
A Comparative Study on Readability Levels of Annual Reports and Banks' Performance

Neetika Jain¹ and Simranjeet Kaur Sandhar²

Abstract

Readability refers to the relative ease in which a written passage of text can be read and understood by others. Numerous mathematical formulas have been developed to support writers in computing the readability of their script. The research work is an initiative to test the relationship of readability levels of annual reports of banking sector with their performance figures. If disclosure readability is strategically used by managers to hide adverse information, a relationship between firm performance and readability would be expected. So it is essential to study the readability scores of annual reports and to verify its relation with some of the important parameters which can make significant change in their readability scores. The study covers the annual reports of banking sector in India and compares the readability scores of these reports on the basis of independent variable i.e. profitability. Almost all the Indian commercial banks are covered and the sample of annual reports collected is 88. The study considered the annual reports of Indian commercial banks for 3 years from 2009 to 2012. Furthermore, 6 hypotheses are constructed to observe the relationship between the readability of annual reports and profitability levels of banks. The results propose that banks with good or bad financial results do not show their outcome on readability of annual report. Therefore if the disclosures of the Company are more concise and syntactically simple, it does not indicate that the firm's performance was good.

Keywords: *Readability, Profitability, Annual Reports*

Introduction

Understanding Readability

Readability is what that explains some texts are easier to read than others. It is often puzzled with legibility, which concerns style and layout.

1 Assistant Professor, Symbiosis University of Applied Sciences, Indore (M.P.), E-mail: janglanisilky@gmail.com

2 Assistant Professor, Symbiosis University of Applied Sciences, Indore (M.P.), E-mail: sandhar_simranjeet@yahoo.co.in

Readability talks about the ease with which a text can be read. Numerous mathematical formulas have been developed to support writers in computing the readability of their script. Most authors in their formulas (indexes) include sentence length and a few measure of syllabic intensity as major components. Other aspects, such as sentence structure, graphic presentation, and font types may influence readability; yet, these are very subjective in character and really complex to measure.

Accepted readability indexes comprise the Flesch Readability Formula, Given by Rudolf Flesch; the Fry Readability Graph, formed by Edward Fry; and the Gunning Fog Index, created by Robert Gunning (Lewis & Adams, 2001).

George Klare (1963) describes readability as “the ease of understanding or comprehension due to the approach of writing.” This definition is based on writing style as taken apart from issues such as content, logic, and organization. Similarly, Gretchen Hargis and her colleagues at IBM (1998) acknowledged that readability, the “ease of reading words and sentences,” is a trait of simplicity.

The inventor of the SMOG readability formula G. Harry McLaughlin (1969) describes readability as: “the extent to which a specified class of public find certain reading material convincing and understandable.” This definition focuses the communication between the text and a class of readers of known character such as reading skill, prior knowledge, & motivation.

Edgar Dale and Jeanne Chall’s (1949) definition may be the most inclusive: “The sum (including all the interactions) of all those basics within a known portion of printed material that influence the success a group of readers have with it. The success is the level to which readers understand it, read it at a best possible speed, and find it appealing.”

Readability Formulas

Developments and research on the formulas remain undisclosed until 1950s. Authors like Rudolf Flesch, George Klare, Edgar Dale, and Jeanne Chall developed the formulas and the research supporting them and their application. The formulas were largely used in journalism, research, health care, law, insurance, and manufacturing industry.

During 1980s, there were 200 formulas and about a thousand studies published on the readability formulas confirming their strong theoretical and statistical legality. Research in due course established that the two factors commonly used in readability formulas—a semantic (meaning)

variable such as difficulty of vocabulary and a syntactic (sentence structure) variable such as average sentence length—are the best interpreter of textual difficulty. (DuBay, 2004).

The Flesch readability formula is the most accepted measure for reviewing textual difficulty (Clatworthy & Jones, 2001). This formula, devised in 1948, has received criticism for the reason that it has a narrow focus and differing use of language. Despite of the limits, the Flesch readability formula offers an objective evaluation of reading ease (Subramanian et al., 1993).

Fog Index from computational linguistics is based on syntactical textual traits (like words per sentence and syllables per word). The intuition of using fog index is that, other things being equal, more syllables per word or more words per sentence make a text harder to read. Developed by Robert Gunning, the formula is an acknowledged and simple parameter for assessing readability. After assuming that the script is well formed and logical, it confines text difficulty level as a function of syllables per word and words per sentence.

Following is the list of some of the readability scores measured in this study which are explained further in the study under the heading of research methodology:

1. Flesch Kincaid Reading Ease
2. Flesch Kincaid Grade Level
3. Gunning Fog Index
4. SMOG Score
5. Coleman Liau Index
6. Automated Readability Index

Annual Report: A Disclosure

The corporate annual report contains gathered corporate information about growth and events that occurred during the reporting year in a complete and condensed manner, which are formed on a regular basis and offers an opportunity for a comparative analysis of organization attitudes and policies across reporting periods (Niemark, 1995). It is normally perceived to be the most important business report for company evaluation. It provides opportunities for firms to increase their communication with investors and the financial group of people in general by going further than the reporting of merely financial information (Cameron and Guthrie, 1993). Marston and Shrivs (1991) concluded that the annual report is the broadest document

available to the public and is therefore the main disclosure medium. Parker (1982) highlighted the significance of annual reports as a mass communiqué medium, which emphasizing its broad coverage and availability. It is also supposed to be the main external reporting vehicle for information announcement (Johanson et al., 1999). For these reasons, the corporate annual report is chosen for the purpose of this research.

