

An Overview of Earnings Management Detection Approaches

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Abstract

Earnings management could be considered as a matter of serious concern by the financial accounting literature. Several approaches for detecting earnings management have been provided by the previous studies. This study aims to review the different approaches used to identify earnings management and makes a critical evaluation on the weaknesses and strengths of these methods. Despite the fact that accrual-based earnings management is the most widely used approach for detecting earnings management, it has a number of drawbacks. We have attempted to shed more light on the strengths and drawbacks that should be considered when identifying earnings management behaviour.

Keywords: Earnings Management, Detection, Approaches, Drawbacks.

1. Introduction

After the collapse of large companies such as Enron, World.Com, Arthur Anderson and so others, earnings management has become one of the most important issues. Although, these companies differ in their cores and operations, they share the same reasons for their failure, which are the practices of earnings management (Zimmerman 2015). Even if strong financial reporting standards offer a basis for guiding financial accounting activities, it is sometimes impossible to prevent opportunistic behaviour of executives who tend to deceive the financial statements' users in favour of their own benefits. These opportunistic activities of companies' executives are commonly referred to as "earnings management." Despite the fact that earnings management is used frequently, many terms can be associated with it, such as accounting manipulation, aggressive accounting, creative accounting, income smoothing and big bath accounting (Stolowy and Breton 2004). Thereby, there is no consensus on the earnings management concept in the accounting field being reached so far. Whatever the term used, the purpose behind it is to manipulate financial reports to deceive stakeholders on what is actually transpired beneath the firm's financial performance, or to affect the outcome of contracts in which are dependent upon the figures presented in the report (Healy and Wahlen, 1999).

The company managers have a range of accounting choices permitted by the Generally Accepted Accounting Principles (GAAP) to manipulate their reported earnings. In the 1970s and early 1980s, there were many studies examining whether managers are manipulating companies' earnings using accounting choices. They found that managers could themselves decide to manage reported earnings through accounting methods and policies. For example, managers can apply specific accounting choices and policies such as shifting between inventory cost calculation methods and depreciation methods, in which both may lead to earnings management. Significant number of frameworks have been introduced and developed since the mid-1980s to measure and detect earnings management, in which accounting accruals are the essence. It is the nature of the models that there is no separation in discretionary and total accruals. However, there are frameworks that differentiate non-discretionary from discretionary accruals. In addition, managers can manage their companies' earnings by adjusting the real transactions and accounting structures, such as timing of the decisions on investment and financing, and structuring operating activities (Schipper 1989). Scholars have identified earnings management through means of real transactions and accounting structures (Schipper 1989) and benchmark indicators (Burgstahler and Dichev 1997). In identifying revenue management, each approach has its own pros and cons. It is the aim of this study to review the methods employed to detect earnings management, and to make a critical evaluation on the advantages and disadvantages of various approaches in earnings management detection.

This paper is divided into five sections: 1. Introduction, 2. Earnings management, 3. Earnings management detection approaches, 4. Evaluation of earnings management detection approaches, 5. Conclusion.

2. Earnings management

Earnings management refers to the process through which the accounting professionals use their knowledge to influence the figures presented in the financial reports, while adhering to the regulations related to accounting principles. Therefore, rather than presenting the firm's actual performance, the figures will show the

shareholders on what the management wants to them know. Certain terms, such as fraud can be used as a synonym for earnings management. It is mentioned by Dechow and Skinner (2000) that there is a very minimal distinction between fraud and earnings management. Levitt (1998), the former chairman of Securities and Exchange Commission (SEC) referred this line as "a grey area between legitimacy and outright fraud." However, in some cases, it is not always possible to determine whether or when the legitimacy line is crossed due to a number of different reasons. One of these reasons according to Powell et al. (2005) is that fraud and earnings management involve the manipulation of financial statements in an effort to meet the desired objectives. Although the goals of earnings management and fraud are similar, Perols and Lougee (2011) indicated that fraud is outside GAAP, but earnings management confined within the bounds of GAAP. The study by Dechow and Skinner (2000) made a distinction between fraudulent methods in accounting such as acknowledging sales prior them being realizable or realized, disclosing non-existent inventory, and those methods in which are traditional, unbiased, dynamic, but admissible actions where the managers could themselves decide. Davis, Friday and Frecka (2002) stated that earnings management is viewed as a legal and ethical activity. Diana and Madalina (2007) indicated that the managing of reported earnings is not a form of fraud. According to Watts and Zimmerman (1986), earnings management is a beneficial activity as it can enhance the value of earnings' information.

