

Does Asymmetric Information relate to Income Smoothing? An Inquest

Abel Tarfa (PhD)

abeltarfa@yahoo.com +2348030762130

Department of Accounting, Adamawa State University, Mubi, Nigeria

Abstract

Asymmetric information and income smoothing studies have shown differing results on the relationship between the concepts. Some studies show how they relate with others stating no relationship completely. This paper showed how the later is associated with the former from selected literature reviewed with a view to answering the question on whether asymmetric information is an important factor for inclusion in income smoothing studies and models. The paper is a literature review which purposively selects 15 published empirical articles, mainly, in peer reviewed journals using thematic analysis. The paper concludes that asymmetric information and income smoothing are related or associated and are placed as driving each other in both directions. Asymmetric information may be stated as an important variable for income smoothing studies with income smoothing as the independent variable and asymmetric information the dependent variable being more popular. Also, discretionary accruals for income smoothing and market-based measures for asymmetric information are the most used measures from extant studies reviewed and analyzed.

Keywords: Income smoothing, Asymmetric information, Earnings management, Discretionary accruals

Introduction

Several studies on income smoothing have used a myriad of factors associated with or driving income smoothing. Extant literature on income smoothing have studied income smoothing in relation to firm value (Huang et al., 2009), fair valuation (Choi, Mao, & Upadhyay, 2015), real earnings management and long-run stock returns (Aflatooni & Nikbakht, 2010). Other studies examined the motives or incentives for smoothing income (Acharya & Lambrecht, 2015; Healy & Wahlen 1999). Incentives for income smoothing as documented by these studies include capital market expectations, contracts, bonuses and regulations and are stated as the motives driving the practice of income smoothing.

Acharya and Lambrecht (2015) argue that a major reason for income smoothing is the pressure exerted on corporate management to meet the market's income expectation. The aforementioned studies have assessed how income smoothing is influenced by several factors. These studies have however, focused on the incentives driving the practice of income smoothing. Much fewer studies have assessed the information environment as an influential factor that allows or controls the practice of income smoothing whether there is a managerial

incentive or not. Some studies have attempted filling this gap by investigating how the information environment, specifically asymmetric information, influences managers to engage in income smoothing irrespective of their motives. It should be noted that the motives of managers are often at variance with investors as posited by the agency theory.

Some studies have attempted research on income smoothing and earnings informativeness or asymmetry (Acharya & Lambrecht, 2015; Tucker & Zarowin, 2006) but have largely considered informativeness in terms of the signaling theory. These studies suggest that income smoothing mitigates information asymmetry since some managers choose to signal latent or unobservable information to outsiders through income smoothing or earnings management. They imply that income smoothing drives asymmetric information. On the other hand, the lack of symmetric information in the context of the agency theory with management as the agents and the shareholders and potential investors as principals explains the inherent conflict or differing interests of the parties that are stakeholders of the firm, thereby implying that the diverse interests would require different reporting incentives to satisfy them. Reporting accounting information by one party (management) would consequently be biased toward other parties (outside stakeholders), a situation leading to asymmetric information. Consequent upon this are studies that suggest opportunistic behavior by management, implying that the more outsiders are unaware of information content of earnings, the more managers engage in smoothing. Both scenarios portend a situation of simultaneity between the variables in terms of direction, causality or which variable drives the other.

A common denominator to these studies however is the idea that some relationship is inferred between asymmetric information and income smoothing irrespective of the direction or which variable drives the other. Some other studies however suggest that no relationship or association exists between the variables (Firmansyah & Herawaty, 2019; Firmansyah & Irwanto, 2020). This paper, therefore, seeks to establish from 15 extant empirical literature:

- i. whether asymmetric information is related to or associated in any way with income smoothing irrespective of causal relationship,
- ii. how studies place the variables in terms of direction to possibly infer causality, and incidental to these,
- iii. the measures used for the variables.

The paper essentially provides more insight into the relationship between asymmetric information and income smoothing by revealing the predominant direction of the association and measures adopted by previous studies. This could be a useful guide for further research

especially to novice researchers. The rest of the paper is organized into the following sections: literature review exploring asymmetric information and its perspectives, income smoothing and its perspectives, and empirical review; methodology; results and discussion; and conclusion.

Literature Review

Asymmetric Information and its Perspectives

The seminal paper by Akerlof (1970), “market for lemons” explains asymmetric information in rather practical terms as a situation where sellers have more knowledge about a product (cars) than the buyers. Specifically, from an information for decision making perspective, the Oxford Dictionary of Economics (2003) explains asymmetric information as a situation where economic agents do not all possess the same information. Even when they are exposed to the same information, matters of retention and analytical abilities can affect how information is assimilated and put to use. Though this definition explains the idea of information asymmetry, it gives the impression that it is a normal phenomenon and as such any problems posed by informational asymmetries should not be much of an issue.

A somewhat more elaborate definition is given by the Farlex Financial Dictionary (2009) which defines asymmetric information as a situation in which a party in a transaction has more or superior information compared to another especially as it borders on economic transactions. This definition gives a better exposition on asymmetric information as it introduces ‘informational bias’ as implied in the phrase “...more or superior information...”. This suggests that one person has the capacity of acquiring or gaining more information than another. It becomes an issue of concern when the one that has superior information obtains it from a source that the other party is restricted from accessing. Matters of private information then come to play. A party with private information can quite easily engage in corporate insider trading. As Khang and King (2002) put it, corporate insiders take advantage of asymmetric information by trading on their informational advantage. This brings to light the idea that private information can be accessed by some while others may not, implying information asymmetry between the parties.

Li and Zhao (2008) explain information asymmetry in terms of the quality of information of a firm. They imply that a high-quality environment possesses less information asymmetry while a low-quality environment leads to greater asymmetric information. Their study suggests that firms need to provide adequate information publicly through quality financial reporting to aid the best possible investment decisions. Ofonyelu (2013) with respect to bank lending describes asymmetric information as a situation of unequal information possessed by

the lender and borrower, and that such affects the outcome of a loan being negotiated. From the foregoing, asymmetric information can be explained as information that one party possesses in an economic transaction, which gives them comparative advantage over other parties that do not possess such information, thereby leading to gains or better decisions for the former. Transactions could involve contract biddings, sale of property, dealings in investments such as stocks on the capital market.

