Directors' reports cosmetic treatment: impact of earnings management on financial report readability

Muhammad Ejaz

Riphah International University,
Islamabad, Pakistan
Email: ejaz_2002@hotmail.com

Raja Nabeel-Ud-Din Jalal* and
Um-E-Roman Fayyaz

Dipartimento di Economia Aziendale,
Università degli Studi "G.d'Annunzio",
Chieti-Pescara, Italy
Email: nabeel.jalal@unich.it
Email: umeroman.fayyaz@unich.it
*Corresponding author

Abstract: This study aims to identify how the earnings management practices of firms influence the readability of financial reports. Non-financial firms listed in the PSX KSE-100 index were used as sample. Panel regression model has been employed to test and analyse the data. Fog index is used to measure readability and Jones model is used to distinguish discretionary and non-discretionary accruals. The study finds that companies most likely alter the reported earnings have more complex directors' reports. Further, income deceasing earnings management has a significant and negative impact on readability of financial report, whilst the study finds no significant association of income increasing earnings management with the readability of financial reports.

Keywords: earning management; financial report readability; directors report; accruals.

Reference to this paper should be made as follows: Ejaz, M., Jalal, R.N-U-D. and Fayyaz, U-E-R. (2022) 'Directors' reports cosmetic treatment: impact of earnings management on financial report readability', *Global Business and Economics Review*, Vol. 26, No. 1, pp.20–36.

Biographical notes: Muhammad Ejaz is a researcher in field of finance and accounting. He has a Master in Management Sciences with specialisation in Finance. He has 5–6-year experience in banking industry and 2–3-year experience in education sector.

Raja Nabeel-Ud-Din Jalal has a PhD in Accounting, Management and Business Economics from Dipartimento Di Economia Aziendale, Università degli Studi 'G. d'Annunzio' Chieti-Pescara (Italy). He was a Visiting Scholar and Research Assistant at Trinity Business School, Trinity College of Dublin-University of Dublin, Ireland. He has attended credited doctoral seminar at Kristiansand University of Adger, Norway. His main research interest lies in the areas of entrepreneurship and innovation, blockchain and cryptocurrencies,

Copyright © 2022 Inderscience Enterprises Ltd.

and behavioural finance. He has published and presented his work on cryptocurrencies, corporate governance and personality traits in reputable international journals and conferences. He has reviewed papers as referee for reputable journals, such as *Finance Research Letters*, *Sage Open*, *International Journal of Manpower* and others.

Um-E-Roman Fayyaz is a PhD Researcher in Accounting, Management and Business Economics at Dipartimento Di Economia Aziendale, Università degli Studi 'G. d'Annunzio' Chieti-Pescara (Italy). Prior to pursuing PhD program, she was serving in Askari Bank Limited as Trainee officer. Her field of research is corporate governance, sustainability and social responsibility. She has published and presented his work on cryptocurrencies, corporate finance and personality in reputable international journals and conferences.

1 Introduction

1.1 Background

Massive accounting scandals in developed countries have evolved Waste Management in 1998, Enron in WorldCom in 2002, Lehman Brothers Scandal 2008 and Satyam in 2009 not only shook the reliability and credibility of US corporate financial reports, but also the rest of the world. These worst accounting scandals appeared to have purposeful manipulation of financial reports, primarily through 'fraudulent acts' to change reported earnings and sales to provide more value to the financial reports' data. Many efforts were made by the authorities to provide more comprehensive accounting guides to deal with these incidents, but there was still plenty of room for managers to make use of their decisions in the formulation of financial reports. Earnings management, which has emerged from managers' judgments, is an attractive subject of interest among scholars, academic researchers, and practitioners.

Earnings are seen as an important component of financial reporting (Jalal et al., 2016). It is a general perception that the financial reports published are fair and represent an accurate picture of the firm's financial condition. However, some accounting scandals created imbalances in the financial system and highlighted that the published information was inaccurate. Manipulation or misrepresentations affect the earnings in financial reports and are referred to as earnings management (EM). "Earning management is the use of accounting books to create a positive impression of the business on the market," defined by Mulford et al. (1996). The financial reporting regulations such as SOX. The discussion of linguistic factors is relevant to the practice of financial reporting and manipulation (Macintosh and Baker, 2002). Language impacts the reader's comprehensibility and perception. According to Macintosh and Baker (2002), the preparer of financial reports and users rely on the linguistic factor and their cognitive power of reading, the use of financial information is decided by decoding analysis of meanings.

The US commission on the securities exchange stressed the importance of disclosure of textual information. It has issued a manual in plain English for discourse on financial reports. Lo et al. (2017) focused on the annual report's management discussion and analysis readability, which is mandatory for legislation to be published and provides

guidance and direction on management practices, financial condition, and business operations. This portion has more credibility than seminars and conferences because it covers all aspects at the end of the financial period. The use of appropriate language also affects the comprehensibility of data by readers and users of financial statements. It is highly recommended that plain English be used to effectively transmit information to the public and to the financial statement reader. Most previous studies have focused on financial reports' textual narrative, including securities and exchange commission reports, company earnings reports, conference reports, etc. These studies found that a deeper understanding of the role of words is possible with textual analysis methods in auditing and accounting practices (Kearney and Liu, 2014; Li, 2010; Loughran and Mcdonald, 2016). This textual analytical method is used in most studies and the published reports are reviewed. During the six-year period, the study carried out by Zhang et al. (2019) used text analytical methods to review the top six accounting journals (2010–2016). They concluded that only 25% of traditional studies have collected the survey and investigated traditional metrics of readability. Zhang et al. (2019) also state that the technical proposals are first reviewed by the evaluation committee during the cost decision-making process most of the time. 'The final decision is based on the linear combination of cost score and technical issues, their study also revealed that 'the method often continues by ranking the proposed companies by total scores and starting negotiations with the highest ranked company chosen unless negotiations fail.