Despite the fact that term "earnings management" is used frequently, there are many contradictions regarding its definition. One of these definitions is proposed by Schipper (1989), who depicted earnings management being "a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain" (p.92). Healy and Wahlen (1999) defined earnings management as "... occurs when managers use judgement in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on the reported accounting numbers" (p.368). A recent definition by Giroux (2003) is, "using operating and discretionary accounting methods to adjust earnings to a desired outcome" (p.280).

Meanwhile, the previous definitions emphasize that earnings management is the technique used to deceive financial information users on the true financial status of a company or to obtain some private gains. Beneish (2001) suggested that "...under [the information perspective of earnings management],... managerial discretion is a means for managers to reveal to investors their private expectations about the firm's future cash flows." (p.3). In line with this argument, Watts and Zimmerman (1990) stated that there will be earnings management in the event the managers decide themselves on the financial numbers, regardless of the restriction. This discretion could be either firm value maximization or opportunistic. According to these suggestions, earnings management has two different views. An opportunistic "unethical" view: suggesting stakeholders tend to be misled by managers; and an informative "ethical" view, which is the managers' method of revealing (or signalling) to stakeholders about the anticipated future cash flows. In accordance to this, Parfet (2000) indicated that earnings management is not necessarily a bad action should decent and appropriate approaches are taken by a firm that is well-managed, and the shareholders receive the value.

3. Earnings management detection approaches

Various approaches have been employed in detecting earnings management. The most common approaches used in previous studies include: total accruals (Kothari et al. 2005; Erickson and Wang 1999), specific accruals (Beaver and McNichols 1998; Beneish 1997), and earnings distribution (Burgstahler and Dichev 1997). This research provides an overall review of these approaches.

3.1 Single account methods

Accounting literature has long been concerned with the measurement on the magnitude of managers' manipulation of the announced revenue. The choice of accounting methods or policies is the early approach introduced to estimate earnings management. The notion behind this approach is that, the management can have multiple accounting choices and policies for one accounting procedure, such as estimated methods for inventory costs and depreciation. For example, managers tend to use the first-in-first-out (FIFO) in measuring inventory costs because the managers wish to report inflated revenue. On the other hand, managers tend to employ the LIFO (last-in-first out) method should they want to present decreased revenue. Sweeney (1994) used a direct test of these two methods and found firms tend to manipulate their earnings when they are at risk of debt default. Alternatively, should the managers want to smooth their companies' earnings when the inventory price increases, they can use the weighted average method to measure the inventory cost. Aljifri (2007) found that the most used approaches for inventory costs are FIFO and LIFO. The approaches are employed for inventory manipulation. Should the managers opt for the FIFO approach, this signifies that they wish to enhance the revenue, especially during increased price.

Depreciation approaches such as the straight-line method, sum-of-the years' digits method, and double-declining balance approach are other accounting choices available to managers. The first approach allows the depreciation to be done equally annually, whereas the other methods stipulate that there is a decreasing

depreciation (increasing income) over the years during an asset's life. Managers can then switch between methods of depreciation to meet their earnings' targets. Holthausen (1981) found that managers are more likely to use depreciation switch-back policy to defer earnings when their bonuses are at their maximum, but earnings management cannot be proven when revenue does not exceed the minimum figure. Healy (1985) investigated the correlation of managers' bonuses with earnings management and found that upon the attainment bonus's upper limit, managers tend to defer current earnings by engaging income-decreasing earnings management; and choosing income-increasing method when the firm's current earnings are between the lower and upper limits of the bonus plan. Furthermore, Healy (1985) also found that companies are likely to choose the income-decreasing accruals method when the revenue does not exceed the lower bound of the bonus plan. Skinner (1993) analysed the association between investment opportunity and accounting choices. It was discovered that managers possessing bonus plans have the tendency to opt for the income-increasing depreciation approach. Teoh et al. (1998a) made a comparison between IPO (initial public offering) firms with those non-IPO firms. The study discovered that the IPO companies tend to opt for the income-increasing depreciation approach as compared to those non-issuer companies.

