
36	Park & Park (2004)	Negative*	1998-2000	US	1-year market-adjusted stock returns	discretionary accruals	Value relevance	the inflated earnings cannot be sustained
37	Subramanyam (1996)	Positive*	1973-1993	US	annual stock return 12-month period	discretionary accruals	value relevance	EM as signalling
38	Teoh, <i>et al.</i> (1998)	Negative*	1980-1990	US	buy-and-hold stock returns	DCA	Return difference test based on EM aggressiveness	Investors may have been misled by opportunistic earnings management at the time of the IPO
39	Warfield & Linsmeier (1992)	Negative	1980-1985	US	2-day window abnormal return	Unexpected securities transactions gain/loss	Regression analysis	Because the mean of unrealized securities transaction gain/loss is negative, the negative sign means that transaction loss is bad news for investors

Appendix 2 - Selected Articles of EM and Its Capital Market Responses from 1990 to 2011

No	Authors	Publication Year	Journal	2010 ERA's Ranking	Year of Study	Country of Study
1	Aharony, <i>et al.</i>	2010	Journal of Accounting and Public Policy	A	1999-2001	China
2	Ahmed, <i>et al.</i>	1999	Journal of Accounting and Economics	A	1986-1995	US
3	Altamuro, <i>et al.</i>	2005	Accounting Review	A	1997-1999	US
4	Baber, <i>et al.</i>	2006	Review of Accounting Studies	A	1992-1995	US
5	Balsam, <i>et al.</i>	2002	Journal of Accounting Research	A	1996-1998	US
6	Bartov&Mohanram	2004	Accounting Review	A	1992-2001	US
7	Beaver &McNichols	2001	Review of Accounting Studies	A	1988-1997	US
8	Beneish&Vargus	2002	Accounting Review	A	1985-1996	US
9	Chang, <i>et al.</i>	2010	Accounting & Finance	B	1989-2003	US
10	Chen, <i>et al.</i>	2010	Journal of Banking and Finance	C	1997-2003	US
11	Cheng &Coulombe	1993	Contemporary Accounting Research	A	1977-1984	US
12	Ching, <i>et al.</i>	2006	Journal of Contemporary Accounting & Economics	B	1993-2000	Hong-Kong
13	Chou, <i>et al.</i>	2009	Journal of Business Finance & Accounting	A	1981-1998	US
14	Chou, <i>et al.</i>	2010	Review of Quantitative Finance & Accounting	B	1980-2000	US
15	Christensen, <i>et al.</i>	1999	Journal of Business Finance & Accounting	A	1989-1992	US
16	Chung, <i>et al.</i>	2004	Journal of International Accounting, Auditing & Taxation	B	1975-1998	Japan
17	Cohen, <i>et al.</i>	2011	Accounting Review	A	2003-2006	US
18	Coles, <i>et al.</i>	2006	Journal of Accounting and Economics	A	1999-2000	US
19	Collins &DeAngelo	1990	Journal of Accounting & Economics	A	1970-1987	US
20	DuCharme, <i>et al.</i>	2001	Journal of Accounting, Auditing & Finance	A	1982-1987	US
21	Fung, <i>et al.</i>	2008	Journal of International Financial Management & Accounting	B	1993-2000	China
22	Haw, <i>et al.</i>	2005	Contemporary Accounting Research	A	1996-1998	China
23	He, <i>et al.</i>	2010	Managerial Auditing Journal	B	1977-1999	Japan
24	He, <i>et al.</i>	2011	Academy of Accounting & Financial Studies Journal	C	1989-2001	US
25	Hribar, <i>et al.</i>	2006	Journal of Accounting and Economics	A	1988-2001	US
26	Kao, <i>et al.</i>	2009	Journal of Banking and Finance	C	1996-1999	China
27	Kimbro Koerniadi&Tourani-	2005	Journal of International Financial Management & Accounting	B	1995-2002	China New
28	Rad	2008	Accounting Research Journal	B	1989-2003	Zealand
29	Li	2011	Review of Quantitative Finance & Accounting	B	1926-1998	US
30	Li, <i>et al.</i>	2011	Journal of International Financial Management & Accounting	B	1988-2002	China

			Accounting			
31	Louis & Robinson	2005	Journal of Accounting and Economics	A	1990-2002	US
32	Marquardt & Wiedman	2004	Journal of Business Finance & Accounting	A	1984-1991	US
33	Marquardt & Wiedman	2005	Journal of Accounting Research	A	2000-2002	US
34	Myers, <i>et al.</i>	2007	Journal of Accounting, Auditing & Finance	A	1963-2004	US
35	Papanastasopoulos, <i>et al.</i>	2011	The British Accounting Review	A	1962-2003	US
36	Park & Park	2004	Journal of Accounting and Public Policy	A	1998-2000	US
37	Subramanyam	1996	Journal of Accounting & Economics	A	1973-1993	US
38	Teoh, <i>et al.</i>	1998	Review of Accounting Studies	A	1980-1990	US
39	Warfield & Linsmeier	1992	Accounting Review	A	1980-1985	US