Sami and Zhou (2008) disclosed that financial reports from Asian stock markets are low in quality and quantity compared to the US market. Previous research also showed that, compared to domestic companies, cross-listed companies' annual financial reports are more widespread because foreign companies follow the global culture (Zarzeski, 1996). The importance of Asian companies cannot currently be overstated due to these limitations of Asian companies. Warner explains the reason for this difference (2003). He demonstrates that "Asian businesses with local management have different cultural contexts". More importantly, different styles of management in different counties cause institutions to lead with distinction. The relationship between firm financial performance and annual report readability was investigated by (Li, 2008) using the Fog index as a readability proxy. The higher level of index reading indicates the problem of comprehensibility, and it is difficult to understand disclosure. In contrast, a low score indicates that disclosure is easy to understand. Li (2008) reported that the earning-Fog index has a negative relationship. But the reason is unclear; that whether the source of this adverse relationship is window dressed complex data that confuses firm bad performance over time periods (Bloomfield, 2008). Timeliness (price adjustment) and investment efficiency with a readability factor have also been used in studies (Biddle et al., 2009; Callen et al., 2009). In order to explore reality and better understand complex discourses used by managers, Burgstahler and Dichev (1997) analysed the earning pattern and changes in it. The current earnings management literature is diverse and covers a wide range of different issues, with most of the work done in developed countries. In the context of earnings management in emerging countries, there is little literature (Hessayri and Saihi, 2015). Earnings management has been studied in different contexts in Pakistan, i.e., Governance of corporations (Shah et al., 2009). Firm success, privatisation (Iqbal et al., 2015). However, no research on the impact of earnings management on the readability of financial reports in Pakistan has been carried out. By filling this literature gap, current research attempts to reinforce the exciting literature of earnings management in Pakistan. We aim to examine the effect of earnings management

on the comprehensive measure of the overall readability of corporate financial reports of Pakistan Stock Exchange non-financial listed companies. Our study contributes to the flow of literature by extending the literature on readability in the context of Pakistan. This study has determined the impact on the disclosure of its financial report of earning management practices of Pakistani firms. Earnings management refers to the production of company financial disclosures using accounting principles to generate a positive and attractive image of the company in the market. The need to understand the disclosures of firms to understand how financial dressing is done has caused this manipulation. This study seeks to facilitate the understanding of the role of readability of financial reports as a medium and how it is related to earning management in the Pakistani context.

2 Literature review

2.1 Earning management

Mulford and Comiskey (2005) defined earnings management as "Vigorous management of earning toward predetermined targets, which are set by management by forecasting". The definition provided by Mulford and Comiskey stresses on the manipulation and misrepresentation of resources by firms, to create a positive signal in the market. The concept of earnings management has evolved from the concept of creative accounting. According to Mulford and Comiskey (2005) "creative accounting practices are taken to get aggressive choices by fraudulent reporting or earning management". Manager by incorporating the financial accounting standard manipulate the financial statements for own incentives and reward which damage the business in long-run. Mostly manager harmonise the earning stream and make it straighter line peaked to show growth and stability in earning of firm. In light of the definition earning management can be categorised in accrual based (AEM), real (REM) and Classification shifting earnings management. AEM occurs when flexibility of choices and decision making is provided by the accounting principles and manager use them to manipulate the financial statements, but in this there is no change will be observed in actual cash flow (DeFond and Jiambalvo, 1994; Teoh et al., 1998). And classification shifting is misclassification of items (McVay, 2006).

Real earning management is widely used technique by managers to manipulate the financial statements. According to Schipper (1989), "an extension to the prior earnings management definition would include 'real' earnings management, proficient by change of reported income or may be some subset of earnings manipulation". There are other methods to manipulate the earnings besides accruals, but these are indirect ways to decide the mode of financing, investing, or operating activity may have change reported income, instead of the net present value benefit of such activities for shareholders of firms. This indirect method is real earning management. According to Roychowdhury (2006) such earning management is the departure from routine firm's operational activities directed by managers to misrepresent the shareholders by showing that varies desire goals are obtained during the course of normal business operation. This deviation from actual operations does not contribute to the real value of firm, even if they succeed in showing the desire results. Ewert and Wagenhofer (2005) stated that accrual earning management is the process of applying the accounting standards to record the financial event, while changing made in the accounting event is called real earning management. Further, they

argued that it is not possible for accounting standard boards to restrict real earning management, as they can restrict the firms in limited capacity.

2.2 The incomplete revelation (obfuscation) theory

The incomplete revelation theory also known as the 'obfuscation theory' is derived from the agency theory. According to this theory, managers get more economic satisfaction by presenting good performance markedly than bad performance of the firm. There is an ethical threat that if there is an irregularity in information between principal and an agent it may arise some problems between them according to agency theory (Jensen and Meckling, 1976). This theory presents that both principals and agents known that by providing the accounting disclosures information asymmetry can be reduce.

The obfuscation theory (agency theory) also states that to influence the market, manager always disclosed the positive information and hides the negative information. This is because of the fact that if the given information has some negative facts than it may be costly, and the market will react less. Study disclosed that the information, which is costly to analyse, might have less reflection in the marketplace. This probably the reason of providing financial information that comprise various problematic words and lengthy judgments with numerous inactive structures. This leads us to conclude that Clarity and information management are intently connected, sighted that reducing the transparency and readability within the reporting of evil information allows a focus shift towards excellent news [Bloomfield, (2002), pp.234–242].