Relevance of Readability in Corporate Disclosures

Corporate annual reports are widely acknowledged as tools used by companies to facilitate communication with investors and other stakeholders. Annual reports are viewed as authoritative and legitimate documents, yet they are ones in which editorial control remains with those responsible for their preparation (Neu et al. 1998)

Readability of annual reports is naturally a topical area. These documents represent the primary source of information for investors and analysts for decision-making purposes. As such it is important that users are able to understand and comprehend the information contained within a company's annual report. The annual reports can either be a good news communication highlighting superior corporate performance or a bad news communication relating sub-par financial results or corporate actions. Firms that veil negative information are missing an opportunity to gain trust and confidence (Subramanian et al., 1993).

There are three significant elements of corporate disclosure: content (what), timing (when) and presentation (how) (Courtis, 2004), the worth of these three, is based upon their readability and understandability. Firms may influence the content and appearance of information in various ways, fundamentally using what is called as 'impression management' (Godfrey *et al.*, 2003). Using the above practice, companies can manipulate oral information by the reading ease manipulation (e.g., to make the text difficult to read) or by the rhetorical manipulation method/practice (e.g., using persuasive language).

However, existing studies suggest that readability of annual reports can be manipulated based on the type of information being conveyed. For example, Subramanian, Insley, and Blackwell (1993) found that annual reports for companies with good performance were easier to read (requiring a 10th grade level to read) than those with poor performance (requiring at least a 14th grade level or a college education). Furthermore, in their analysis of annual reports, Straw, McKechnie, and Puffer (1983) found that managers took credit for good news and blamed the environment for bad news.

The research study on the readability of annual reports of Indian companies in connection with financial performance is found to be meager. The present research work is an initiative to test the relationship of readability levels of annual reports of banking sector with their performance figures. Hence this study may reveal whether corporate communication in the form of annual reports could reduce information asymmetry or not. If disclosure readability is strategically used by managers to hide adverse information, a relationship between firm performance and readability would be expected. There are many prior studies investigating the relationship between the readability of the corporate narrative and firm performance, and hence this study is motivated to test some of hypotheses that have been developed in this respect. The variable that represents the firm's financial performance is profitability. So it is essential to study the readability scores of annual reports and to verify its relation with some of the important parameters which can make significant change in their readability scores. The study covers the annual reports of banking sector in India and compares the readability scores of these reports on the basis of above mentioned independent variables.

Review of Literature

Companies as well as the regulatory bodies are making efforts to increase the usefulness or the readability in particular, of the annual reports. Despite such efforts by the companies and the regulatory authorities, and the recent progress in business communication, there is still much uninformative, unimaginative reporting of company activities. One reason is that those who are preparing the annual report for the company may not be the best judges of clarity and readability. Another reason is that it is the nature of financial reporting to score in the lower third of the readability scale (Wheeler, 2006). Management's intention to make the report harder can also be a very good reason. Given the importance of the plain English disclosure regulation, surprisingly, there is little large sample empirical evidence on its relevance. Following are review of several studies done on the readability and its relevance on corporate annual report.

Healy et al. (1999) reported that firms voluntarily increase their disclosure levels experiences significant increases in their stock prices beyond what can be explained by contemporary earnings performance. It also studies the reading ease of the footnotes to the financial statements of 50 New Zealand firms. Gelb and Zarowin (2000) compared firms with high disclosure ratings versus low disclosure ratings and conclude that the former experience a more significant stock price association to current and future earnings

reports, consistent with more credibility behind those disclosures. Kothari et al. (2008) used content analysis to show that positive disclosures reduce firm risk along multiple dimensions, including the cost of equity capital, volatility of a firm's stock returns, and the dispersion of analyst forecast estimates.

Riedl and Srinivasan (2006) found that managers exercise strategic discretion in their reporting of special items, giving explicit income statement recognition of transitory disruptions in expected profitability, while relegating explanation of more persistent earnings shocks to the financial statement footnotes.

Clatworthy and Jones (2001) stated that the most common tool utilised in readability studies to assess the syntactical complexity of narratives has been the Flesch readability formula. In a calculation that considers the number of syllables per word and the number of words per sentence, the Flesch formula produces a score that can be aligned with reading difficulty. The lower the score, the harder the narrative passage is to read. For example, scores of 70 or more are considered to be fairly easy to read. Scores between 30 and 50 are rated as difficult while those of 30 or less are considered to be very difficult, and likely to be understood only by those with a tertiary education. The use of Flesch scores as a measure of the readability of annual report narratives has been criticised by several authors. But he argued that the use of the Flesch formula is justifiable because it allows for easily computable results, understandability, and comparability with previous studies. Further evidence that firms strategically manage the information content of their corporate disclosures is found in the literature on earnings release timing. Early work in this area suggests firms exhibit a proclivity to announce good news early, and delay the release of bad news as long as possible in an effort to maximize shareholder wealth. For example, Lurie and Pastena (1975) found 59 percent of "good news" disclosures are made during the first six-months of a fiscal year, while only 22 percent of "bad news" disclosures are made during this same interval. More strikingly, they also find 38 percent of all "bad news" filings occur during the final month of a firm's fiscal year. Similarly, Kross and Schroeder (1984) found early releases of quarterly earnings announcements are characterized by better news than late announcements, while Chai and Tung (2003) found late reporters exhibit lower profitability and are characterized by more negative discretionary accruals than their early reporting counterparts. Finally, both Patell and Wolfson (1982) and Damodaran (1989) reported firm's time of release of negative information to minimize market impacts. Specifically, Patell and Wolfson (1982) found good news is likely to be released when

markets are open, while bad news is disproportionately released after the market closes. Although relatively few earnings announcements are made on Fridays, those that are tend to be made after-the close. Consistent with minimizing negative announcement effects, Damodaran (1989) found Friday announcements are disproportionately negative, and associated with lower (more negative) abnormal returns.