Several proxies have been used to measure information asymmetry by extant literature (Li & Zhao, 2008; Thomas, 2002). In their work on asymmetric information and bank lending, Crawford, Pavanini and Schivardi (2015) used observable credit risk as a measure of asymmetric information. This risk which is not based on ex-ante but ex-post data gives reasonable information on the possible default probabilities. They assume that asymmetry is predicated on the riskiness of the firm borrowing from the bank which is known to the firm but not known to the bank. The limitation with this measure is in the reliability of the assessment of riskiness of the firm. Furthermore, risk is most likely to be assessed using short-term indicators on the liquidity of the firm. This may be appropriate for a bank for short-term loans but may not be well-fitted for long-term funding. Market based measures provide a way out of the credit risk measure problem.

Abad, Cutillas-Gomariz, Sanchez-Ballesta and Yague (2018) used market-based measures as bid-ask spread which is popular with other studies as analyzed in this paper. Okpara (2010) used deviation of predicted return from actual returns being analyst forecast error. Li and Zhao (2008) used a similar measure of analyst forecast error, defined as the difference between absolute value of mean earnings forecast and actual earnings, scaled by absolute value of actual earnings. The problem with analyst forecast measures is that other factors might affect the forecast and so cannot be entirely attributable to asymmetry in information. The measures are however more reliable for capital market studies.

Information asymmetry is shown as having effect on accounting information. Corporate reports are traditionally the end products of the accounting process, providing accounting information to multiple users. The quality of the accounting process can consequently be construed from the information it provides. Asymmetry in accounting information therefore becomes important for accounting quality. Moradi, Valipour and Dowran (2013) explain that information asymmetry results in a decrease in the informational content of operations. In their study, cash flows and accounting earnings were compared in the presence of information asymmetry for a sample of 76 Iranian firms for the period 2005-2011. The results showed preference for the information content of accounting earnings over cash flows. The

implication of this is that investors may not be able to decipher from cash flow figures as they would earnings; meaning earnings is more informative. This could also imply that investors are either unaware of manipulative tendencies as income smoothing of management or indifferent toward it. Kao and Wei (2014) in their study of firms on the Chinese stock markets associated the quality of accounting information with the levels of asymmetric information. They observed a negative relationship between the two variables.

A salient link exists between asymmetric information, accounting information quality and smoothing of income as some studies are known to use income smoothing as a measure of accounting information quality (Zarowin, 2015). This link provides a perspective on relationship between asymmetric information and disclosure quality. Firmansyah and Irwanto (2020) in a study of 51 manufacturing companies listed on the Indonesian Securities Exchange found that forward-looking disclosure have a mitigating effect on information asymmetry. Similarly, Welker (1995) documented in a study that a disclosure policy that is well-regarded reduces asymmetry of information and leads to increased liquidity in equity markets. Increased liquidity is the result of more informed trading on the capital markets, that is, reduction in asymmetry of information. Welker suggests that a robust disclosure policy which implies one that provides more information useful for trading that otherwise would be undisclosed, is a mitigating factor to asymmetric information.

In a similar study, Healy and Palepu (2001) observe that a possible solution to differing information levels or asymmetry of information between managers and outside investors is regulation that ensures full disclosure of hidden information by managers. Full disclosure is indicative of the necessity of improvement of disclosure requirements being the matter of review of accounting standards in specific areas that managers have incentives not to disclose information as in earnings smoothing practices. Choi et al. (2015) found that introduction of FAS 133 which improved disclosure requirements reduced income smoothing, substantially. This implies that greater disclosure improves information provision and mitigates asymmetry. Bahmani (2014) in a study of 125 firms quoted on the Tehran Stock Exchange (TSE) between 2008-2012 found that information disclosure that is done reliably and promptly attenuates asymmetric information thereby enhancing quality of earnings. The study specifically used the same metrics for accounting quality and earnings management, implying disclosure also reduces earnings management practices. Given the results, disclosure of accounting information specifically in areas that management have the incentive to hide information could provide the needed transparency by regulators and outsiders rather than the selective signaling of hidden information by management.

Income Smoothing and its Perspectives

A commonly accepted definition of income smoothing was provided by Beidleman (1973). He opined that income smoothing is a deliberate act to dampen fluctuations in the level of firm earnings in ways that is not considered unethical. It is a practice that management adopts to reduce abnormal variation in earnings within the confines of sound accounting and management principles. Beidleman's definition clearly presents income smoothing as a choice for managers as long as the practice is within the confines of law and principles of accounting. This is specifically income smoothing not earnings manipulation in general as captured by Healy and Wahlen (1999) in their definition of earnings management where they state that management manipulate with the intention to deceive. Kustono (2021) defines income smoothing as an act of accounting engineering that takes advantage of gaps in accounting standards. This definition of income smoothing is rather similar to that of Beidleman (1973) that explains the practice as within confines of law since it involves exploiting weakness in accounting standards. Managers' opportunistic behavior is inferred from the definitions of income smoothing provided here and are mainly perceived from their incentives for smoothing income.

Motivation for managers manipulating income comprises capital market expectations, contracts, bonuses and regulations (Healy & Wahlen, 1999). With respect to ENRON, the US corporate giant, Healy and Palepu (2003) state that "Enron took full advantage of accounting limitations in managing its earnings and balance sheet to portray a rosy picture of its performance" (p. 9), indicating the motive was to give a better picture of business performance to outsiders. Income smoothing is however generally targeted at the investor. This then would imply capital market considerations. This is arguably the principal reason for smoothing income by managers (Acharya & Lambrecht, 2015). The intention would be to give the investor the impression that income accrues evenly as any wide fluctuations may not be acceptable and may be viewed as risky. Investors are known to be willing to pay a premium for less risky businesses since most investors are deemed to be risk-averse (Sasirekha & Jerinabi, 2015). Baik, Choi, and Farber (2020) showed how managerial ability provides an incentive for smoothing income. They find that with improvement in managerial ability, income smoothing is increased. They stated that high-ability managers included prospective information into current earnings through smoothing. This implies that managers in industry considered to be doing well were more favourably disposed to smoothing income. This line of action by management is suggestive of differing perspectives of smoothing earnings.