Preceding research also disclose the usage of management decision in determining fair value. Ramanna and Watts (2011) "divulged, Agency theory suggests that when fair values is determined based on manager unverifiable subjective estimates rather than founded on verifiable market prices, that managers will take advantage of this. In these cases, management is foreseen to achieve financial reports for their firm's or own advantage". Results disclosed by Ramanna and Watts (2011) Inflated usage of unverifiable/doubtful fair value assessments in book-keeping will lead towards more management in firms annual financial reports, vague and enlarged monitoring.

2.3 Readability

In a corporate, annual report represents the main aspects of disclosure which covers up to 80% of annual reports. It is an essential document to understand the desired information enclosed in the report. Securities and Exchange Commission in United States has taken a direct approach on financial reports complexity which arises due to complex English and emphasised that it may decreased the understandability of reports. In October 1998, the security exchange commission executed regulations regarding new plain English disclosure that require the use of English plain in which defined that enrolling and layout of all prospectuses in registered public offerings by national and overseas issuers. Series of efforts have been made from security exchange commission to increase the clarity for full and fair disclosure of reports (Firtel, 1998).

The readability of annual reports enhances the performance of the company (Subramanian et al., 1993). Readability of annual reports enables the managers to make plan for the future on the bases of past performance. Li (2008) studied the relationship between annual report readability and financial performance by using the Fog index. Fog index is a formula which is used to measure the readability of the written document. Fog

index is also called readability formula which is created by Gunning (1952) for the calculation of readability of written document or financial statements. The Fog index explains the number of years of education in which the document is understandable by readers and users of the document. The most perfect score is seven or eight and other score which is higher than twelve is difficult to understand by the reader or users of the written document. The Fog index does not define if the reports are too much basic or simple language or too much advance for a specific reader. Fog index helps you to make decision whether a document is benefit for editing or not or using a plain language technique. Li (2008) used Fog index as proxy of readability, which is used in literary sciences, higher level of reading on index indicates understandability issue, and disclosure is difficult to understand. Whereas low score shows that disclosure is easy in understanding. Li (2008) reported there is a negative relationship between earning and Fog index. But the reason is unclear; that whether the source of this negative relationship is window dressed complex information which obfuscates firm bad performance over the period (Bloomfield, 2008).

The readability of financial reports enables the manager to increase the performance of the company. Analysis of annual reports enables us to plan the future schemes differently. Firms having less readability of reports make it tricky for the investors to understand and interpret which require more time in analysing the relevant information (Bloomfield, 2002) (see Table 1). Investors have to pay more cost to know about the company and for interpretation the annual reports which is more costly for the management. The financial reporting regulations like SOX provide a set rule for the readability of financial reports and the debate of linguistic factor is relevant to financial reporting and manipulations practices (Macintosh and Baker, 2002). Language influences the understandability and perception of the reader. According to Macintosh and Baker (2002), the financial reports preparer and users rely on the linguistic factor and their cognitive power of reading, decoding analysing the meanings decides the use of financial information.

2.4 Earning management and reports readability

Li (2008) exposed the association amid of annual reports readability and financial performance. According to Li (2008) the key motive for this guideline is that companies could habit unclear language and set-up in revelation to pelt opposing information, and average investors may be incapable to comprehend these revelations foremost to capital market incompetence.

Li (2008) found the negative relationship between earning and report readability. He found that firms who have earning above the zero or below the zero change the desired level that shows the different relationship between the earnings and Fog. Firms having higher performance shows upward earning management which shows that these firms have higher fog. It means that firms which have higher the performance shows the higher readability and the firms which performs below the expectations reported the lower report readability. In the earning management earning includes the untruth. Management takes decision on the bases of upward earning or increased earnings. In some cases, management falls the acceptable criteria and considered as fraudulent. Sometimes management hide the true information which effects the readability.

Copying the 'Fog index' from scheming phonology where an advanced clarification on the Fog index designates revelations that are supplementary challenging to understand.

Li (2008) indicates a negative connection between Fog and the level of earnings. It is imprecise, however, whether this consequence is because of managers providing complex disclosures to obfuscate bad performance or that bad news is simply harder to be communicated (Bloomfield, 2008). To additional learn these supernumerary clarifications mystification/ontology and to improved comprehend managers usage of multifaceted revelations we appearance at examples in which companies are more probable to have managed earnings uphill to meet or surpass their earning targets (Burgstahler and Dichev, 1997). The firms use tools as suggested by Warren Buffett to achieve their benchmark targets by releasing good news in the market having incentives to keep these tools in secrecy. On the other hand, they reported that if performance deviates from underlying fundamentals it's expected that managers tried to make reports much harder for end-users to identify or extract earnings management behaviour and underlying performance.

Amar and Abaoub (2010) explored the earnings brink wonders in Tunisia which is a non-Anglo-Saxon country. Bosses "*manipulates the net earnings of company to create promising consequences, i.e. superimposing the forecasts and market forecast eventually it has strapped the Tunisian managers to change the financial statistics to carry the positive gestures to the markets to get tax benefits*" (Lee, 2007).

The fiction information designates that the financial statements signify the real economic changes in the affluence of the enterprise but practically accountants and analysts manipulate the revenues to acquire and attract more investments inflow and trust of the shareholders to increase the worth of share stock (Macintosh, 2009). Frankfurt and Wilson (2005) appealed that earning management is the shortest way to get long term benefits. Firms usually applies earning management to acquire short term finance for the purpose to gain long term profits.