Bowen et al. (1981) examined whether managers' compensation plans affect specific accounting choice. The study did not find manager compensation plans to be a significant factor in determining interest capitalization. Wright and Guan (2004) examined the income-increasing accounting choices during the period of management buyouts (MBOs). The study found that managers of firms involved in MBOs tend to use income-increasing accounting policies before the MBOs. Similarly to Wright and Guan (2004) research, Wu (1997) investigated earnings management before MBOs and discovered that managers manage earnings downward before MBOs. This downward earnings movement is systematically related to changes in earnings prior to MBOs. In addition, Nelson et al. (2002) stated that earnings management could be practiced through numerous accounting choices and policies such as recognition of revenue, combined businesses, non-physicals, fixed assets, investments, leases and other usual techniques.

This approach is criticized as a single choice of accounting method whereby it limits the power and specification of earnings management model. This is because managers are more concerned with the earnings' effects of multiple accounting choices in aggregate (Zmijewski and Hagerman 1981). In addition, Aljifri (2007) suggested that to change accounting approach such as changing FIFO to LIFO, or otherwise would be expensive, as well as being observable and easier for external auditors to detect.

3.2 Real transactions and accounting structures

Besides changing accounting policies, managers can also use several transactions and accounting structures to manage earnings that are not reflecting the true financial situation of the firm. For example, in enhancing the present period's earnings, the managers can adopt accelerated sales recognition techniques by rising discounts on prices or providing higher term of credit (Mulford and Comiskey 2005). Another practice is to record sales before the end of the year and to deliver goods at the beginning of next year. In addition, the managers could increase earnings by recording research and development (R&D) expenditure as an asset (Dechow and Sloan 1991). Managers can also increase production. This is because when production is increased, the managers could apply the fixed overhead cost upon the increased number of output. This will consequently improve operating margin through the reduced cost of goods sold (Mulford and Comiskey 2005).

Schipper (1989) indicated that real earnings management could be attained when the decisions on financing or investments are made in which the reported revenue or certain parts of the revenue are changed. Bartov (1993) examined whether managers manipulate earnings through the timing of sales of fixed assets. It was found that fixed assets would be sold for the avoidance of loss reporting and violation of debt contracts. Dechow and Sloan (1991) found that managers of firms that exhibit increased earnings have greater tendencies to employ R&D expenses for earnings manipulation than firms that experience decreases. Graham et al. (2005) indicated that the management of earnings via actual transactions is preferred by the managers as compared to accounting manoeuvre in their attempt to attain or exceed the revenue's threshold. The types of transaction and accounting structures employed by the managers for the avoidance of losses and decreased earnings have been further documented by Roychowdhury (2006). For instance, to improve sales, discounts are offered, and production is increased where the fixed overhead cost is calculated over more units, in which consequently decreases the cost of goods sold.

Even though managers may prefer to manage earnings through real transactions and accounting structures, previous studies have shown that there is difficulty in detecting earnings management via actual transaction. This is because the managers' actions cannot be determined due to absence of benchmarks. In this regard, Ball and Shivakumar (2008) indicated that in view that shadow financial statement is not disclosing benchmarks versus the actual transactions, researchers are unable to detect real earnings management.

3.3 Total accruals

The difference in earnings and operating cash flow will result in total accruals. Total accruals include discretionary and non-discretionary accruals. The adjustments stipulated by the rules of accounting are known as non-discretionary accruals; and when managers opt the adjustments, those are discretionary accruals. In other words, due to the flexibility of accounting rules, discretionary accruals could be employed by the managers as a method of exercising their inclination towards accounting approach and estimates that allow earnings manipulation (Dechow 1994). It has been documented that, discretionary accruals representing the manipulation of earnings can, according to the underlying motivations of each company, be either income-increasing or income-decreasing. Income-increasing reflects various forms of motivations, such as to raise stock prices for seasoned equity offerings or attempt to fulfill analysts' anticipation. Nonetheless, income-decreasing earnings management signifies other motives, like to avoid regulatory expenditure (Becker et al. 1998). Researchers have proposed a number of models to detect earnings management in accordance to discretionary accruals.