Generally, previous studies on manipulations of accounts have approached income smoothing from two broad perspectives. These perspectives are not usually expressed but can be detected based on the study variables. First is income smoothing as a means of signaling latent or unobservable information on earnings, meaning it is informative and capable of mitigating asymmetric information. Second is income smoothing as a means of accentuating information asymmetry by concealing variations in income streams (Acharya & Lambrecht, 2015; Baik, Choi, & Farber, 2020; Huang et al., 2009; Shu, & Thomas, 2019; Uwuigbe, Fagbemi, & Anusiem, 2012). If managers' incentives for smoothing income is to communicate private information, then income smoothing is informative; if on the other hand the incentive is to conceal the real performance of the firm in an opportunistic manner, then income smoothing would lead to a situation where reported earnings is less informative (Cheng & Li, 2014). Baik, Choi, and Farber (2020) in their study concluded that high-ability managers smooth income more to be more informative suggesting a more informative role of income smoothing. Jensen (2005) acknowledges the value of income smoothing to managers, indicating acceptance of the practice but cautions on its long term implications.

The incentives for income smoothing and the perspectives which give direction to variables as used in income smoothing studies have shaped how the concept is measured. Given managerial discretion transactions used for smoothing are generally those that allow use of managerial judgment or discretion. Discretionary accruals have been used traditionally for measuring income smoothing. Discretionary accruals models, including the Healy model, DeAngelo model, Jones model, Jones modified model, Industry model, have been used traditionally and consistently by previous studies to estimate manipulation of earnings (Dechow, Sloan, & Sweeney, 1995; Healy & Wahlen, 1999, Jones, 1991).

Generally, discretionary accruals models decompose total accruals into its discretionary and non-discretionary components (Jones, 1991). Healy (1985) model uses mean total accruals (TA_t) scaled by lagged assets (A_{t-1}) as measure for non-discretionary accruals (NDA). The DeAngelo model proposed by De Angelo (1986) used the difference in total accruals scaled by lagged total assets: $NDA_t = TA_t - TA_{t-1}/A_{t-1}$; where; NDA is non-discretionary accrual, TA_{t-1} is last period's total accrual and A_{t-1} is total lagged assets. The DeAngelo model assumes that average change in non-discretionary accruals is equal to zero so that a change in total accruals is a reflection of a change in discretionary accruals. The assumption is that non-discretionary accruals are constant. This assumption is however, flawed as it is not likely that change in non-discretionary accruals would equate zero all the time. To mitigate this problem, Jones (1991) developed a model, the Jones Model, to cater for economic

circumstances of the firm thus: $\text{Accruals}_t = \alpha(1/\text{assets}_{t-1}) + \beta_1 \Delta \text{sales}_t + \beta_2 \text{PPE}_t + \beta_3 \text{ROA}_t + \mu_t$. This model or its variants have been used by several extant studies as shown in the section on discussion.

In a different approach, Roberts (2015) computed the standard deviation of the annual change in operating income before depreciation to represent income volatility. This study only considered volatility but did not look at the source of the volatility which discretionary accrual models do. This method would not be appropriate if the intent of the study also includes the nature of the item being used to achieve smoothing. Similarly, Michelson, Wooton, and Wagner (2003) used the Eckel Model for estimation of income smoothing. The Eckel Model is based on the relationship between sales and income. It assumes that income is linearly a function of sales, that the variable cost to sales ratio is constant, fixed costs remain constant or behave as step fixed costs but no reduction is experienced and that gross sales can be smoothed by real income smoothing only. The model is expressed as: $\text{CV}(\Delta I) < \text{CV}(\Delta S)$; where $\text{CV}(\Delta I)$ is coefficient of variation of the yearly change in earnings, and $\text{CV}(\Delta S)$ is the coefficient of variation of the yearly change in sales.

There are serious limitations with the Eckel Model which are being addressed by discretionary accrual models. First is the assumption that sales has a linear relationship with variable cost. This can be expected as long as managerial discretion is not applied to sales, particularly the receivables component. Receivables are a major component of sales and are subject to managerial discretion. Furthermore, owing to the managerial discretion over receivables, gross sales can also be subjected to artificial smoothing using the receivables portion. This problem led to the modification of the Jones Model by Dechow, et al. (1995). Some studies analyzed in the discussion section of this paper such as Acharya and Lambrecht (2015) used similar methods as those of Roberts (2015) and Michelson, Wooton and Wagner (2003).

Empirical Review

Several studies have been conducted on the association between asymmetric information and income smoothing. However, to achieve the objectives of the paper, 15 empirical papers are examined here. Abad, Cutillas-Gomariz, Sanchez-Ballesta and Yague (2018) assessed the association between real earnings management and asymmetric information of firms listed on the Spanish Stock Exchange for the period 2001-2008 using 469 firm-year observations. A cash flow based accrual model was used to estimate real earnings management whereas asymmetric information was estimated using 5 market based measures: bid-ask spread,

illiquidity, price impact, probability of information based trading and volume synchronized probability of informed trading. The study found a garbling effect on asymmetric information, implying increased information asymmetry with earnings smoothing. This agrees with the position of Habib and Jiang (2012).

In their study of managerial-induced income smoothing and asymmetric information in New Zealand, Habib and Jiang (2012) used discretionary accruals to study income smoothing while asymmetric information was estimated using two measures: bid-ask spread and firm fundamentals. The result showed a positive relationship between income smoothing and asymmetric information. It can be noted that two different measures of information asymmetry were used similar to how income smoothing used several measures in other studies. This buttresses the challenge of measuring unobservable phenomena as income smoothing and asymmetric information.