Companies do it to get finance for short-term and reap the long-term benefits. The US securities exchange commission emphasised on the significance of textual information disclosures. It has issued manual for financial reports discourse in plain English. Lo et al. (2017) focused on management discussion and analysis readability of annual report which is mandatory to be published by legislation and provides guidelines and direction regarding managerial practices, financial condition, and business activities. This particular part has more credibility rather than seminars, conferences because this portion covers all aspect at the end of financial period. And use of appropriate language influences the information understandability by readers and user of financial statement. It is highly recommended to use the plain English in order convey information effectively.

2.5 Controls variable

2.5.1 LOSS

The amount lost by the organisation or business is called loss. In financial accounting loss can be defined as any amount that decrease the net income from the normal operations of the business. Losses can occur from different activities such as sales of asset for less than it is carrying amount.

Current study derives control variable from the Li (2008). In these important variables are those which are related to earnings. First study explains earnings as 'operating earning overstated by beginning total assets which is expected to negatively associate with the Fog index.' This study also explains the firm losses with the sign of loss which is equal to one when earning less than equal to zero because losses required

more justifications about the feasibility of the business which makes disclosure less readable Li (2008).

Table 1 Management discussion and analysis and director report comparison

Management discussion and analysis	*Contents of directors' report*
''The securities exchange commission (SEC) requires this section to be included with the financial statements of a public company and is prepared by management. This narrative section usually includes the following''	'A directors' report for a financial year must contain a business review that consists of–'
1. A complete detail of the business of the company and its future trends	(a) Complete and fair review of the business of the company
2. An assessment of the company expenses and revenue	(b) A complete picture of the risk and uncertainty faced by the company
3. A detail review of the sale and cost of goods sold statement of the company	(c) characteristics of the events occur during the year which affect the business of the company
4. A review of the statements of the company capital and revenue expenditure occurring at current and future trend	(d) An indication of the company future business and prospects
5. A review of the company balance sheet and its particulars, such as currents assets and current liabilities and fixed assets and fixed liabilities	2. A company business review regarding the position of the company and its business and future development must include -
6. A review and discussion of the company transaction which affects the company financial position and future tend	(a) 'Using financial key performance indicators, a complete analysis of the company position.'
	(b)Discussion on— (i) the company policy and performance regarding the environment; and
	(ii) compliance related to the company rules and regulations which influence the company business
	(c) An understanding of the company key relationship with its employees
7. A review and discussion of the company operations which are continued, and which are discontinued	3 This stage requires the company to prepare the report under section 388(2) as if a reference to the company were a reference to– (a) the company; and (b) the subsidiary undertakings

2.5.2 Firm size

According to Botosan (1997) and Hossain and Adams (1995) "firm size is a determinant for accounting disclosures and size is also used as a proxy variable for omitted variables." The firm size can be defined as the size implied by industry for specific production and technologies including capital amount and large scale of economies. "The concept of firm size has also been used to proxy for numerous theoretical constructs ranging from "risk to liquidity or even political costs" (Ball, 1992). In addition, firm size can also be

elucidated that size may be 'multi-dimensional' or size is believed to be vital notion for the firm. Furthermost of the circumstances wherever size is substitutions by variables such as 'sales or market capitalisation'. Preceding research has revealed that the Firm size having causative influence on accounting disclosures that is used as a proxy for omitted variables.

2.5.3 Firm age

Firm age is defined as the date from which a company is incorporated. More precisely it is defined as "the number of years of incorporation of the company even though some believe that listing age should define the age of the company" (Shumway, 2001; Fayyaz et al., 2021). Old firm display different financial reports as compared to new and rising firms because of less information irregularity. If the information of old firms is available in market with details it will help in understanding of reports more easily.

On the basis of above comparison, it can be said that management discussion and analysis and director report have same features and so current study have used director report for calculation Fog index calculation.

2.6 Hypothesis development

In computational linguistics, Fog index is used as function of the percentage of words that are complex, and the number of words used in a sentence. This result is scaled by a constant (0.4) which disclosed that "value approximates the number of years of formal education required to understand the text" (Li, 2008). In his study Li (2008) determined how annual reports readability is deviate with less complex report. He also disclosed that firms having consistent profit earning having lower fog. Prior studies also explain the association among readability and firm financial performance these studies disclosed two things: First is obfuscation: that most managers of the companies try to hide bad news by writing text that is difficult to understand. Second is ontology: that bad news is much difficult to explain (Bloomfield, 2008; Li, 2008). Lack of readable communication is difficult for investors to interpret because they utilise more time and power to disclose the relevant information (Bloomfield, 2002). Present study is focus on the 'written complexity of firm disclosures'. Study interprets by "firm's written communication after controlling for the operational complexity of the business"

Therefore, the current study draws the following hypothesis.

H1 Firms that managed earnings in financial reports in a particular year will have annual report disclosures that are less readable.

H2 Firms that managed earnings with income-increasing discretionary accruals will have annual report disclosures that are less readable.

H3 Firms that managed earnings with income-decreasing discretionary accruals will have annual report disclosures that are less readable.

3 Methodology

3.1 Sample selection and research design

In order to apply theoretical framework, we used data of non-financial companies listed on Pakistan stock exchange (PSX) KSE-100 for the period of 2011 to 2019. The financial reports have been taken from respective websites of respective companies. There are approximately 70 to 72 non-financial firms listed in KSE-100 index of PSX out of these 62 firms were selected due to availability of yearly information. The selection criteria primarily focused on existence of firm during the period of time. To test our hypothesis following equation has been used.

$$Readability_{i,t} = \beta_{i,t} + \beta_1 EM_{i,t} \sum \beta_2 control_j + \varepsilon$$

where *EM* = earning management proxy.