Without any appeal to the existence of asymmetric information among traders, a similar conclusion is arrived at by Lambert et al. (2007). They demonstrated that increasing the quality of accounting disclosures decreases a firm's cost of capital through a lowering of the expected covariance of returns between the firm and the market. Summarizing the intuition underlying this result, at the information limit (no information uncertainty exists whatsoever and the cash flow distribution is perfectly revealed), the covariance of returns with the market ceases to be priced as a risk factor because the market provides no additional information concerning the firm's cash flows.

Jones and Shoemaker (1994) reviewed 32 studies in the fields of accounting, business communication and management and studied the readability of annual report narratives (26 studies), tax law (3 studies) and accounting textbook (3 studies). They conclude that most of the studies try to assess the reading ease of the annual report and its components. The authors further conclude that the previous studies have consistently shown that narratives in corporate reports are difficult or very difficult to read.

Richards and Staden (2001) hypothesized that the introduction of International Financial Reporting Standards in New Zealand could lead to increased difficulty in reading the resulting financial statements. Using a range of readability indicators (Flesh, Flesh-Kincaid, Smog and Fog) their results showed that the readability of financial statements decreases after IFRS adoption. This was confirmed by other proxies for reading difficulty (statement length and number of tables) and therefore their results support our hypothesis. The results hold even after exerting statistical control over the other variables that previous research had identified as significantly related to financial disclosures readability (size, leverage, volatility and industry). They have found sufficient evidence to reject the null hypotheses and conclude that they have found sufficient evidence to conclude that the adoption of IFRS has led to more complicated annual report disclosures. These relationships revealed a troubling situation, adoption of NZIFRS has deteriorated the readability of annual report disclosures and resulted in considerably longer and more complicated reports. While the direct cause

of this relationship is not investigated in this research work, it is evident that work is required to remedy this result of NZIFRS adoption. This research work, found the readability of annual reports notes to be very poor with scores suggesting at least a Bachelor's Degree is required to comprehend their content.

According to White and Hanson (2002), the annual reports are viewed as authoritative and legitimate documents, yet they are ones in which editorial control remains with those responsible for their preparation. The readability of narrative disclosures in the corporate annual reports of listed companies has been extensively researched. Narrative disclosures have consistently been found to be difficult for users to read and comprehend. Due to the differences in both the nature of the operations and in the potential report users of local governments and listed companies, a comparison of their reporting styles is interesting. Inter alia, local governments provide services and impose regulations that affect all residents in their jurisdictions. Unlike customers or shareholders of a listed company, residents cannot 'opt out' of their relationship with their local government. Thus local governments have the challenge of communicating to a user group that may differ in motivation and sophistication in comparison to the users of corporate annual reports. The decision to include voluntary narratives in the local government reports suggests that the preparers intend the report to be used to communicate with the readers and not simply to fulfill a statutory role. Because users of local government annual reports are different from the major users of corporate annual reports, typically those with a financial interest in the corporation, they may be making and evaluating types of decisions that differ from the investment and analysis-type decisions generally made by corporate report readers.

Lewis, Colvard and Adams (2008) determined the readability of privacy policies of banks, check cashing companies, and credit counseling companies. Privacy policies of the three business types were tested using the Flesch-Kincaid Grade Level test. Findings revealed that most privacy policies were written easily. Support for an association between disclosure efficacy and cost of capital is also provided by a large number of empirical studies. For example, Botosan (1997) found that firms relatively neglected by the analyst community exhibit a significant negative relation between voluntary disclosure levels and the implied cost of capital.

The above literature portrays a convincing association between disclosure efficacy (both quality and quantity) and annual report readability levels. The present study tests whether the readability of financial reports is empirically associated with banks' performance after controlling for other "non-

experimental” sources of readability variation. In addition, the study should be viewed as a meaningful step forward towards a fuller understanding of the linkages between basis of comparison and readability levels of annual reports.

Objectives of the Study

- To analyze the applicability of readability scores on corporate annual reports.
- To determine the readability measures of the annual reports of Indian commercial banks.
- To compare the readability score of annual reports of commercial banks on the basis of bank’s profitability.

Research Methodology

Research Design

This study is about readability of annual reports of banks, thus these documents represent the primary source of information for investors and analysts for decision-making purposes. As such, it is important that readers are able to understand and comprehend the information contained within a company’s annual report. While it is our opinion that the use of readability formulas in accounting has stood the test of time, there is still considerable debate over the general applicability of readability formulas in the accounting context.

The sample consists of 20 Public sector banks and 15 private sector banks and 88 annual reports of three years, i.e. from 2009 to 2012 were taken for the study. Table 1 and Table 2 shows the details of the selected commercial banks.