In another study, Acharya and Lambrecht (2015) developed a theory of income smoothing when insiders have more information than outsiders, implying information asymmetry. They also assumed that outsiders have property rights that give them the advantage of controlling insiders if they do not get a fair expected return. The assumption of property rights has the implication that though investors may not be as knowledgeable as insiders, they could use the property rights, as a mitigating factor against any adverse smoothing effects from managers. The study develops the model under two scenarios: perfect inference and imperfect inference. Under the perfect inference case, outsiders are able to observe sales, which was expressed as $s_t = q_t$. The other scenario is where sales are unobservable by outsiders, a case of asymmetry, and is therefore measurable with a degree of error, expressed by the researchers as $s_t = q_t + e_t$. The study finds that managers attempt managing the expectations of outsiders by reporting income that meets their expectations. The study further states that insiders are constrained to underinvest owing to the indirect inference (presence of asymmetric information). The authors concluded that an independent audit that ensures the disclosure environment poised to reporting economic values rather than focusing on concerns of measurement accuracy which allows manipulation, can mitigate the problems asymmetry creates. The methodology of this paper excludes the traditional discretionary accrual model for measuring income smoothing as is the case with Abad, Cutillas-Gomariz, Sanchez-Ballesta and Yague (2018) and Habib and Jiang (2012). This is because the study investigates real smoothing (smoothing involving operating decisions like sales level using sales rather than discretionary accrual models).

Richardson (2000) found increase in earnings management (income smoothing) with increase in asymmetric information. This implies that a positive relationship exists between the

variables assessed similar to studies above. Using a time series and cross-sectional model, 355 and 641 firms respectively which were listed on the New York Stock Exchange, were estimated. Earnings management (income smoothing) was estimated using discretionary accruals whereas asymmetric information through bid-ask spread and analysts forecast dispersion. All studies above were carried out in western countries and have a similar pattern in terms of results.

Dadbeh and Mogharebi (2013) studied 47 companies listed on the Tehran Stock Exchange between 2002-2008 to assess the effect of asymmetric information on income smoothing. The study used bid-ask spread which is a market based measure, for asymmetric information and earnings smoothing was estimated using the Jones model which is accrual based. From the results of their study, asymmetric information was shown to have a positive and significant effect on income smoothing. This implies that asymmetric information is a factor driving income smoothing.

In another study conducted involving Iranian firms, Banam and Mehrazeen (2016) assessed the relationship between asymmetric information and income smoothing using 94 companies listed on the Tehran Stock Exchange. They studied 470 firm-year observations from 2010-2014. Discretionary accruals from the modified Jones model was used for income smoothing and asymmetric information was proxy by bid to buy and sell shares. The study finding was similar to that of Dadbeh and Mogharebi (2013) as a significant direct (positive) relationship was found between asymmetric information and income smoothing.

It is worth noting that all the studies reviewed so far showed that asymmetric information and income smoothing are positively related. However, other studies found negative and significant relationship between asymmetric information and income smoothing. In their study on earnings informativeness, Tucker and Zarowin (2006) examined the information environment in terms of whether income smoothing is a tool of informativeness to outsiders or that it rather garbles (distorts) information (that is asymmetric information) on future earnings. Their study suggests that income smoothing may convey hidden information to outsiders as a signaling device. The study employed the use of discretionary accrual models to measure income smoothing. Earnings informativeness was measured by what the researchers referred to as Future Earnings Response Coefficient (FERC) which measures the strength of the change in the current stock price and change in investors' expectations for future earnings. Tucker and Zarowin (2006) find that firms that smooth income more have their future earnings encapsulated in their current stock price much more than those with less

smoothing, implying that income smoothing is more informative than distorting, that is, creating information asymmetry.

A similar study following Tucker and Zarowin (2006) carried out by Cheng and Li (2014), compared US and Chinese firms to test for earnings informativeness through income smoothing using the FERC coefficient. Contrary to the findings of Tucker and Zarowin, they find that income smoothing impact on earnings informativeness was insignificant for Chinese firms. The US firms tested in their study, however showed similar results with Tucker and Zarowin. There are some implications of such contradiction. First is the idea that there are country-specific factors that influence income smoothing practices, besides firm and industry-specific factors. Second, consideration of international accounting models operated by a country may be relevant. Choi and Meek (2011) describe the Chinese economy as a hybrid economy partly controlled by the communist government and partly controlled by market forces. This model which is different from the market-controlled economy of the US could have impact on income smoothing practices.

Joo (1991) used a two-period agency model where managerial ability was not known to shareholders and only known to managers at the end of the first period, to test for income smoothing in the presence of information asymmetry. They also assessed whether income smoothing had an informative or garbling effect on asymmetric information. The study found income smoothing as mitigating asymmetry. The study is in line with more recent studies as in the case of Tucker and Zarowin (2006), and Acharya and Lambrecht (2015). These studies place income smoothing as the independent variable unlike others where the reverse was the case.

Chen (2013) studied 55499 firm-year observations from 1988-2006 using total discretionary accruals as proxy for income smoothing whereas asymmetric information was proxy by three measures: stock return volatility, analysts forecast dispersion and analysts' earnings forecast errors. The study revealed that income smoothing has reducing effect on asymmetric information as shown by all the three measures of asymmetric information adopted.

Chaney and Lewis (1995) examined whether firms engaged in income smoothing to be more informative or not. They used an asymmetric information model comprising high-value and low-value firms in terms of earnings. Economic earnings and parameters that allowed managers to shift (manage or smooth) income were built into the model. Managers may shift earnings away from the mean economic income-less smoothing, or closer to it, implying smoother earnings. Findings showed that high value firms' smooth income to be more informative thereby mitigating information asymmetry.

In a more recent study Baik, Choi and Farber (2020) found that with improvement in managerial ability, income smoothing was increased. They used three models for income smoothing which are all accrual based, whereas market-based measures, specifically, buy and hold returns were used to measure asymmetric information. Managers with higher performance which were referred to as high-ability managers, through smoothing, captured prospective information in current earnings thereby being more informative and consequently mitigating information asymmetry. The study suggests that asymmetric information among others is a possible determinant of income smoothing but has a mitigating effect. This implies a negative relationship between the variables.

A few studies showed no relationship between asymmetric information and income smoothing irrespective of the direction of the study variables. Firmansyah and Herawaty (2019) examined the relationship between artificial and real income smoothing and earnings informativeness (asymmetric information) of companies listed on the Indonesia Stock Exchange between 2010-2017. This study decomposed income smoothing into artificial and real smoothing. In measuring artificial smoothing, negative correlation between changes in discretionary accruals and changes in pre-discretionary income was used by their study. Real smoothing on the other hand was measured using derivatives, that is, financial instruments. Asymmetric information was measured using Future Earnings Response Coefficient (FERC). The study found no relationship between asymmetric information and income smoothing. Essentially, this study implies that income smoothing is not informative and so may be distorting. The methodology used by Firmansyah and Herawaty is similar to the study of Tucker and Zarowin (2006), results however differ.