4 Readability measurement

To measure the readability different formulas are used in previous studies but current study used Fog index to measure the readability derived from Li (2008).This formula is also known as the Fog index which is used to measure the readability of annual reports. *Fog* for the measurement of readability. Mathematically this formula can be represented as:

$$Fog = 0.4\left(words\ per\ sentence\ + percent\ ofcomplex\ words\right)$$

The Fog index has been used extensively and has realised swelling usage in the accounting literature (Lehavy et al., 2011; Miller, 2010; Rennekamp, 2012). Director report is used to measure readability in our study.

4.1 Earning management measurement

For the measurement of earning management study have used Jones model 1991.

Using discretionary accruals or real activities process of earning management has examined. Jones 1991 model is used for discretionary measures,

$$Total\ \frac{Accr_t}{TA_{t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{TA_{t-1}}\right) + \alpha_2\left(\frac{\Delta REV_t}{TA_{t-1}}\right) + \alpha_3\left(\frac{PPE_t}{TA_{t-1}}\right)$$

where 'TotAccr$_t$' are total operating accruals, 'ΔRev$_t$' is the change in revenues from year 't-1' to t, 'PPEt' is gross property, plant, and equipment, and 'TA$_{t-1}$' is total assets at the end of year t-1. The model is estimated in cross section by year and industry and 15 observation are required at least. The residual from above estimation structures the discretionary accruals (DA). As recommended by Dechow et al. (1995) in supplementary tests Jones model was modified. Analysis performed using performance matched model of Kothari et al. (2005). Particularly, study compute expected accruals centered on 1 to 1

matching on industry (using the Fama French 48 industries), closed preceding year returns on assets and fiscal year. For real activities earning management current study have emphasis on discretionary expense (Roychowdhury, 2006) specially advertising expense. Our results reveal that real activities earning management as a negative sum of change in advertising expense let down by initially of total assets. Reduction of advertising expense increase the value of positive earning management.

Table 2 Descriptive statistics

	FOG	*DAC*	*SIZE*	*LOSS*	*AGE*
Mean	15.39	–4.51E-17	7.31	0.09	1.55
Median	15.36	0.027	7.28	1.53	1.62
Maximum	21.76	1.76	8.79	1,020	2.01
Minimum	9.30	–18.90	5.81	0.006	0.30
Std. dev.	1.77	0.90	0.69	0.28	0.29
Skewness	0.17	–17.22	–2.05	2.92	–1.96
Kurtosis	3.13	360.17	24.48	9.58	9.83

Notes: Dependent variable, fog; DAC discretionary accruals; size, size of firm; age, age of firm; Loss, dummy variable coded 1 if the company in loss otherwise 0.

Table 2 indicates that average financial report readability is 15,396 and midpoint of data is 15.36 and maximum value goes to 21.76 and minimum is 9.3. The deviation occurs in data by 1.17 and is positively skewed and leptokurtic. Also, the average Firm age is 1,553 and midpoint of data is 1,623 and maximum value goes to 2,017 and minimum is 0.301. The deviation occurs in data by 0.294 and is negatively skewed and leptokurtic. Similarly, the average Firm size is 7,318 and midpoint of data is 7,287 and maximum value goes to 8,791 and minimum is 5,815. The deviation occurs in data by 0.694 and is positively skewed and platy Kurtis. Whereas, earning management is-4.51E-17 and midpoint of data is 0.027766 and maximum value goes to 1,769 and minimum is -18.90. The deviation occurs in data by 0.901 and is negatively skewed and leptokurtic.

4.2 Application of Jones model

In this study we have used discretionary accruals to measure the earning management. For this Jones model (Jones, 1991) is used to calculate accruals by taking 'the difference between total (observed) accruals and estimated non-discretionary accruals'. Following equation has been used to calculate Jones model.

$$Total\ \frac{Accr_t}{TA_{t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{TA_{t-1}}\right) + \alpha_2\left(\frac{\Delta REV_t}{TA_{t-1}}\right) + \alpha_3\left(\frac{PPE_t}{TA_{t-1}}\right)$$

where $TotAccr_t$ are total operating accruals, ΔRev_t is the change in revenues from year $t-1$ to t, PPE_t is gross property, plant, and equipment, and TA_{t1} is total assets at the end of year $t-1$. The model is estimated in a cross section by year and industry and 15 observations are required at least. The residual from above estimation structures the discretionary accruals (DA).

Further we performed correlation analysis on study variables and Table 3 indicates that discretionary accrual proxy of earning management has negative correlation with financial report readability (*r* = –0.0971, *p* < 0.01). Firm age has significant positive degree of association with financial report readability (*r* = 0.2461, *p* < 0.01). Also, firm size has significant positive degree of association with financial report readability (*r* = 0.2461, *p* < 0.01). Similarly, loss has significant positive degree of association with financial report readability (*r* = 0.0065, *p* < 0.01).

Table 3 Correlation analysis

00	*0*	*1*	*2*	*3*	*4*	*5*
1	DAC	1				
2	AG	–0.0248	1			
3	S	–0.1149	0.0421	1		
4	L	–0.0263	0.0391	0.0064	1	
5	Fog	–0.0971	0.2461	0.1633	0.0065	1

Note: AG = 'age', S = 'size', DAC = 'discretionary accruals' and L = 'loss'.

Table 4 Regression analysis: fixed effect model

	M1	*M2*
DAC		–0.003***
	-	(0.001)
S	0.203***	0.237***
	(0.021)	(0.025)
AG	0.109***	0.130***
	(0.016)	(0.017)
L	0.029***	0.032***
	(0.005)	(0.006)
R^2	0.68	0.76
Durbin-Watson stat	1.61	1.68
F-statistic	24.25***	21.34***
Hausman test		155.61***

Notes: Where ***p < 0.01, AG = 'age', S = 'size', DAC = 'discretionary accruals' and L = 'loss'.