Appendix 3 - Earnings Management Measures

No	Authors	Proxy	References	Model	Portfolio	Sample	Tot.Accruals
1	Baber, <i>et al.</i> (2006)	DA	Jones (1991)	(CS) Jones	Pooled	Not Specified	HC 2 (narrow)
2	Balsam, <i>et al.</i> (2002)	DA	DeFond & Jiambalvo (1994)	(CS) Jones	Industry	Various	Jones 1991
3	Bartov & Mohanram (2004)	DA	Bartov <i>et al.</i> 2000; Kothari <i>et al.</i> 2003	(CS) ROA Adjusted Jones Model	Industry	Various	HC 1
4	Beneish & Vargus (2002)	DA	Dechow <i>et al.</i> , 1995	(CS) Modified Jones	Industry	Non-finance	Jones 1991
5	Chang <i>et al.</i> (2010)	DA	Teoh <i>et al.</i> (1998a&b); Kothari <i>et al.</i> , 2005	(CS) Term-adjusted Jones Model & Performance matched	Industry; ROA	Non-finance	Teoh 1
6	Chen, <i>et al.</i> (2010)	DA	Louis (2004) & Kothari <i>et al.</i> (2005)	(CS) Term-adjusted Jones Model & Performance matched	Industry; ROA	Non-finance	Teoh 1
7	Ching, <i>et al.</i> (2006)	DA	Teoh <i>et al.</i> (1998); Rangan (1998); Dechow <i>et al.</i> (1995)	(CS) Term-adjusted Jones Model & Modified Jones Model	Industry	Non-finance	Narrow version of Teoh 1
8	Chou, <i>et al.</i> (2010)	DA	Teoh <i>et al.</i> (1998a&b); Kothari <i>et al.</i> (2005)	(CS) Term-adjusted Jones Model & Performance matched	Industry; ROA	Various	Perry & Willams 1994
9	Chou, <i>et al.</i> (2009)	DA	Teoh <i>et al.</i> (1998a&b)	(CS) Term-adjusted Jones Model	Industry	Non-finance	Perry & Willams 1994
10	Chung, <i>et al.</i> (2004)	DA	Subramanyam (1996); Jones 1991	(CS) Jones	Industry	Non-finance	Jones 1991
11	Coles, <i>et al.</i> (2006)	DA	Jones (1991)	(CS) Jones	Industry	Various	Jones 1991
12	Collins & DeAngelo (1990)	DA	Bowen, <i>et al.</i> (1986); DeAngelo (1988)	random-walk model and the alternative model	-	-	-
13	DuCharme, <i>et al.</i> (2001)	DA	Dechow (1995); Teoh <i>et al.</i> (1998a&b); Dechow (1994)	(CS) Modified Jones Model; Forecast Error Model; Cash Flow	Industry	Non-finance	Teoh 1; HC 1 (narrow & general)
14	Haw, <i>et al.</i> (2005)	DA	Jones (1991)	(CS) Jones	Industry	Various	Jones 1991
15	He, <i>et al.</i> (2010)	DA	Dechow <i>et al.</i> , 1995; Kothari <i>et al.</i> ,	(CS) ROA adjusted modified	Industry	Non-	Jones 1991

No	Authors	Proxy	References	Model	Portfolio	Sample	Tot.Accruals
			2005	Jones Model		finance	
16	He, <i>et al.</i> (2011)	DA	Dechow <i>et al.</i> , 1995; Kothari <i>et al.</i> , 2005	(CS) ROA adjusted modified Jones Model	Industry	Non-finance	Jones 1991
17	Kimbro (2005)	DA	Dechow <i>et al.</i> , 1995	(CS) Modified Jones Model	Pooled	Various	HC 1
18	Koerniadi & Tourani-Rad (2008)	DA	Dechow <i>et al.</i> , 1995; Kothari <i>et al.</i> , 2005	(CS) Modified Jones model & Performance-Matched model	Pooled	Non-finance	Koerniadi & Tourani-Rad
19	Li (2011)	DA	Teoh <i>et al.</i> (1998a&b)	(CS) Term-Adjusted Jones Model	Industry	Various	Teoh 1
20	Li, <i>et al.</i> (2011)	DA	Jones (1991)	(CS) Jones	Industry	Non-finance	Jones 1991
21	Louis & Robinson (2005)	DA	Dechow <i>et al.</i> (1995); Kothari <i>et al.</i> (2005)	(CS) Modified Jones model & Performance-Matched model	Pooled; ROA	Non-finance	Jones 1991
22	Marquardt & Wiedman (2004)	DA	DeFond & Jiambalvo (1994); Dechow <i>et al.</i> , 1995	(CS) Modified Jones model	Industry	Various	HC 1
23	Papanastasopoulos, <i>et al.</i> (2011)	WCA	Richardson <i>et al.</i> (2005) and Dechow <i>et al.</i> (2008)	Richardson <i>et al.</i> (2005) & Dechow <i>et al.</i> (2008)	-	Non-finance	-
24	Park & Park (2004)	DA	Dechow <i>et al.</i> , 1995; Teoh <i>et al.</i> (1998a&b)	(CS) Modified Jones model & Term-adjusted model	Industry	Non-finance	Teoh 1
25	Subramanyam (1996)	DA	DeFond & Jiambalvo (1994)	(CS) Jones	Industry	Various	Subramanyam, 1996
26	Teoh, <i>et al.</i> (1998)	DA	Teoh <i>et al.</i> (1998a&b); matched-pair abnormal accruals; Beneish (1994)	Term-adjusted Jones Model	Industry	Various	Teoh 1

(CS): Cross section