Similar to Firmansyah and Herawaty (2019), a study carried out on Indonesian firms by Firmansyah and Irwanto (2020) assessed how income smoothing among other factors affects asymmetric information. The methods used were similar to those of Firmansyah and Herawaty for income smoothing. A difference was however observed for asymmetric information. Whereas, Firmansyah and Herawaty (2019) used Future Earnings Response Coefficient (FERC) as with Tucker and Zarowin (2006), stock return volatility was used by Firmansyah and Irwanto (2020). This study showed no relationship between asymmetric information and income smoothing.

Cheng and Li (2014) studied Chinese firms to test if income smoothing enhances earnings informativeness. They also used FERC coefficient to measure information asymmetry. Similar to Firmansyah and Herawaty (2019) and Firmansyah and Irwanto (2020), the result

also showed no association between the variables. This may be another case for country-specific explanation.

From the foregoing review, it is clear that proxies of asymmetric information and income smoothing have shown either a positive, negative or no relationship. The direction of association could be bidirectional and a multiplicity of measures have been adopted to estimate these variables. These issues are further analyzed under the results and discussion segment of the paper.

Methodology

This study is a literature review so uses extant literature from empirical studies to reach conclusion. Thematic analysis of 15 articles published in mainly peer-reviewed journals covering the period 1991 to 2020 was conducted. The articles were accessed on the internet between the years 2020 and 2021 from Google. The literature consulted were not limited to a specific country but global research carried out in different parts of the world on income smoothing and asymmetric information nor in any particular journal. Furthermore, no particular focus was made in this study to whether asymmetric information drives income smoothing or not, rather the direction of the relationship between the variables was emphasized. This is predicated on the possible reverse causality or simultaneity between the variables implying causality may be in either direction as identified (Richardson, 2000). The possible directions of the variables were however analyzed to show studies that place asymmetric information as driving income smoothing or income smoothing driving asymmetric information.

Also, asymmetric information and income smoothing have been described using other terms in various studies. This research conveniently assumes those terms to mean asymmetric information and income smoothing given the nature of description of variables used for measurement. Thematic analysis was carried out using three themes: (i) relationship between asymmetric information and income smoothing, (ii) direction of variables, and (iii) measures as shown in Table 1 and appendix 1. A total of 15 empirical studies were used for the analysis. A scoring method was used such that any paper satisfying any thematic area was scored “1” for that area if not “0”. The scores were totaled and percentages used to draw conclusion for each thematic area. Conclusion was drawn based on the analysis of the studies consulted.

Results and Discussion

This paper considers mainly the association between asymmetric information and income smoothing; it further considers the direction and measures of the variables given the possible

ramifications of relationship between the variables. To do this, as indicated under the methodology section, reliance was placed on 15 empirical papers accessed from the internet. These articles were reviewed under the empirical section. Making reference to these articles based on the objectives and themes of this paper, Table 1 was constructed.

Table 1: Analysis of the Relationship, Direction and Measures of Asymmetric Information and Income Smoothing

S/N	Thematic Areas	Paper No. (as on Appendix 1)															Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1	Relationship																
I	Positive	1	1	0	1	0	0	0	1	0	0	0	1	0	1	0	6 (40%)
ii	Negative	0	0	1	0	1	1	0	0	1	0	0	0	1	0	1	6 (40%)
iii	No Relationship	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	3 (20%)
2	Direction																
i	AI driving IS	0	0	0	-	0	0	0	1	0	0	0	0	0	1	0	2 (15%)
ii	IS driving AI	1	1	1	-	1	1	1	0	1	0	1	1	1	0	1	11 (85%)
3	Measures																
A	IS																
i	Accruals	1	0	1	1	0	1	1	1	1	1	1	1	0	1	1	12 (70%)
ii	Derivatives	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2 (12%)
iii	Others	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	3 (18%)
B	AI																
i	Bid-ask spread	1	0	0	0	0	0	0	1	1	0	0	1	0	1	0	5(29.4%)
ii	Stock return	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	3(17.6%)
iii	Analysts forecast	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2(11.8%)
iv	FERC	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	3(17.6%)
v	Others	0	1	0	0	1	0	0	0	0	0	0	1	1	0	0	4(23.5%)

Note: IS= Income Smoothing, AI= Asymmetric Information, FERC= Future Earnings Response Coefficient

Source: Developed by the Author, 2021.

Table 1 indicates that for the selected theme of relationship between asymmetric information and income smoothing, analysis was made using three classifications: studies showing positive relationship, negative relationship and no relationship. Table 1 shows that 6 out of 15 papers (40%) found a positive relationship between asymmetric information and income smoothing, 6 papers (40%), found negative relationship and 3 papers (20%) found no relationship between the variables. The analysis shows that 12 papers (80%) found some association between the variables either positive or negative, and 3 (20%) did not find any relationship. From the foregoing, it may be inferred that studies support the existence of relationship between the variables though without inferring causality or which variable drives the other. It is instructive to note that papers 7, 10 and 11, which show no association were studies carried out on Chinese and Indonesian firms. Paper 7 which studied Chinese firms also carried out a study on American firms which showed association between asymmetric

information and income smoothing. For papers 10 and 11, they were in the same country, Indonesia, which could explain possibly the reason why the results are similar. This finding has implications that country-specific conditions may probably account for the relationship between the variables. Indeed, the relationship in countries with higher accounting standards and regulatory environment may differ from those with weak accounting and regulatory environment, notwithstanding the adoption of IFRS around the world.