5 Results

We performed fixed effect panel data analysis based on Hausman test reported in Table 4. The results panel regression analysis employed to investigate the impact of earnings management on financial reports readability under the assumption of fixed model. Results indicate that Model predictive power is 76%, so the explanatory power of the proposed model is good fit. The coefficient of DAC has significant negative value (β = –0.003, *p* < 0.001), reveals that as the earnings management practices increases, the Fog index value reduces hence the readability of financial report increase. This finding

supports our hypothesis H1. It was hypothesised that as earnings management practices reduce the readability of financial reports. Whereas firm size has significant positive relationship with financial report readability (β = 0.032 $p < 0.001$). Also, the dummy variable loss has also significant outcome which indicates that firm's loss is crucial for financial report readability. Further, Firm age has significant positive relationship with financial report readability (β = 0.130, $p < 0.001$).

We further decompose earnings management into income increasing and income decreasing discretionary accruals represented as negative EM and Positive EM respectively reported in Table 5. Results shows that the coefficient of Positive EM is negative but insignificant (β = –0.022, $p > 0.1$). This suggests that the income increasing discretionary accruals has no significant impact on the readability of financial reports. So, they are unable to support our hypothesis 2. Whereas firm size has insignificant negative relationship with financial report readability (β = –0.004, $p < 0.05$). Also, the dummy variable loss has no significant outcome which indicates that firm's loss and profitability has same effect on financial report readability. Further, Firm age has significant positive relationship with financial report readability (β = 0.154, $p < 0.01$).

Further, Table 5 shows that the coefficient of Negative EM has a negative and significant (β = –0.00298, $p < 0.1$) impact on the readability of financial reports. This suggests that the income decreasing discretionary accruals influence the readability of financial reports inversely. Whereas firm size has significant positive relationship with financial report readability (β = 0.115, $p < 0.05$). Also, the dummy variable loss has no significant outcome which indicates that firm's loss and profitability has same effect on financial report readability. Further, Firm age has significant positive relationship with financial report readability (β = 0.110, $p < 0.01$).

5.1 Conclusions and contributions

The readability of annual reports enhances the performance of the company (Subramanian et al., 1993). Readability of annual reports enables the managers to make plan for the future on the bases of past performance. Li (2008) studied the relationship between annual report readability and financial performance by using the Fog index. Fog index is also called readability formula, which is created by Gunning (1952) for the calculation of readability of written document or financial statements. The Fog index explains the number of years of education in which the document is understandable by readers and users of the document. The perfect score is seven or eight and other score, which is higher than twelve is difficult to understand by the reader or users of the written document. The current study aimed to find relationship between the readability of financial reports and earing management. In this study, two main constructs are used, i.e., earnings management and financial report readability to explore the impact of earnings management on the readability of financial reports. The Fog index has been used in order to operationalise the readability of financial reports, whereas Jones model has been applied to distinguish discretionary and non-discretionary accruals. The discretionary part has been considering as a proxy of earnings management. In order to fulfil the desire objectives of this study, we postulate three hypotheses. H1 states that Firms that managed earnings in financial reports in particular year will have annual report disclosures that are less readable. After analysing the data, it has been revealed that discretionary accruals have negatively associated with the readability. This implies that when managers

manipulate the reporting earnings through accruals the readability of financial reports become more complex. In other words, when mangers distort the earnings, it become difficult for the investors to understand the financial reports. Thus, our hypothesis H1 is supported, and the findings are consistent with the past research works (Courtis, 1982). The study further decomposes earnings management into income increasing discretionary accruals and income decreasing discretionary accruals and develop two more hypothesis. H2 states that managed earnings with income-increasing discretionary accruals will have annual report disclosures that are less readable. We are unable to find support for this hypothesis, this is because of the fact mangers may think that income increasing discretionary accruals may reflect favorable outcomes in the market and readability may not be more concerned in this case. Whereas H3 states that mangers managed earnings with income-decreasing discretionary accruals will have annual report disclosures that are less readable. We find support for this hypothesis; this means that in Pakistan the managers are more concerned with income decreasing earnings management than that of the income increasing earnings management. This may be due to the more family-owned companies in Pakistan, where these firms alter financial reports to pay less tax to the government.

Table 5 Decompose earnings management

	NEGEM DAC impact on readability	*POSEM DAC impact on readability*
Constant	1,707***	2,510***
	(0.253)	(0.233)
DAC	–0.002***	–0.022
	(0.001)	(0.015)
AG	0.110***	0.154***
	(0.017)	(0.018)
S	0.116***	–0.004
	(0.033)	(0.034)
L		
	0.007***	0.018
R2	(0.013)	(0.012)
	0.72	0.76
Durbin-Watson stat	1.78	1.58
F-statistic	8.02***	4.12***

Notes: Where *** $p < 0.01$, AG = 'age', S = 'size', DAC = 'discretionary accruals', L = 'loss' NEGEM = 'negative earnings management' and POSEM = 'positive earnings management'.

5.2 Limitations of the study

Like all studies, our study also has limitations. Data is confined to Pakistan only and sample was restricted to the sample of 62 non-financial firsms. This may limit the generalisability of the research findings of this study.

According to Siregar and Utama (2008) Jones model may not decompose accurately the discretionary and nondiscretionary part of accruals. So, there is a risk of misclassification of nondiscretionary and discretionary accruals, which may lead to erroneous findings of the research.

Moreover, the readability of financial reports has been measuring by using Fog index, which is not rely on readers' actual participation. Any index that allows actual participation of larger reader sample may provide more factual data and more reliable findings.

