> "A man is
> great by
> deeds, not by
> birth"
> -Chanakya
>
> Welcome to IIMK
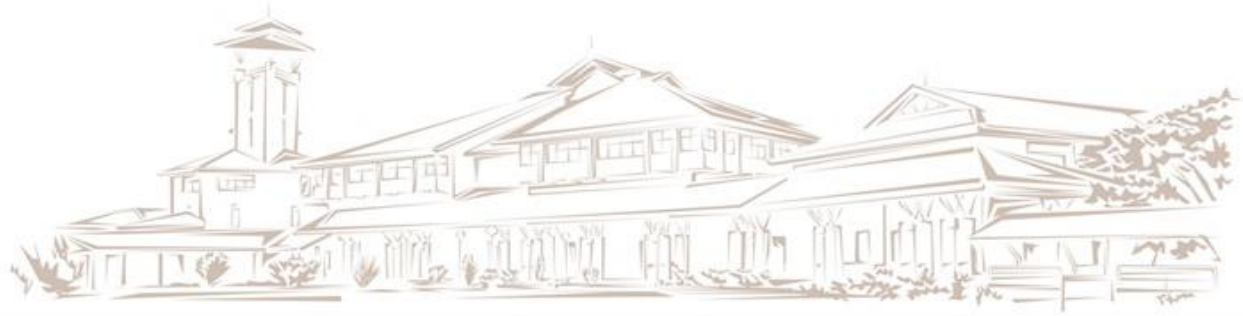
Working Paper

IIMK/WPS/269/FIN/2018/13

April 2018

Readability of MD&A and Operating Performance of Banking Companies

Dr. M. Jayasree[1]
Dr. Rachappa Shette[2]

[1]Associate Professor, Finance at the GITAM Hyderabad Business School, GITAM (Deemed to be University), Patancheru Mandal, Sanga Reddy Dist., Telangana – 502 329, India; Email: jayasree.mangalagiri@gitam.edu

[2] Assistant Professor, Finance at the Indian Institute of Management Kozhikode, Kozhikode, India. IIMK Campus P.O., Kozhikode, Kerala 673570, India; Email: rachappa.s@iimk.ac.in, Phone Number (+91) 4952809422.

Abstract

The impact of firm performance on readability has become significant in understanding the qualitative aspect of financial reports. There are several studies on readability and firm performance. We therefore attempt to explore firm performance and readability of banking firms in India which is more relevant in the current situation of increased provisioning by banks. Net-interest margin (NIM) and Fog index are used as operating performance and readability variables respectively. The lower Fog index implies easy readability. We use cross sectional analysis of data to understand the effect of firm's performance on readability and bidirectional effect readability on operating performance. We find Indian banking firms' MD&A are difficult to read. However, when we compare with existing literature based on companies from the USA and 42 other countries, Indian banking firms' MD&A are difficult but not unreadable. Our results show that firm's performance influence readability. The results are statistically significant showing that firm performance would have negative impact on Fog index of readability and Fog index would have negative association with firm performance. Based on our results, we, therefore, affirm that firms with poor performance would structure their annual reports to veil adverse information, in unfavorable situations. Application of readability index in case of banking companies of emerging economy in association with operating performance is the contribution of this paper to the existing literature.

Keywords

Introduction:

Banking companies' performance and financial condition usually indicate the financial health of an economy. Corporate disclosures along with financial statements are critical to investors, deposit holders and regulators to understand financial performance and condition of banking companies. Corporate disclosures in annual reports are in the form of Chairman's statement, Directors' report, President's note, Management Discussion & Analysis, (MD&A), audit report and footnotes to financial statements. However, such disclosures are difficult to read in case of some annual reports. Warrant Buffet (SEC, 1998) notes "……for more than forty years; I've studied the documents that public companies file. Too often, I've been unable to decipher just what is being said or, worse yet, had to conclude that nothing was being said". Similarly, Arthur Levitte then SEC chairman (SEC 1998) notes "Because many investors are neither lawyer, accountant or investment bankers, we need to start writing disclosure documents in a language investor can understand" (p.3). Therefore, the analysis of readability of corporates disclosures in annual reports is an important area of research.

Using readability indices, the existing literature evaluates the readability of different corporate disclosures of companies (Pashalian and Crissy, 1950; Soper and Dolphin, 1954; Jones,1994; and Hrasky et al., 2009). The existing literature relates easier to read corporate disclosures to positive earnings and harder to read corporate disclosures to negative earnings (Li, 2008 and Bloomfield, 2002). The readability of corporate disclosures in different industries could be diverse due to the difference in levels of complexity of products and services (Li, 2008). Therefore, this paper aims to analyze the readability of Management Discussion & Analysis (MD&A) of banking companies in association with earnings performance. We expect readability of MD&A of banking companies would be different as compared to other companies due to multiple regulatory frameworks, multi-level auditing, product/service complexity, use of technology, the pressure of up-ward window dressing in banking companies.