As a follow-up to the theme of relationship between the variables, the direction of the association was analyzed. This becomes imperative because of the simultaneity problem observed between asymmetric information and income smoothing. This part of analysis further explores the finding on the theme of relationship as it enquires the relationship beyond association to establishing whether one drives the other. Table 1 shows that out of the 15 papers used for this study, only 13 were analyzed for purpose of direction of relationship; The direction of study variables was considered irrespective of whether or not an association was found between the variables since the focus is the conceptual framework not the results of the studies. Consequently, though paper 4 showed some association, the variables were not placed in a manner suggesting one driving the other so it was excluded. Also, for paper 10 that showed no association, the variables were not explicitly stated as one driving the other similar to paper 4, so was also excluded. Paper 7 and 11 did not show association between the variables but the variables were placed showing a particular direction so were considered since association is not the consideration here. Analyzing the 13 papers, 2 (15%) of the papers place asymmetric as driving income smoothing. A total of 11 (85%) papers did the reverse by placing income smoothing as driving asymmetric information. It may be observed that studies under the first scenario suggest that a reduction in asymmetric information will invariably reduce income smoothing which is seen as undesirable and that managers are basically opportunistic. Under the second scenario where income smoothing (as independent variable) drives asymmetric information, the studies focused on the informative role of income smoothing by managers, implying that income smoothing may rather be desirable and so used as a signaling device thereby mitigating asymmetric information.

It is quite clear from the review and analysis that studies have shown some level of simultaneity or reverse causality between the variables; while asymmetric information may drive income smoothing, studies also have scenarios inferring income smoothing driving asymmetric information. In particular, whereas the other studies showed income smoothing driving asymmetric information, paper 14 does the reverse, a situation that portends reverse causality. By and large, depending on which direction or perspective, a fundamental fact is

that some studies show that there is a significant relationship between asymmetric information and income smoothing since causal relationship is implied and findings of many showing the variables drive each other. The implication of this finding is that there is opportunity for further research to examine the variables from any dimension, placing any as the independent or dependent variable to the other.

The measures adopted by studies is critical as they are metrics used for inferring the existence of asymmetric information and income smoothing. If the measure is not reflective of the phenomenon being measured, then type I error is likely in the estimation models. Moreover, the measure adopted for estimation may underlie the results of a study. Thus, this paper analyzes the measures employed by the articles reviewed to determine the most predominant and find possibly why such measure predominates the literature.

Different measures have been adopted in the literature to estimate income smoothing and asymmetric information. In the analysis carried out for measures in this study as shown on Table 1, some papers used more than one measure for a variable. The analysis used the number of measures as the total rather than the number of papers. For income smoothing, this paper analyzed the patterns of measures adopted into three classes of accruals, derivatives and others. Table 1 shows that of the 17 measures used by the 15 studies, 12 (70%) of the measures analyzed used discretionary accruals (whether for real or artificial smoothing). A total of 2 (12%) used derivatives particularly for real smoothing while 3 (18%) of the measures used other methods such as Eckel model. It is clear that a majority of the studies adopted discretionary accruals as a measure of income smoothing. The reason for the predominant use of discretionary accruals in measuring income smoothing could be attributed to managers use of the discretionary accruals component of total accruals to manage earnings as shown in seminal and extant studies (Jones, 1991; Tucker & Zarowin, 2006).

For asymmetric information, the analysis of the patterns of measures adopted was assessed using the five classes of: bid-ask spread, stock return, analysts forecast, FERC and others. Table 1 indicates that 5(29.4%) of the measures used bid-ask spread, being the most popular measure adopted by the reviewed studies. Another 3 (17.6%) of the measures reviewed used stock returns, that is, volatility of stock returns to measure asymmetric information whereas 2 (11.8%) used analysts forecast, whether dispersion or forecast error. Another 3 (17.6%) used Future Earnings Response Coefficient (FERC), a method popularized by scholars as Tucker and Zarowin (2006). Other methods that were not popularly used as shown from studies analyzed constituted 4 measures (23.5%). Generally, about 13 (77%) out of 17 of the measures from the studies analyzed used market-based measures as against 4 (23.5%)

measures, being other measures, which were mainly book value related metrics from statement of financial position. The popular use of market-based measures may be owing to asymmetric information being related to investors and managers, that is, investment decisions particularly on the stock market. It is implicit from this finding that the motive of a study significantly determines the measure to be adopted in estimating asymmetric information. Studies investigating capital market parameters will generally employ measures such as bid-ask spread, stock return, analysts forecast or FERC while those interested in issues related to credit facility (loans) will tend to adopt other measures of asymmetric information.

Conclusion and Recommendations

This paper examined the relationship between asymmetric information and income smoothing and the direction of the association as well as the measures adopted by previous studies to estimate these variables. Based on these thematic areas studied, the paper reached the following conclusions. First, there is a relationship between asymmetric information and income smoothing. Secondly, asymmetric information and income smoothing exhibit some level of simultaneity. This implies that both variables drive each other. Thirdly and lastly, on the theme of measures used in the reviewed studies, discretionary accruals model is the most popular measure used for estimating the variable income smoothing while market-based measures, particularly bid-ask spread is employed in measuring asymmetric information. Based on the findings and conclusion, it is apt to state that researchers are at liberty when investigating the relationship between asymmetric information and income smoothing to place any of the variable either as independent or dependent variable to the other. However, when selecting measures for measuring these variables, cognizance should be given to the motive of the study. Nevertheless, researchers interested in this study area could base their studies on the less explore measures for measuring asymmetric information and income smoothing.

This paper like any other suffers from some limitations which does not invalidate the findings but limit the strength of its conclusion. To start with, the paper draws its conclusion using only 15 articles which may not be very sufficient. More so, these articles were accessed from Google and not from a particular renown accounting journal. The period covered, 1991 to 2020 is also relatively not too long. Nevertheless, these shortcomings provide opportunity for other studies to be conducted using the approach set out or even improving on the analytical approach adopted by the current paper.