The pioneer in discretionary accruals' estimation is Healy (1985) in which the study had used total accruals in the observed timeframe scaled by lagged total assets. In this method, total accruals are estimated through the variance in earnings and cash flow in operation. It is presumed that when earnings management is non-existent, the estimated total accruals to be zero during the observed period. Additionally, even though total accruals consist of non-discretionary and discretionary accruals, there is separation among the two items. The approach assuming that non-discretionary accruals being zero during the observed period has received many criticisms. This is due to few reasons. First, the non-discretionary accruals cannot be estimated to be zero in any timeframe as fluctuation will occur due to the company's financial condition (Kaplan, 1985). Second, in view of the effect of depreciation, most companies will likely experience negative non-discretionary accruals (Perry and Williams 1994). Meanwhile, DeAngelo (1986) presumed that the accruals' variance between the present and previous periods is the result of discretionary accruals' changes where non-discretionary accruals could remain fixed over the years. To examine the assumption, the said study defined total accruals being the result of the summation between non-discretionary and discretionary accruals; while the estimated total accruals being the variance between net income and operation cash flow. For the measure of non-discretionary accruals, this method employs total accruals from the previous period, scaled by lagged total assets. It is assumed that non-exclusive accruals follow random walk, and the non-discretionary accruals are fixed over the period, and therefore, is zero. Despite the simple approaches of DeAngelo (1986); and Healy (1985), they are highly restrictive in estimating discretionary accruals. This due to the disregard of non-discretionary accruals that change based on the company's financial situation (Kaplan 1985). As such, both methods have the tendency to mistakenly approximate earnings management.

In accordance to the assumption of total accruals being a likely outcome of managers' discretion and fluctuation in firm's financial situation (Kaplan 1985), a linear regression method had been introduced by Jones (1991) in controlling the changes in depreciation and revenue. The method uses two-stages procedure in estimating discretionary accruals. During the first stage, total accruals are referred to as changes in revenue and gross equipment, plant, and property through the employment of time-series data before period t . During the second stage of discretionary accruals estimation, the specifications from the 1st-stage regression are utilized to estimate discretionary accruals in year t . The inclusion of the changes in revenue and gross equipment, plant, and property by the Jones (1991) model is to control the depreciation and company's financial situation. Nonetheless, to control for revenue change, revenue is assumed to be non-discretionary accruals. In view that the revenue could be of the discretion of the managers (example, more sales are recognized towards end of financial period), the utilization of Jones model would eliminate component of the discretionary accruals. It had been acknowledged by Jones (1991, 0.212) that there is such weakness in the framework, and to certain degree could be influenced by the manipulation of the managers.

As a response to the above weakness, a modified version of the Jones model had been introduced by Dechow et al. (1995). The modified model considers revenue as non-discretionary accruals. In this approach, there is an exclusion of the revenue change component in which is anticipated to be accomplished through managers' discretion; i.e. the subtraction of receivables' changes from revenue changes. This framework assumes that the receivables' changes during the period t , is purely discretionary as result of managers' choices. Moreover, it is less difficult for the managers to estimate the credit sales as compared with cash sales. Nonetheless, the assumption will overestimate the accruals to a certain degree that the receivables' changes are outcome of the company's financial situation. It should be noted that the Jones approach was first mentioned in the time-series method, which subsequently needs lengthy time-series data for generation of effective estimator coefficient. However, there are many limitations in the using of the time-series approach. First, the possibility of survival biases arises in a time series approach (DeFond and Jambalvo 1994). Second, in the form of serially correlated residuals, specification problems can occur (Peasnell et al. 2000b). In addressing the weaknesses,

DeFond and Jiambalvo (1994) had employed the cross-sectional form of the Jones (1991) framework for all industries on year-specific instead of firm-specific “*stage one*”. Thereafter, the estimator coefficients will be utilized for the prediction of discretionary accruals for all firms via “*stage two*”.

Kothari et al. (2005); and Dechow et al. (1995) evaluated the conditions and strength of Jones (1991) model's cross-sectional version based on measurements of both single year and various years. The two studies' outcomes do not differ. This signifies that there is an extreme misspecification in those two frameworks (i.e. single year, and various years), especially in firms that has low growth in sales or higher book-to-market ratio. The studies also discovered that financial performance (in terms of ROA/Return on Assets) has positive and significant relationship with discretionary accruals. This means, a firm's financial situation is not under the influence of Jones framework. In addressing this weakness, Kothari et al. (2005) proposed that the modified Jones model be extended through the incorporation of ROA where it acts as corporate financial performance's control. The study mentioned that earnings management is recognized through the regression model's residuals.