Table 1. Details of Selected Public Sector Banks

Particulars	Public Sector Banks
Banks	20
No. of Years	3
Total Annual Reports (20*3)	60
Andhra Bank (Not available of all three years)	3
Corporation Bank (Unedited of 2012)	1
Dena Bank (Unedited for 2011)	1

Indian Bank (Unedited for 2012)	1
Indian Overseas bank (Unedited for 2012)	1
Oriental Bank of Commerce (Not available for 2011 & 2012)	2
Punjab & Sind Bank (Unedited for 2012)	1
UCO Bank (Not available for 2012)	1
Vijaya Bank (Not available for all years)	3
Total Annual Reports	46
1. Size	23
1.1 Smaller in size	
1.2 Bigger in Size	23
2. Leverage	
2.1 More Levered	23
2.2 Less Levered	23
3. Return on Assets	23
3.1 Higher return on assets	
3.2 Lower return on assets	23
4. Profitability	
4.1 Higher profitability	23
4.2 Lower profitability	23
5. Liquidity	23
5.1 Higher Liquidity	
5.2 Lower Liquidity	23

Table 2. Details of Selected Private Sector Banks

Particulars	Private Sector Bank
Banks	15
No. of Years	3
Total Annual reports	45
Catholic Syrian Bank (Not available for 2010)	1
Karur Vyasya Bank (Unedited for 2010)	1
Karnataka Bank (Unedited for 2012)	1
Total Annual Reports	42
1. Size	
1.1 Smaller in size	
1.2 Bigger in Size	21
	21

<p>2. Leverage</p> <p>2.1 More Levered</p> <p>2.2 Less Levered</p>	<p>21</p> <p>21</p>
<p>3. Return on Assets</p> <p>3.1 Higher return on assets</p> <p>3.2 Lower return on assets</p>	<p>21</p> <p>21</p>
<p>4. Profitability</p> <p>4.1 Higher profitability</p> <p>4.2 Lower profitability</p>	<p>21</p> <p>21</p>
<p>5. Liquidity</p> <p>5.1 Higher Liquidity</p> <p>5.2 Lower Liquidity</p>	<p>21</p> <p>21</p>

Data Collection Method

The annual reports for three years of all the banks taken up as sample were downloaded from the respective websites of commercial bank. The annual reports downloaded were available in Pdf format. All non financial information from these annual reports was downloaded. Non Financial information includes Message from CEO, Director's Report, Management Discussion & Analysis, and Schedules containing non financial information, Auditor's Report on Consolidated financial statements & Basel III Disclosures. All the heading items, paragraphs that have less than one line & tables were deleted. It is important to delete the tables and financial statements, since the readability indices are designed for text rather than numbers or tables. To determine the proper software to calculate readability score we initially started working with MS Word's tool. Later we took help from a website i.e. Test Document Readability (<http://www.readability.info/>) to analyze the characteristics of the annual reports, which ascertains a multitude of readability scores, such as Kincaid, Automated Readability Index (ARI), Coleman-Liau, Flesch Index, Gunning FOG Index, and Simple Measure of Gobbledygook (SMOG) Grading. We have found large deviations between the results generated by MS Word and that of the website. Then we have randomly selected some part of annual reports and computed Flesch Reading Ease Score manually and found the computed results of the website more accurate. Finally, we decided to use the statistics provided by the website.

Dependent Variables

Of a number of readability score methodologies, we have empirically measured readability of annual reports using the following variables:

Flesch Reading Ease Formula

The first variable is the Flesch Reading Ease (such as the average number of syllables per 100 words and the average sentence length) in the annual report. The idea is that, everything else equal, more syllables per word or more words per sentence make a document harder to read and understand. The higher the Flesch Reading Ease, the easier is the text. In this study, the Flesch Readability score was used as a readability measurement of the corporate disclosure, since the formula takes these two important variables into account (Flesch, 1960). Therefore, the readability score is represented by the formula is as follows:

$$\text{Readability Score} = 206.835 - 1.0155\text{SL} - 0.846\text{WL}$$

where:

SL = Average sentence length (Number of words/number of sentence)

WL = Average Word Length (Number of syllables/100 words)

This formula was chosen for the following reasons. First, it is the most widely used technique in previous readability studies (Courtis, 1986; 1998; 2004; Schroeder and Gibson, 1990; 1992; Smith and Taffler, 1992a; Subramanian *et al.*, 1993; Smith *et al.*, 2006). Secondly, due to the fact that it is a widely accepted method, it is possible to compare the findings with prior studies. Thirdly, the formula generates a readability score on a scale ranging from 0 to 100. The higher the point scale, the easier to read the text and the lower the point scale, the greater the difficulty in reading.

In the 'Art of Readable Writing', Flesch (1949) described his Reading Ease Scales are presented in Table 3.

Table 3. Flesch Reading Ease scales

Reading Ease Score	Style Description	Estimated Reading Grade
0 to 30:	Very Difficult	College graduate
30 to 40:	Difficult	13th to 16th grade
50 to 60:	Fairly Difficult	10th to 12th grade
60 to 70:	Standard	8th and 9th grade
70 to 80:	Fairly Easy	7th grade
80 to 90:	Easy	6th grade
90 to 100:	Very Easy	5th grade

Flesch's Reading Ease formula became the most widely used formula and one of the most tested and reliable (Klare 1963). It is wide spread, especially in the USA, because of good results and simple computation. Standard English documents averages approximately 60 to 70.