References

- Abad, D., Cutillas-Gomariz, M. F., Sanchez-Ballesta, J. P., & Yague, P. (2018). Real earnings management and information asymmetry in the equity market, *European Accounting Review*, 27(2), 209-235.
- Acharya, V., & Lambrecht, B. M. (2015). A theory of income smoothing when insiders know more than outsiders. *The Review of Financial Studies* 28(9), 2534-2574
- Aflatooni, A., & Nikbakht, Z. (2010). Income smoothing, real earnings management and long-run stock returns. *Business Intelligence Journal*, 3(1), 55-73.
- Akerlof, G. A. (1970). The market for "lemons": Quality uncertainty and the market mechanisms. *The Quarterly Journal of Economics*, 84(3), 488-500.
- Bahmani, D. (2014). The relationship between disclosure quality and information asymmetry: Empirical evidence from Iran. *International Journal of Financial Research*, 5(2), 110-114.
- Baik, B., Choi, S., & Farber, D. B. (2020). Managerial ability and income smoothing. *The Accounting Review*, 9 (4), 1-22.
- Banam, M. & Mehrazeen, A. (2016). The relationship of information asymmetry, institutional ownership and stock liquidity with income smoothing in Tehran Stock exchange. *UCT Journal of Management & Accounting Studies* 4(3), 6-11.
- Beidleman, C.R. (1973). Income smoothing: The role of management. *The Accounting Review*, 48(4), 653-667.
- Chaney, P., & Lewis, C.M. (1995). Earnings management and firm valuation under asymmetric information. *Journal of Corporate Finance*, 1(3-4), 319-345
- Chen, L. H. (2013). Income smoothing, information uncertainty, stock returns, and cost of equity. *Review of Pacific Basin Financial Markets and policies* 16(3).
- Cheng, C.S.A., & Li, S. (2014). Does income smoothing improve earnings informativeness? A comparison between the US and China markets. *China Accounting and Finance Review*, 16(2), 128-147.
- Choi, F.D.S., & Meek, G.K. (2011). *International Accounting* (7th e.d.). New Jersey: Prentice Hall.
- Choi, J.J., Mao, C.X., & Upadhyay, A.D. (2015). Earnings management and derivative hedging with fair valuation: Evidence from the effects of FAS 133. *The Accounting Review*, 90(4), 1437-1467.
- Crawford, G.S., Pavanini, N., & Schivardi, F. (2015). Asymmetric information and imperfect competition in lending markets. Working paper No. 192, Zurich: University of Zurich
- Dadbeh, F., & Mogharebi, N. (2013). A study on effect of information asymmetry on earning management: Evidence from Tehran Stock Exchange. *Management Science Letters*, 3, 2161-2166
- DeAngelo, L.E. (1986). Accounting numbers as market valuation substitutes: A study of management buyouts of public stockholders. *Accounting Review*, 61, 400-20.
- Dechow, P.M., Sloan, R.G., & Sweeney, A.P. (1995). Detecting earnings management. *The Accounting Review*, 70(2), 193-225.
- Farlex Financial Dictionary (2009). Retrieved from: <http://financial-dictionary>.
- Firmansyah, A., & Herawaty, V. (2019). Do artificial and real income smoothing increase earnings informativeness equivalently in Indonesia? *South East Asia Journal of Contemporary Business Economics and Law*, 18(5), 95-101.
- Firmansyah, A., & Irwanto, A. (2020). Do income smoothing, forward-looking disclosure, and corporate social responsibility decrease information uncertainty. *International Journal of Psychosocial Rehabilitation*, 24(7), 9513-9525.
- Habib, A., & Jiang, H. (2012). Managerial ownership-induced income smoothing and information asymmetry. *Pacific Accounting Review*, 24(2), 211-232.

- Healy, P. M. (1985). The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics*, 7(1-3), 85-107.
- Healy, P. M., & Wahlen, J.M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons*, 13(4), 365-383.
- Healy, P. M., & Palepu, K.G. (2001). Information asymmetry, corporate disclosure, and capital markets: A review of the empirical disclosure literature. *Journal of Accounting & Economics*, 31(1-3), 405-440.
- Healy, P.M., & Palepu, K.G. (2003). The fall of Enron. *Journal of Economic Perspectives*, 17(2), 3-26.
- Huang, P., Zhang, Y., Deis, D.R., & Moffitt, J.S. (2009). Do artificial income smoothing and real income smoothing contribute to firm value equivalently? *Journal of Banking & Finance*, 33(2), 224-233.
- Jensen, M.C. (2005). Agency costs of overvalued equity. ECGI Working Paper No. 39/2004. doi:10.1.1.335.1290.
- Jones, J.J. (1991). Earnings management during import relief investigations. *Journal of Accounting Research*, 29(2), 193-288.
- Joo, H. (1991). *Income smoothing: An asymmetric information approach* (Doctoral Dissertation) Retrieved from <https://www.ideals.illinois.edu/browse?type=author&value=Joo20Hyunghwan> on 21/10/21.
- Kao, H. S., & Wei, T. H. (2014). The effect of IFRS, information asymmetry and corporate governance on the quality of accounting information. *Asian Economic and Financial Review*, 4(2), 226-256.
- Khang, K., & King, T.D. (2002). Is dividend policy related to information asymmetry? Evidence from insider trading gains. *Financial Management*, 35, 71-94.
- Kustono, A. (2021). Corporate governance mechanism as income smoothing suppressor. *Accounting*, 7(4), 977-986.
- Li, K., & Zhao, X. (2008). Asymmetric information and dividend policy. *Financial Management* 673-694.
- Michelson, S., Wooton, C. W., & Wagner, J. (2003). An analysis of income smoothing detection methods. *International Business and Economics Research Journal*, 2(1), 71-82.
- Moradi, J., Valipour, H., & Dowran, A. (2013). Asymmetric information and the role of accounting in emerging markets: Evidences from TSE. *Research Journal of Applied Sciences, Engineering and Technology*, 5(4), 1134-1141.
- Ofonyelu, C.C. (2013). Information asymmetry and lending equilibrium in Nigeria: A game-theoretic analysis of bank-borrower relationship. Handbook on the Economic, Finance and Management Outlooks. Proceedings book of ICEFMO, 303-311.
- Okpara, G. C. (2010). A diagnosis of the determinant of dividend pay-out policy in Nigeria: A factor analytical approach. *American Journal of Scientific Research*, 2(4), 57-67.
- Oxford Dictionary of Economics. (2003, 2nd e.d., Black, J. Ed.). New York: Oxford University Press.
- Richardson, V. J. (2000). Information asymmetry and earnings management: Some evidence. *Review of Quantitative Finance and Accounting*, 15, 325-347
- Roberts, M.R. (2015). The role of dynamic renegotiation and asymmetric information in financial contracting. *Journal of Financial Economics*, 116(1), 61-81.
- Sasirekha, P., & Jerinabi, U. (2015). Investor's attitude towards investment and risk. *Indian Journal of Applied Research*, 5(9), 359-361.
- Shu, Q. & Thomas, W. B. (2019). Managerial Equity Holdings and Income Smoothing Incentives. *Journal of Management Accounting Research*, 31(1), 195-218.