5.3 Future research recommendations

Our study identifies the importance of the readability of financial reports and the impact of earnings management on readability of financial reports. The findings of this research work are based on the Pakistan perspective. Future research may explore the relationship of readability of financial disclosures and firm performance in Pakistan and global perspective. In addition, future research should also employ in cultural dimensions such as individualism, power distance, and uncertainty avoidance as a factor that may affect readability of financial reports. Future studies could also be conducted to develop additional measures of earnings management and readability of financial reports and examine the most ideal measures of study variables. Last, real earnings management is more complicated than accrual based which is another important proxy of earnings management is not considered in this study. Future research could explore the impact of real earnings management instead of accrual-based earnings management.

References

Amar, A.B. and Abaoub, E. (2010) 'Earnings management thresholds: the case in Tunisia, *Asian Academy of Management Journal of Accounting and Finance*, Vol. 6, No. 2, pp.35–56.

Ball, R. (1992) 'The earnings-price anomaly', *Journal of Accounting and Economics*, Vol. 15, Nos. 2–3, pp.319–345, https://doi.org/10.1016/0165-4101(92)90023-U.

Biddle, G.C., Hilary, G. and Verdi, R.S. (2009) 'How does financial reporting quality relate to investment efficiency?', *Journal of Accounting and Economics*, Vol. 48, pp.112–131, https://doi.org/10.1016/j.jacceco.2009.09.001.

Bloomfield, R. (2002) 'The "incomplete revelation hypothesis" and financial reporting', SSRN *Electronic Journal*, https://doi.org/10.2139/ssrn.312671.

Bloomfield, R. (2008) 'Annual report readability, current earnings, and earnings persistence', *Journal of Accounting and Economics*, Vol. 45, pp.248–252, https://doi.org/10.1016/j.jacceco.2008.02.003.

Botosan, C.A. (1997) 'Disclosure level and the cost of equity capital', *The Accounting Review*, Vol. 72, No. 3, pp.323–349.

Burgstahler, D. and Dichev, I. (1997) 'Earnings management to avoid earnings decreases and losses', *Journal of Accounting and Economics*, Vol. 24, pp.99–126, https://doi.org/10.2469/dig.v28.n3.302.

Callen, J.L., Livnat, J. and Segal, D. (2009) 'The impact of earnings on the pricing of credit default swaps', *Accounting Review*, Vol. 84, No. 5, pp.1363–1394, https://doi.org/10.2308/accr.2009.84.5.1363.

Courtis, R. (1982) 'BugNet: a debugging system for parallel programming environments', in *Proc. 3rd Int. Conf. Distrib. Comput. Syst.,* pp.394–399.

Dechow, P.M., Sloan, R.G., Sweeney, A.P. and Sloan, R.G. (1995) 'Detecting earnings management', *The Accounting Review*, Vol. 70, No. 2, pp.193–225, https://doi.org/10.1002/9781119204763.ch4.

DeFond, M.L. and Jiambalvo, J. (1994) 'Debt covenant violation and manipulation of accruals', *Journal of Accounting and Economics*, Vol. 17, Nos. 1–2, pp.145–176, https://doi.org/10.1016/0165-4101(94)90008-6.

Ewert, R. and Wagenhofer, A. (2005) 'Economic effects of tightening accounting standards to restrict earnings management', *The Accounting Review*, Vol. 80, No. 4, pp.1101–1124, https://doi.org/10.2308/accr.2005.80.4.1101.

Fayyaz, U-E-R., Jalal, R.N-U-D., Antonucci, G. and Venditti, M. (2021) 'Does CEO power influence corporate risk and performance? Evidence from Greece and Hungary', *Corporate Ownership & Control*, Vol. 18, No. 4, pp.77–89, https://doi.org/10.22495/cocv18i4art6.

Firtel, K.B. (1998) 'Plain english: a reappraisal of the intended audience of disclosure under the securities act of 1933', *S. Cal. L. Rev.*, Vol. 72, p.851.

Frankfurt, H.G. and Wilson, G. (2005) *On Bullshit*, p.14, Princeton University Press, Princeton.

Gunning, R. (1952) *Technique of Clear Writing*, McGraw-Hill.

Hessayri, M. and Saihi, M. (2015) 'Monitoring earnings management in emerging markets', *Journal of Economic and Administrative Sciences*, Vol. 31, No. 2, pp.86–108.

Hossain, M. and Adams, M. (1995) 'Voluntary financial disclosure by Australian listed companies', *Australian Accounting Review*, Vol. 5, No. 10, pp.45–55, https://doi.org/10.1111/j.1835-2561.1995.tb00381.x.

Iqbal, A., Khan, I.A. and ÙAhmad, Z. (2015) 'Earnings management around privatizations: evidence from Pakistan', *The Pakistan Development Review*, Vol. 54, No. 2, pp.79–96.

Jalal, R., Zeb, N., Khan, H. and Fayyaz, U.E. (2016) 'Earnings management in terms of Islam: a literature analysis', *International Journal of Management Sciences and Business Research*, Vol. 5, No. 2, pp.11–17.

Jensen, M. and Meckling, W. (1976) 'Theory of the firm: management behavior, agency costs and capital structure', *Journal of Financial Economics*, Vol. 3, No. 4, pp.305–360.

Jones, J.J. (1991) 'Earnings management during import relief investigations', *Journal of Accounting Research*, Vol. 29, No. 2, pp.193–228, https://doi.org/10.2307/2491047.

Kearney, C. and Liu, S. (2014) 'Textual sentiment in finance: a survey of methods and models', *International Review of Financial Analysis*, Vol. 33, pp.171–185, https://doi.org/10.1016/j.irfa.2014.02.006.