Kincaid Formula

The Kincaid Formula has been developed for Navy training manuals, which ranged in difficulty from 5.5 to 16.3. It is probably best applied to technical documents, because it is based on adult training manuals rather than school book text. Dialogs (often found in fictional texts) are usually a series of short sentences, which lowers the score. Flesch Reading Ease formula simplified and converted to grade level (now known as the Flesch-Kincaid readability formula):

Flesch Formula = $(11.8 * \text{syllables per word}) + (0.39 * \text{words per sentence}) - 15.59$, rates text on U.S. grade school level.

Fog Index

Similar to Li (2008), we measure the readability of annual reports using the Fog Index. This index, developed in the computational linguistics literature, captures the written complexity of a document as a function of the number of syllables per word and the number of words per sentence. Specifically, we calculate the readability of the annual reports for firm i in year t as follows:

Grade level = $3.0680 + .0877 (\text{average sentence length}) + .0984 (\text{percentage of monosyllables})$.

Fog Count new: $GL = \frac{((\text{easy words} + 3 (\text{hard words})) / (\text{sentences})) - 3}{2}$

2

where:

Easy words = number of number of 1 and 2-syllable words per 100 words

Hard words = number of words of more than 2 syllables per 100 words

Sentences = number of sentences per 100 words

A complex word is defined as one with three or more syllables. The index is interpreted as the number of years of formal education required for a person of average intelligence to read the document once and understand it. The formula is objective and simple to calculate. It allows us to study the disclosure characteristics of a large and diverse group of firms and does not depend on analyst surveys or opinions. It also provides us with

a comprehensive measure of the overall syntactic complexity of annual reports as opposed to the complexity of individual financial items.

The relation between Fog and reading ease is as follows: *FOG* ≥ 18 means the text is unreadable; 14-18 (difficult); 12-14 (ideal); 10-12 (acceptable); and 8-10 (childish).

However, for the purpose of completeness, other indicators to measure the concept of readability are put forward and included for investigation.

Automated Readability Index

The Automated Readability Index is typically higher than Kincaid and Coleman-Liau, but lower than Flesch.

$$\text{ARI} = 4.71 * \text{chars/wds} + 0.5 * \text{wds/sentences} - 21.43$$

Smith and Kincaid (1970)³ successfully validated the ARI on technical materials in both manual and computer modes.

Coleman-Liau Formula

The Coleman-Liau Formula usually gives a lower grade than Kincaid, ARI and Flesch when applied to technical documents.

$$\text{Coleman-Liau} = 5.89 * \text{chars/wds} - 0.3 * \text{sentences}/(100 * \text{wds}) - 15.8$$

Smog-Grading

The SMOG-Grading for English texts has been developed by McLaughlin in 1969. Its result is a school grade. SMOG formula is in the belief that the word length and sentence length should be multiplied rather than added. By counting the number of words of more than two syllables (polysyllable count) in 30 sentences, he provides this simple formula:

$$\text{SMOG-Grading} = \text{square root of } (((\text{wds} \geq 3 \text{ syll})/\text{sent}) * 30) + 3$$

McLaughlin validated his formula against the McCall-Crabbs passages. He used a 100 percent correct-score criterion. As a result, his formula generally predicts scores at least two grades higher than the Dale-Chall formula.

³ Smith, E. A. & Kincaid, J. P. (1970). "Derivation and validation of the automated readability index for use with technical materials." *Human factors* 12:457-464.

Independent Variables

Profitability: If disclosure readability is strategically used by managers to hide adverse information, a relationship between firm performance and readability would be expected. This management opportunism story argues that managers have incentives to obfuscate information when the current performance is bad (Bloomfield (2002)). In particular, it has to be examined whether the positive earnings of firms with more complex annual reports are less persistent and whether the negative earnings of these firms are more persistent in the next several years. Firms with more complicated annual reports have a lower persistence of earnings when they are profitable. The effect can be significant both economically and statistically. However, this hypothesized relation between disclosure readability and a firm's current performance may not be significant. First, corporate annual reports contain a lot of financial information about current and historical performance. Hence, the benefit to the managers of making the annual reports harder to read in order to hide adverse information about current performance seems small. Second, if the good current earnings are (partially) due to strategic manipulation, then managers may not necessarily want to make the annual reports easier to read when the reported earnings is "good". The earnings are defined as EBIT/Total Assets.

Hypothesis

1. H_{01} : There is no significant difference of profitability on the Flesch Kincaid Reading Ease score of annual reports of public sector banks and private sector banks.
2. H_{02} : There is no significant difference of profitability on the Flesch Kincaid Grade Level score of annual reports of public sector banks and private sector banks.
3. H_{03} : There is no significant difference of profitability on the Gunning Fog score of annual reports of public sector banks and private sector banks.
4. H_{04} : There is no significant difference of profitability on the SMOG Index score of annual reports of public sector banks and private sector banks.
5. H_{05} : There is no significant difference of profitability on the Coleman Liau Index score of annual reports of public sector banks and private sector banks.

6. H_{06} : There is no significant difference of profitability on the Automated Readability Index score of annual reports of public sector banks and private sector banks.

Tools for Data Analysis

Independent Sample t-test

The Independent-Samples T Test procedure tests the significance of the difference between two sample means. Also it displays descriptive statistics for each test variable, A test of variance equality, A confidence interval for the difference between the two variables (95 percent or a value you specify). Usually, the groups in a two-sample t test are fixed by design, and the grouping variable has one value for each group. With the Independent sample t test procedure, the need is to provide the cut point. The program divides the sample in two at the cut point and performs the t test. The virtue of this method is that the cut point can easily be changed without the need to re-create the grouping variable by hand every time.