- Stolowy, H., & Lebas, M. (2006). *Financial accounting and reporting: A global perspective*. Hampshire, UK: Cenaga Learning.
- Thomas, S. (2002). Firm diversification and asymmetric information: Evidence from analysts' forecasts and earnings announcements. *Journal of Financial Economics*. doi:10.1.1.23.5 &rep=rep1&type=pdf on 8/02/2016.
- Tucker, J.W., & Zarowin, P.A. (2006). Does income smoothing improve earnings informativeness? *The Accounting Review*, 81(1), 251-270.
- Uwuigbe, O. R., Fagbemi, T. O., & Anusiem U. F. (2012). The effects of audit committee and ownership structure on income smoothening in Nigeria: A study of listed banks. *Research Journal of Finance and Accounting*, 3(4), 26-33.
- Welker, M. (1995). Disclosure policy, information asymmetry and liquidity trading in equity markets. *Contemporary Accounting Research*, 11(2), 801-827.
- Zarowin, P. (2015). Estimation of discretionary accruals and the detection of earnings management. Retrieved from DOI10.1093/oxfordhb/9780199935406.013 on 4/02/2016.

Appendix 1: Details Analysis of Articles Reviewed

Paper No.	Author(s)/ Year of Publication	Journal	Objective	Model Employed	Findings	Remark
1	Abad, Cutillas-Gomariz, Sanchez-Ballesta & Yague (2018)	European Accounting Review, 27(2), 209-235	Assessment of the association between real earnings management and asymmetric information	IS: Discretionary Accruals AI: Market based measures including Bid-ask spread	Income smoothing escalates asymmetric information	Positive relationship
2	Acharya and Lambrecht (2015)	The Review of Financial Studies 28 (9), 2534-2574	Assess income smoothing when insiders have more information than outsiders	A model using inference from sales under observable and unobservable scenarios	Managers smooth income to meet expectations of outsiders implying outsiders are not aware of smoothing effects	Positive relationship
3	Baik, Choi, & Farber (2020)	The Accounting Review 95 (4), 1-22	Assessing effect of income smoothing by high ability managers on informativeness of stock prices	IS: Accrual models AI: Bid hold returns-market based	Negative/mitigating relationship between AI and IS	Negative relationship
4	Banam and Mehrazeen (2016)	UCT Journal of Management & Accounting studies (3)	Assessing the relationship between AI and IS	IS: Discretionary accruals from the modified Jones model AI: Asymmetric information was proxied by bid to buy and sell shares	Significant positive relationship between IS and AI	Positive relationship
5	Chaney and Lewis (1995)	Journal of Corporate Finance, 1(3-4), 319-345	Examine whether firms manipulate earnings to be more informative or not	Asymmetric information model including mean economic income	High value firms smooth more to be more informative, implying mitigation of asymmetry	Negative relationship
6	Chen (2013)	Review of Pacific Basin Financial Markets and policies 16(3)	Examining the effect of income smoothing on information uncertainty	IS: Total and Discretionary Accruals AI: stock return volatility, analysts forecast dispersion and analysts	IS reduces AI for all three measures of asymmetric information	Negative relationship between both variables

				earnings forecast errors			
7	Cheng and Li (2014)	China Accounting and Finance Review, 16(2), 128-147	To test for earnings informativeness through income smoothing using the FERC coefficient	IS: Discretionary Accruals AI: Future Earnings Response Coefficient (FERC)	Income smoothing impact on earnings informativeness was nonsignificant for Chinese firms	Nonsignificant for Chinese firms	
8	Dadbeh and Mogharebi (2013)	Management Science Letters, 3, 2161–2166	Assessing effect of asymmetric information on income smoothing	AI: Bid-ask spread IS: Jones model-Discretionary accruals	Positive effect of AI on IS	Positive relationship	
9	Huang, P., Zhang, Y., Deis, D.R., & Moffitt, J.S. (2009)	<i>Journal of Banking & Finance</i> , 33(2), 224-233	Examined the impact of artificial and real income smoothing on Firm value and asymmetric information	IS: Discretionary Accruals & Derivatives AI: Bid-ask Spread	Mitigation of asymmetric information by income smoothing	Negative relationship	
10	Firmansyah and Herawaty (2019)	South East Asia Journal of Contemporary Business Economics and Law, 18(5), 95-101	Examined the relationship between artificial and real income smoothing and earnings informativeness (asymmetric information)	IS: Discretionary Accruals Derivatives AI: FERC	No relationship	No relationship between variables	
11	Firmansyah, A. & Irwanto, A. (2020)	International Journal of Psychosocial Rehabilitation, 24(7), 9513-9525	Examined the effect of income smoothing (IS), forward looking disclosure and corporate social responsibility on information uncertainty	Asymmetric Information (AI): Stock returns volatility: standard deviation of stock returns Income Smoothing (IS): Discretionary Accruals for	No association between IS and Asymmetric information	No relationship between variables	
12	Habib and Jiang (2012)	Pacific Accounting Review, 24(2), 211-232	Examined whether managerial-induced income smoothing accentuates or attenuates asymmetric information	IS: Discretionary Accruals AI: Bid-ask spread & firm fundamentals	Positive relationship between IS and AI	Positive relationship	

13	Joo (1991)	www.ideals.illinois.edu	Tested income smoothing in presence of asymmetric information	for Two-stage Agency model	Income smoothing mitigate information asymmetry	Negative Relationship
14	Richardson (2000)	Review of Quantitative Finance and Accounting, 15, 325-347	Investigation of the relationship between asymmetric information and income smoothing	IS: Discretionary accruals AI: Bid-ask spread & Analysts Forecast Dispersion	Increased Earnings management (income smoothing) with increased asymmetric information	Positive relationship
15	Tucker and Zarowin (2006)	The Accounting Review, 81(1), 251-270	Assess whether income smoothing improves earnings informativeness	IS: negative correlation between the change in discretionary accruals and change in pre-discretionary income AI: Future Earnings Response Coefficient (FERC)	Firms that smooth income more have their future earnings encapsulated in their current stock price	Negative relationship

Source: Developed by the Author, 2021.