3.4 Specific Accruals

In comparison to the total accruals method, the specific accruals method focuses on a particular industry whereby the specific accrual is significant and needs extensive consideration. Many research has attempted to evidence earnings management through specific accruals; the examples include bad debt adjustment, deferred tax assets, loan loss reserves of banks, and claim loss reserves of insurers. In general, in the previous literature, two forms of specific-accruals models had been examined: a single specific accrual and many specific accruals. In general, the previous literature had tested two types of specific accruals: a specific accrual model and multiple specific accruals. McNichols and Wilson (1988) used bad debts provision instead of total accruals in accordance to a single specific accrual approach, and the proxy for discretionary accruals is the residuals. It was found that companies with abnormal low revenue tend to employ income-decreasing earnings management. Hence, suggesting this activity to be similar to the big bath technique. Additionally, various research had examined other single accruals methods; for example, banks' loan loss provisions (Beaver and Engel 1996), and insurance companies' claim loss reserves (Petroni 1992).

Beneish (1997) had developed a framework in relation to multiple specific accruals for the detection of earnings management in firms experiencing severe financial condition. The framework consists of factors like past market performance, capital and ownership structures, time listed, growth in sales, and other incentives for managers in violating GAAP. The study discovered a systematic correlation in the possibility of violating GAAP and factors like past market performance, growth of sales, and capital structure employed to proxy motivation for earnings manipulation.

3.5 Earnings distribution

This method is in accordance to the presumption that managers are strongly motivated to fulfil certain earnings' goals like loss avoidance and reduced revenue. Therefore, this method tests the distribution of earnings against the earnings' benchmarks to ascertain whether those are occurring beyond and under the benchmarks are being smoothly distributed or signify discontinuities as result of managers' discretion. To avoid losses, the earnings management used to avoid loss signifies abnormal high occurrence of minimal profit and abnormal low occurrence of insignificant loss. Meanwhile, reduced earnings avoidance is mirrored in abnormal low occurrences of insignificant reduced earnings, and abnormal high occurrences of insignificant increased earnings. The pioneer in using distribution of earnings and changes in earnings to ascertain manipulation in earnings by managers for avoidance of losses and reduced earnings, respectively is Burgstahler and Dichev (1997). The study found the firms having small pre-managed revenue will reduce their employment of income-reducing for the reporting of enhanced earnings. Additionally, it was discovered that companies having slight negative pre-managed revenue will employ income-increasing for the reporting of positive revenue. It was also discovered that cash flow in operation and working capital changes are the main instruments to manage earnings. DeGeorge et al. (1999) had employed earnings per share distribution to analyse whether earnings are managed for loss avoidance, current performance sustainability or to fulfil analysts' anticipation. It was discovered that the most vital threshold that motivates earnings management is loss avoidance. The second motivation is to present profit that is not less than past profit, and third is to fulfil the anticipation of the analysts. Beatty et al. (1999) had utilized the distribution method in investigating whether managers of private and public banks are motivated to earnings management to avoid reduced revenue. It was discovered that public banks were reporting reduced improvement in revenue, and much smaller reduced revenue than anticipated. Nonetheless, a weak proof was found where private banks were reporting less small reduced earnings than anticipated. Additionally, it was discovered that public banks were reporting more small reductions in earnings than privately owned banks, despite the variations in both the private and public banks' operations had been controlled. The study by Beatty et al. (1999) mentioned that those public banks could have used loan provisions and realised security losses and gains to improve their reported revenues. Generally, their study highlighted that the motivation of public banks is stronger as compared to those of private banks' in earnings manipulation.

4. Evaluation of earnings management detection approaches

The accrual accounting system provides managers with a series of accounting techniques for them to exercise their discretion over financial reports, ranging from accounting choices to real transactions' decisions and accruals' measurements. Typically, the flexibility within accounting system enables managers to give the users of financial statements the real picture of the firm's economic status. However, the managers may use this flexibility for their own private benefits such as to increase their compensation. This can be achieved legally through earnings management by exploiting the flexibility in accounting practice.