Results & Interpretations

Comparison of Readability & Understandability of Annual Reports on the basis of Profitability

Table 4. Descriptive Statistics for Flesch Kincaid Reading Ease

Sector	Variable	N	Mean	Std. Deviation	Std. Error Mean
Public Sector Banks	Profitability >= .01	23	42.1730	4.92358	1.02664
	Profitability < .01	23	41.2939	5.37219	1.12018
Private Sector Banks	Profitability >= .01	21	36.2995	5.78664	1.26275
	Profitability < .01	21	38.4162	3.76877	.82241

The above table shows the descriptive statistics of the Flesch Kincaid reading Ease, which has been divided in two groups on the basis of median of profitability of banks. The two groups are named as banks with higher profitability and banks with lower profitability. The table depicts that the mean of both the group of public sector banks with more profitability or less profitability are 42.1730 and 41.2939 with standard deviation of 4.92358 and 5.37219 respectively. For private sector banks two groups of higher profitability and lower profitability on the basis of the median calculated i.e. 0.01173. The mean of both the groups is 36.2995 and 38.4162 with standard deviation of 5.79 and 3.77 respectively. The mean scores of readability of both the groups do not have much variation. Also the values of

standard deviation are low which concludes that there is not much variation in readability scores of annual reports of banks taken into consideration. Hence the annual reports of public sector banks are more readable than private sector banks.

Table 5. Descriptive Statistics for Flesch Kincaid Grade level

Sector	Variable	N	Mean	Std. Deviation	Std. Error Mean
Public Sector Banks	Profitability >= .01	23	11.1852	1.25743	.26219
	Profitability < .01	23	11.5487	1.39224	.29030
Private Sector Banks	Profitability >= .01	21	12.8976	1.57076	.34277
	Profitability < .01	21	12.2586	.96257	.21005

The above table for the descriptive statistics shows that the mean of scores of readability calculated by Flesch Kincaid Grade Level and the standard deviation are 11.19 & 1.26 for the public sector banks with higher profitability respectively. For the public sector banks with lower profitability the mean of scores and standard deviation are 11.55 & 1.39 respectively. The mean scores of readability levels as calculated by Kincaid formula of private sector banks for two groups are 12.90 and 12.26 which are very close to each other. The values of standard deviation of both the groups are also very less. Hence it can be said that readability scores of banks of both the groups are almost same and does not show much variation. Annual reports of private sector banks are comparatively easier than public sector banks.

Table 6. Descriptive Statistics for Gunning Fog Index

Sector	Variable	N	Mean	Std. Deviation	Std. Error Mean
Public Sector Banks	Profitability >= .01	23	13.3387	1.31799	.27482
	Profitability < .01	23	13.7078	1.35582	.28271
Private Sector Banks	Profitability >= .01	21	14.9824	1.64903	.35985
	Profitability < .01	21	14.3710	.97897	.21363

The descriptive statistics table shows the means of scores and standard deviation of the readability scores of annual reports of banks of public sector & private sector as per the Gunning Fog Index. In case of public sector banks the mean and standard deviation of scores of both the groups does not vary too much. In case of private sector banks the values of means are 14.98 & 14.37 for both the groups. Also the standard deviation for both the groups is 1.65 & 0.98. The values of means are close to each other and of

standard deviation are very less. Thus it can be depicted that profitability levels do not show much difference on the readability levels of the banks belonging to different groups. Public sector banks show easier annual reports in comparison to private sector banks.

Table 7. Descriptive Statistics for SMOG Index

Sector	Variable	N	Mean	Std. Deviation	Std. Error Mean
Public Sector Banks	Profitability >= .01	23	13.3417	1.03327	.21545
	Profitability < .01	23	13.6409	1.02558	.21385
Private Sector Banks	Profitability >= .01	21	14.6962	1.20444	.26283
	Profitability < .01	21	14.2162	.76675	.16732

Descriptive statistics in Table 7 shows the mean scores and standard deviation of the readability scores calculated through SMOG Index. The values of means for both the groups i.e. public sector banks with higher profitability and with lower profitability are 13.34 & 13.64 respectively. Similarly standard deviation for both the groups is 1.03 & 1.025. In case of private sector banks the mean values are 14.70 & 14.22 for the two groups divided on the basis of profitability and the values of the standard deviation are 1.20 and .77. These values too depicts that the readability scores does not show much variation and also the value of standard deviation is too low. The public sector banks are easier to read and understand in comparison to private sector banks.

Table 8. Descriptive Statistics for Coleman Liau Index

Sector	Variable	N	Mean	Std. Deviation	Std. Error Mean
Public Sector Banks	Profitability >= .01	23	12.0952	.90898	.18954
	Profitability < .01	23	12.2291	.85543	.17837
Private Sector Banks	Profitability >= .01	21	12.9762	1.07411	.23439
	Profitability < .01	21	12.7019	.64153	.13999

The descriptive statistics in table 8 shows the mean values and standard deviation values of the readability scores of annual reports of public sector & private sector banks calculated by Coleman Liau Index. In case of public sector banks the mean values for both the groups i.e. banks with higher profitability and banks with lower profitability are 12.91 & 12.22. The values of mean do not show much variation. The table shows private sector bank's mean values of both the groups made for the analysis are not far off and

are very close to each other. Also the smaller values of standard deviation signify that readability scores are in the same range irrespective of their profitability levels.