Kothari, S.P., Leone, A.J. and Wasley, C.E. (2005) 'Performance matched discretionary accrual measures', *Journal of Accounting and Economics*, Vol. 39, No. 1, pp.163–197, https://doi.org/10.1016/j.jacceco.2004.11.002.

Lee, J. (2007) *Earnings Management to Just Analysts' Forecasts*, Working Paper, Kellogg Graduate School of Management.

Lehavy, R., Li, F. and Merkley, K. (2011) 'The effect of annual report readability on analyst following and the properties of their earnings forecasts', *Accounting Review*, Vol. 86, No. 3, pp.1087–1115, https://doi.org/10.2308/accr.00000043.

Li, F. (2008) 'Annual report readability, current earnings, and earnings persistence', *Journal of Accounting and Economics*, Vol. 45, Nos. 2–3, pp.221–247, https://doi.org/10.1016/j.jacceco.2008.02.003.

Li, F. (2010) 'The information content of forward- looking statements in corporate filings-a naïve bayesian machine learning approach', *Journal of Accounting Research*, Vol. 48, No. 5, pp.1049–1102, https://doi.org/10.1111/j.1475-679X.2010.00382.x.

Lo, K., Ramos, F. and Rogo, R. (2017) 'Earnings management and annual report readability', *Journal of Accounting and Economics*, Vol. 63, No. 1, pp.1–25, https://doi.org/10.1016/j.jacceco.2016.09.002.

Loughran, T. and Mcdonald, B. (2016) 'Textual analysis in accounting and finance: a survey', *Journal of Accounting Research*, Vol. 54, No. 4, pp.1187–1230, https://doi.org/10.1111/1475-679X.12123.

Macintosh, N.B. (2009) 'Accounting and the truth of earnings reports: philosophical considerations', *European Accounting Review*, Vol. 18, No. 1, pp.141–175.

Macintosh, N.B. and Baker, C.R. (2002) A literary theory perspective on accounting', *Accounting, Auditing and Accountability Journal*, Vol. 15, No. 2, pp.184–222, https://doi.org/10.1108/09513570210425600.

McVay, S.E. (2006) 'Earnings management using classification shifting: an examination of core earnings and special items', *Accounting Review*, Vol. 81, No. 3, pp.501–531, https://doi.org/10.2308/accr.2006.81.3.501.

Miller, B.P. (2010) 'The effects of reporting complexity on small and large investor trading', *Accounting Review*, Vol. 85, No. 6, pp.2107–2143, https://doi.org/10.2308/accr.00000001.

Mulford, C.W. and Comiskey, E.E. (2005) *Detecting Creative Accounting Practices*, John Wiley & Sons, Inc., Canada.

Mulford, C.W., Comiskey, E.E. and Nutt, S.R. (1996) 'Causes of a sudden decline in earnings: warnings for lenders and loan review officers', *Com. Lending Rev.*, Vol. 12, p.13.

Ramanna, K. and Watts, R.L. (2011) 'Evidence on the effects of unverifiable fair-value accounting', *SSRN Electronic Journal*, https://doi.org/10.2139/ssrn.1012139.

Rennekamp, K. (2012) 'Processing fluency and investors' reactions to disclosure readability', *Journal of Accounting Research*, Vol. 50, No. 5, pp.1319–1354, https://doi.org/10.1111/j.1475-679X.2012.00460.x.

Roychowdhury, S. (2006) 'Earnings management through real activities manipulation', *Journal of Accounting and Economics*, Vol. 42, No. 3, pp.335–370, https://doi.org/10.1016/j.jacceco.2006.01.002.

Sami, H. and Zhou, H. (2008) 'Do auditing standards improve the accounting disclosure and information environment of public companies? Evidence from the emerging markets in China', *The International Journal of Accounting*, Vol. 43, No. 2, pp.139–169, https://doi.org/10.1016/j.intacc.2008.04.003.

Schipper, K. (1989) 'Earnings management', *Accounting Horizons*, Vol. 3, No. 4, p.91.

Shah, S.Z.A., Butt, S.A. and Hasan, A. (2009) 'Corporate governance and earnings management an empirical evidence form Pakistani listed companies', *European Journal of Scientific Research*, Vol. 26, No. 4, pp.624–638.

Shumway, T. (2001) 'Forecasting bankruptcy more accurately: a simple hazard model', *Journal of Business*, Vol. 74, No. 1, pp.101–124, https://doi.org/10.1086/209665.

Siregar, S.V. and Utama, S. (2008) 'Type of earnings management and the effect of ownership structure, firm size, and corporate-governance practices: evidence from Indonesia', *International Journal of Accounting*, Vol. 43, No. 1, pp.1–27, https://doi.org/10.1016/j.intacc.2008.01.001.

Subramanian, R., Insley, R.G. and Blackwell, R.D. (1993) 'Performance and readability: a comparison of annual reports of profitable and unprofitable corporations', *Journal of Business Communication*, Vol. 30, No. 1, pp.l49–61, https://doi.org/10.1177/002194369303000103.

Teoh, S.H., Wong, T.J. and Rao, G.R. (1998) 'Are accruals during initial public offerings opportunistic?', *Review of Accounting Studies*, Vol. 3, pp.175–208, https://doi.org/10.1023/A:1009688619882.

Zarzeski, M.T. (1996) 'Spontaneous harmonization effects of culture and market forces on accounting disclosure practices', *Accounting Horizons*, Vol. 10, No. 1, pp.18–37.

Zhang, M.C., Stone, D.N. and Xie, H. (2019) 'Text data sources in archival accounting research: insights and strategies for accounting systems' scholars', *Journal of Information Systems*, Vol. 33, No. 1, pp.145–180, https://doi.org/10.2308/isys-51979.