The initial approach of detecting earnings management used is the single accounting method such as switch from LIFO to FIFO, or from the straight-line to sum-of-the years' digits depreciation methods. The notion behind this approach is that managers can have various accounting choices and policies for an accounting procedure, such as estimated methods for inventory costs and depreciation. It is therefore, considered as one of the common forms of earnings management. Aljifri (2007) stated that a single accounting choice can be used, if not too costly, to either decrease or increase earnings. However, this approach has been criticised for many reasons. First, companies should adopt consistent accounting practices, so as to reflect their economic events and to achieve comparison objectives. Moreover, any changes in accounting choices are subject to accounting rules and must be disclosed, thus making managers' discretion to be easily monitored. Holthausen et al. (1995) indicated that it is rational that managers might prefer to managing the firms' earnings by using accruals rather than to change accounting approach. This is because the audit team will systematically seek for consistent accounting policies in all periods; hence, there is an easy detection of manipulation via changes in accounting policies. Hayn (1995) stated that shifting revenues between periods through changing accounting techniques instead of accruals is more costly for companies. Second, focusing on a single accounting method choice will reduce the power and specification of earnings management model. This is because, in reality managers are more concerned with the effects on earnings by the various accounting choices (Zmijewski and Hagerman 1981). In such case, the net effect of all the accounting changes taken during the period under consideration can be captured through the analysis on aggregate accruals. Therefore, the overall impact of the accounting choice is more significant than single accounting choice. The greater impact may improve the power and specification of the analyses; and thus, the detection of earnings' manipulation is easier.

In relation to real transaction and accounting structure approach, the main point is that managers use various techniques to attain or exceed certain earnings' thresholds (Roychowdhury 2006). The deferral of discretionary expenditure like advertising, R&D, administrative and selling expenses would be examples of these techniques to affect short-term earnings. Dechow and Sloan (1991) discovered that managers may decrease R&D expenditure to boost revenue. Bushee (1998) also found a proof that supports R&D expenditure reduction is done to beat or attain earnings' benchmarks. Another example of real transaction activity is the early revenue recognition. This method involves the recording of future sales during the closing of the current financial year to increase revenue. Schilit (2010) found that managers may recognize revenue early, and before completing any performance obligation under contract to increase current period's earnings. Mulford and Comiskey (2005) indicated that the early revenue recognition is one of the most popular types of earnings management. Although managers may prefer real transaction activity manipulations rather than accrual-based earnings management to achieve financial reporting targets, the detection of earnings management by real activities is difficult for researchers. This is because there is no threshold in determining the actions taken by the managers. Therefore, the determination of the managers' behaviour as a reaction to the company's economic circumstances being accurate or not is not an easy undertaking. Ball and Shivakumar (2008) pointed out that, in view the shadow financial reports are not disclosing the benchmarks on actual acts, researchers cannot recognize real activities.

In contrast to other approaches, total accruals approach is preferred by researchers in detecting earnings management. This is because the approach is not only capturing the effect of accounting choices on financial statements, but also the effect of changes on accounting estimates and the effects of recognition timing of revenue and expenditure (Teoh et al. 1998b). Nevertheless, the most challenging problem for researchers in using accrual models to recognize earnings managements is a model's capability of separating total accruals into the discretionary and non-discretionary accruals. The studies done by Healy (1985); and DeAngelo (1986) are among the pioneering research of earnings management addressing the estimation of discretionary accruals. Healy (1985); and DeAngelo (1986) assumed non-discretionary accruals to be remain consistent over years. This assumption is considered unrealistic because the magnitude of non-discretionary accruals is anticipated to be unstable over any period as there are fluctuations, in which are dependent upon the firm's financial situation (Kaplan 1985). Even though there are attempts by past frameworks to present sound earnings management's measures, there are academics questioning whether these models are valid and reliable (Peasnell et al. 2000a; Thomas and Zhang 2000; Bernard and Skinner 1996; Dechow et al. 1995). For example, in their research Dechow et al. (1995) evaluated five models of total accruals for detecting earnings

management, particularly the Healy (1985); DeAngelo (1986); Jones (1991); and Dechow and Sloan (1991), together with their research models - the modified Jones model. The results of their study indicated that upon the application on a random sample of companies, each model was well specified; and the modified Jones Dechow et al. (1995) model provided the most significant power in detecting earnings management. Nonetheless, all the models led to misspecification when applied to a sample of companies experiencing serious financial problems. El Diri (2017) indicated that all the total accruals models were still subjected to various problems, such as the eliminated variables, synchronicity between the independent and dependent variables, type I error caused by ignorance of performance effects, poor presumptions that lead to skewed estimates and inappropriate for big or small samples. El Diri (2017) also suggested that the opinion of which measure is the best remains subjective as it depends on the researcher's needs. This is because each model is measuring the earnings management's different attributes.