Table 9. Descriptive Statistics for Automated Readability Index

Sector	Variable	N	Mean	Std. Deviation	Std. Error Mean
Public Sector Banks	Profitability >= .01	23	10.1443	1.63932	.34182
	Profitability < .01	23	10.6357	1.77812	.37076
Private Sector Banks	Profitability >= .01	21	12.3486	2.15642	.47057
	Profitability < .01	21	11.5181	1.28275	.27992

The descriptive statistics in table 9 shows that the means of two groups of public sector banks are found to be 10.14 and 10.64. Also the values of the standard deviation are very less. Similar in private sector banks the closer values of means of Automated Readability Index depicts that the readability scores of banks are close to each other and also smaller values of standard deviation signify that the readability scores of the annual reports of banks taken for sample does not move far from their mean values. The public sector bank's annual reports are comparatively easier to read and understand.

Table 10. Profitability & Readability Formulas

S.No	Categories	Hypothesis for No Significant Difference	Accepted/ Rejected
1	Profitability & Flesch Kincaid Reading Ease	H_{01}	Accepted
2	Profitability & Flesch Kincaid Grade Level	H_{02}	Accepted
3	Profitability & Gunning Fog Index	H_{03}	Accepted
4	Profitability & SMOG Index	H_{04}	Accepted
5	Profitability & Coleman Liau Index	H_{05}	Accepted
6	Profitability & ARI	H_{06}	Accepted

- **Flesch Kincaid Reading Ease** – The null hypothesis (H_{01}) is accepted and no significant difference of profitability levels of banks on the readability levels of their annual reports. So the banks may earn

more profit or less profit but it will make annual reports easier or harder to read.

- **Flesch Kincaid Grade Level** – The null hypothesis (H_{02}) is accepted, implying readability scores of annual reports calculated by Flesch Kincaid Grade Level do not have any effect on the profitability levels of banks.
- **Gunning Fog Index** – For Gunning Fog Index, the null hypothesis (H_{03}) is accepted. The banks earning more profit or less profit do not generate easier or harder annual reports.
- **SMOG Index** –The acceptance of null hypotheses (H_{04}) concludes that profitability levels of banks do not make annual reports easier or harder to read and understand.
- **Coleman Liau Index** –The acceptance of null hypothesis (H_{05}) concludes that annual reports cannot be said to be easy or hard if it has higher or lower readability levels.
- **Automated Readability Index** – For ARI, the null hypothesis (H_{06}) is accepted and concludes that banks may earn higher profits but it does not have any effect on readability scores of their annual reports.

These above findings are supported by Courtis (1986); Subramanian, et al. (1993), they have examined the relationship between annual report readability and corporate profitability. Courtis (1986) finds neither company size nor profitability are associated with improved readability levels where as Baker and Kare (1992) find that the correlation coefficient between the readability index and the profitability of a firm is mixed. Subramanian et al. (1993), however, found a positive relationship between readability and profitability. Thus as per our findings banks with more profits or less profits do not show significant relationships with annual reports readability and understandability levels.

Conclusion

Readability refers to the relative ease in which a written passage of text can be read and understood by others. Numerous mathematical formulas have been developed to support writers in computing the readability of their script. The research work is an initiative to test the relationship of readability levels of annual reports of banking sector with their performance figures. If disclosure readability is strategically used by managers to hide adverse information, a relationship between firm performance and readability

would be expected. So it is essential to study the readability scores of annual reports and to verify its relation with some of the important parameters which can make significant change in their readability scores. The study covers the annual reports of banking sector in India and compares the readability scores of these reports on the basis of independent variable i.e. profitability. Almost all the Indian commercial banks are covered and the sample of annual reports collected is 88. The study considered the annual reports of Indian commercial banks for 3 years from 2009 to 2012. Furthermore, 6 hypotheses are constructed to observe the relationship between the readability of annual reports and profitability levels of banks. Based on the ease scores, it can be inferred that the Indian commercial banks do not reveal their financial performances through proper readability of annual report.

Most importantly, the findings imply that, in the event of poor bank performance, the management does not attempt to make bank disclosure more prolix or syntactically complex in an effort to hide poor results. Therefore, the study concludes that if the disclosures of the commercial banks are more concise and syntactically simple, it does not indicate that the firm's performance was good. Moreover, the high or low profitability levels of Indian commercial banks does not make annual reports easier or harder to read and understand. In other words, there is no significant relationship among the readability levels of annual reports of banking sector with their performance figures.

Limitation

The study considered the annual reports of the Indian banks for only three years, which may be extended for more years. The parameter chosen for comparison is profitability alone. There can be other measures to which may affect the readability scores of annual reports like age of the company, price to book value ratio.

References

- Baker, H.E. & Kare, D.D. (1992), "Relationship between annual report readability and corporate financial performance", *Management Research News*, 15, 12-19.
- Bloomfield, R. J. (2002), "The incomplete revelation hypothesis" and financial reporting", *Accounting Horizons*, 16, 233-243.
- Botosan, C.A. (1997). "Disclosure level and the cost of equity capital". *The Accounting Review*, 72(3), 323-350.

- Cameron, J. & Guthrie, J. (1993). "External Annual Reporting by an Australian University: Changing Patterns", *Financial Accountability & Management*, 9(1), 1-13.
- Chai, M. L. & Tung, S. (2003). "The effect of earnings-announcement timing on earnings management", *Journal of Business Finance and Accounting*, 29(9&10), 1337–1354.
- Clatworthy, M. & M. Jones. (2001). "The Effect of Thematic Structure on the Variability of Annual Report Readability", *Accounting, Auditing and Accountability Journal*, 14, 311–326.
- Courtis, J.K. (1986). "An investigation into Annual Report Readability and Corporate Risk Return Relationships", *Accounting and Business Research Journal*, 16(6), 285–294.
- Courtis, J.K. (2004). "Corporate report obfuscation: artefact or phenomenon". *The British Accounting Review*, 36, 291–312
- Dale, E. & J. S. Chall. (1948). "A formula for predicting readability." *Educational research bulletin* Jan. 21 and Feb. 17, 27(1-20), 37-54.
- Damodaran, A. (1989). "The weekend effect in information releases: a study of earnings and dividend announcements. *Review of Financial Studies*", 2(4), 607–623.
- DuBay, W. H. (2004). *The Principles of Readability*. Costa Mesa: Impact Information
- Flesch, R.F. (1960). *How to write, speak and think effectively*. New York, Harper and Row; 305–353
- Gelb, D. & Zarowin P. (2000). "Corporate disclosure policy and the informativeness of stock prices". *New York University Working Paper*.
- Godfrey, J., Mather, P. & Ramsay, A. (2003). "Earnings and impression management in financial reports: The case of CEO changes". *ABACUS*, 39(1), 95–123.
- Healy, P. M., Hutton, A., & Palepu, K. G. (1999). "Stock performance and intermediation changes surrounding sustained increases in disclosure". *Contemporary Accounting Research*, 16(3), 485–520.
- Johanson, U., Eklov, G., Holmgren, M. and Martensson, M. (1999). Human Resource Costing and Accounting Versus the Balanced Scorecard: A Literature Survey of Experience with the concepts. Paper Presented at the International Symposium "Measuring and Reporting Intellectual Capital: Experience, Issues, and Prospects", Amsterdam.
- Jones, M. & Shoemaker, P. (1994). Accounting Narratives: A Review of Empirical Studies of Content and Readability, *Journal of Accounting Literature*, 13, 142–159.

- Klare, G. R. (1963). *The measurement of readability*. Ames, Iowa: Iowa State University Press.
- Kothari, S. P., Li, X. & Short, J. E. (2008). "The effect of disclosures by management, analysts, and financial press on cost of capital, return volatility, and analyst forecasts: A study using content analysis". *Unpublished Working Paper*. MIT Sloan School of Management.
- Kross, W. & Schroeder, D. A. (1984). An empirical investigation of the effect of quarterly earnings announcement timing on stock returns. *Journal of Accounting Research*, 22(1), 153–176.
- Lambert, R. A., Leuz, C. & Verrecchia, R. E. (2007). "Accounting information, disclosure, and the cost of Capital". *Journal of Accounting Research*, 45(2), 385–420.
- Lewis, S. D. & Adams. C. N. (2001). "Readability of business columns versus other columns in major U.S. newspapers". *Journal of Organizational Culture, Communications and Conflict*, 6(1), 29-36.
- Li, F. (2008). "Annual report readability, current earnings, and earnings persistence", *Journal of Accounting & Economics*, 45(2-3), 221-247.
- Lurie, A. J. & Pastena, V. S. (1975). "How promptly do corporations disclose their problems?" *Financial Analysts Journal*, 31(5), 55–61.
- Marston, C.L. & Shrivies, P.J. (1991). "The Use of Disclosure Indices in Accounting Research: A Review Article", *British Accounting Review*, 23 (2), 195-210.
- McLaughlin, G. H. (1969). "SMOG grading - a new readability formula", *Journal of reading*, 22, 639-646.
- Neu, D., Warsame H. & Pedwell. K. (1998). 'Managing Public Impressions: Environmental Disclosures in Annual Reports.' *Accounting, Organizations and Society*, 23, 265–282.
- Niemark, M.K. (1995). *The Hidden Dimensions of Annual Reports, Sixty Years of Social Conflict at General Motors*, Markus Wiener, Princeton, New Jersey.
- Parker, L.D. (1982). "Corporate Annual Reporting: A Mass Communication Perspective", *Accounting and Business Research*, Autumn, 279-86.
- Patell, J. M. & Wolfson, M. A. (1982). "Good news, bad news, and the intraday timing of corporate disclosures". *The Accounting Review*, 57(3), 509–527.
- Richards, G. W., & Staden, C. J. "The readability of International Financial Reporting Standards – is harmonisation having a negative impact?", *The University of Canterbury*, Christchurch, New Zealand.

- Riedl, E. J. & Srinivasan, S. (2006). "The strategic reporting of special items: Does management presentation reflect underlying firm performance or opportunism?", *Unpublished Working Paper. Harvard Business School*.
- Smith, E. A. & Kincaid, J. P. (1970). "Derivation and validation of the automated readability index for use with technical materials." *Human factors* 12:457-464.
- Straw, B. M., McKechnie, P. I. & Puffer, S. M. (1983). "The justification of organizational performance", *Administrative Science Quarterly*, 28, 582-600.
- Subramanian, R., Insley, R.G. & Blackwell, R.D. (1993), "Performance and readability: A comparison of annual reports of profitable and unprofitable corporations", *Journal of Business Communication*, 30(4), 12-20.
- Wheeler, T. M. (2006). *Writing for Readability*, http://www.seeseeeye.com/article_148.shtml.
- White, R. & Hanson D. (2002). "Economic Man and Disciplinary Boundaries: A Case-Study in Corporate Annual Reports". *Accounting, Auditing and Accountability Journal*, 15, 450-477.