The specific accruals method concentrates on the context of the industry whereby the single accrual is substantial and needs the managers' discretion. Thus, it attempts to capture earnings management behaviour through the employment of a single specific accrual. Further, specific accrual approach is established for the financial industry for the estimation of earnings management. This is due to the sector's characteristics, in which require special measurement attention (El Diri 2017). According to McNichols (2000), the use of this approach has several advantages and disadvantages. The main advantages are: Firstly, the method allows the researchers to intuitively decide on the main factors influencing the accruals' behaviour. Secondly, a specific accrual method could be used in sectors where their corporate practices result in an accrual be considered as an item. Thirdly, it enables researchers to directly examine the relationship between explanatory factors and single accrual. However, it has several drawbacks. First, the specific-accrual method is not of significance. This is because the method needs a different model for every accrual, whereby would likely be affected by the postulated factors (McNichols and Wilson 1988). Second, in comparison to the number of businesses with aggregated accruals, the number of businesses that manage their certain accruals could be few; this will consequently limit the sensitivity and generalizability of the findings of studies involved in specific accruals (Beneish 2001).

The distribution approach attempts to investigate earnings' distribution around specific thresholds for the determination of the occurrences that are under or exceed the thresholds being smoothly distributed or signify discontinuity as result of managers' discretion. The key feature of this approach is that the strength of the approach is not the outcome discretionary measure on revenue; instead it is from the prediction's specificity of which type of companies manage their revenue. Sun and Rath (2010) stated that when used to detect earnings management, the distribution approach minimizes the probability of measurement error and misspecification. Nevertheless, Durtschi and Easton (2005) criticised the discontinuity around zero method, as well as the frequency distribution shapes that research depends upon as earnings management's proof. The said study argued that those shapes are results of criteria in selecting samples, deflation and/or the observations' various attributes that are left and right of zero. It was concluded that the distribution shapes are inadequate proof of earnings manipulation. Hence, researchers must exclude the confounding factors prior to employing the earnings distribution around-zero shapes as earnings management's proof. Moreover, it has been pointed out that no proof can be found in supporting the presumption that pervasive discontinuity of discretionary accruals at zero being the outcome of earnings management (Durtschi and Easton 2005).

In general, earnings management models begin with a single accounting choice and subsequently more alternative models have been developed to separate the total accruals into discretionary and non-discretionary accruals. Nevertheless, to separate the total accruals is very challenging and the alternative models' power in detecting earnings management is not systematic (Dechow et al. 2012). Regardless of the pros and cons of all models, the total accruals method could be considered as a very commonly employed and capable method. In particular, the original Jones model, the modified Jones model, and the performance model. The capability of these models is derived from their ability to decompose total accruals into discretionary and non-discretionary accruals, and the former is earnings management's proxy.

5. Conclusion

The identification of earnings management behaviour is one of the most critical subjects in the literature, which means that there are numerous methods being suggested to detect earnings management; beginning with the simplest to the most comprehensive approaches. The reliability and validity of all models of earnings management, however, remain questionable. In reality, the validity and reliability of earnings management models are fundamentally based on the model's ability to predict the magnitude and techniques of amending earnings. Therefore, when identifying earnings management, researchers should consider the models' features. Regardless of the pros and cons of all models, the total accruals method is considered to be the most commonly used and capable approach. In particular, the original Jones model, the modified Jones model, and the performance model. The capability of these models is derived from their ability to decompose total accruals into discretionary and non-discretionary accruals, and the former is earnings management's proxy.

It has been suggested that the understanding of the behaviour of earnings management activities may provide a proper technique for detecting these opportunistic activities by tracking how managers achieve their objectives/intentions. In addition, it can help to build suitable earnings management prediction models. These modules could be useful to researchers, regulators and auditors in the evaluation of firms' management activities. Furthermore, researchers and accounting regulatory bodies may use such models for effective and efficient supervision as well as when they select companies for the investigation of possible earnings management. The recommendation of the current study is that more research on management's integrity is needed.

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