The readability analysis of MD&A in this paper is based on all 12 banking companies of National Stock Exchange Nifty Bank Index during 2013-14 to 2016-17 period. It consists four-state owned banks and eight private banks. This sample also represents 89 percent of total market capitalization of all banking companies listed on National Stock Exchange of India. We use Fog Index to measure the readability as used in recent studies (Li, 2008; Biddle, Hilary, and Verdi, 2009; Miller, 2010; Lehavy, Li et al., 2011; Dougal et al., 2012; and Lawrence, 2013). We run the cross-sectional regression to analyze the impact of current-year performance on readability of banking companies. We use net-interest margin (NIM) as the performance indicator of banks.

We find the average of Fog index is 16.54 indicating that Indian banking firms' MD&A are difficult to read. However, when we compare with firms from the USA and 42 other countries which have a score of above 18 (Li, 2008; Lang and Stice-Lawrence, 2015), Indian banking firms MD&A are difficult but not unreadable. Secondly, we find net-interest margin has the negative and significant effect on Fog index (higher Fog index means difficult to read) of readability. It means the disclosures of poor (good) performing banking companies are harder

(easier) to read and vice-versa. When we examine Fog index as an explanatory variable for net-interest margin, the impact was negative, and results were statistically significant. The paper, therefore, has evidence to support that Fog index is influenced by firm performance and firms structure their annual reports to veil adverse information, in unfavorable situations. This is in the line of incomplete revelation hypothesis (Bloomfield, 2002). Application of readability index in case of banking companies of emerging economy in association with operating performance is the contribution of this paper to the existing literature.

The reminder of the paper proceeds as follows. We discuss the literature review and hypothesis in Section 2 and methodology in Section 3. We present and discuss the results in Section 4 and conclude in Section 5.

2. Literature Review:

A written document's quality of being legible or decipherable is readability. A document with long sentences, passive voice sentences, superfluous words, legal and financial jargons, and negative words is difficult to read the document, and a document with short sentences and small words is an easier document to read. Research on readability of disclosures in annual report has a long history. Pashalian and Crissy (1950), Soper and Dolphin (1954), Smith and Smith (1971), Dolphin and Wagely (1977), Adelberg (1979), Lewis et al. (1986) and Jones (1994) analyzed readability of corporate annual reports or separate items of corporate annual reports such as Chairman's statement, Directors' report, President's note, Management Discussion & Analysis, audit report and footnotes to financial statements.

These disclosures in annual reports are value relevant information to stakeholders of the companies in understanding the reasons for current year financial performance and position of a company. The disclosures also guide in estimating the future earnings performance, financial position, cash flows at different levels of risk. Therefore, the evaluation of readability of annual reports is important in better understanding the current and future period financial performance and position of a company.

Using Fog Index as readability measure, Li (2008) is the first to relate readability of annual reports of the large sample of American companies to their current year and subsequent year earnings performance. Fog index of a document implies the number of years of formal education required to an average reader to understand the document in a first reading. The study finds negative and significant impact of current year earnings performance on readability index of disclosures. It also finds the negative and significant impact of current year readability index of disclosures on subsequent year earnings performance. It means that the annual reports with lower earnings in the current year are difficult to read and current year harder to read annual reports would have lower earnings in subsequent year. The main contribution of Li's paper is linking linguistic features of annual reports to actual firm earnings performance.

Prior to Li's paper, Subramanian et al. (1993) find the annual reports of profitable corporations are easier to read as compared to annual reports of unprofitable corporations. Later on, easy readability quality of disclosures is linked with greater capital investment efficiency (Biddle, Hilary, and Verdi, 2009), with issuing lesser managerial forecasted earnings-per-share, sales and cash flows (Guay, Samuels, and Taylor, 2015), with trading higher number of shares by small investors (Miller, 2010), and with higher investment holdings by retail investors (Lawrence, 2013).

Bloomfield (2002) relates such easier to read corporate annual reports during positive earnings and harder to read corporate annual reports during negative earnings to "incomplete revelation hypothesis (IRH)." IRH predicts that managers attempt to manipulate market prices by emphasizing good news and tucking bad news in footnotes. It implies that managers hide bad news related to earnings performance of the current year and subsequent year in difficult to read footnotes to financial statements and management discussion & analysis of annual reports. Consistent with IRH, managers make disclosures harder for investors to uncover information that the managers do not want to affect their firms' stock prices negatively. Such harder to read disclosures may relate to:

(i)   Managers decision to change the accounting methods to improve highly visible statistics such as reported profit-after-tax, earnings-per-share, return-on-assets, debt-to-equity ratio, leverage ratio, current ratio, etc.
(ii)   Managers decision to conceal the expenses, capitalized revenue expenses, provisions, contingencies and liabilities.
(iii)   Managers unreliable guidance about future sales orders, capital expenditure projects, cash flows, dividend, internal and external risk factors.

The major disclosures in a corporate annual report are MD&A, auditors report, notes to financial statements including significant accounting policies and corporate governance. Tavcar (1988) says Management's Discussion and Analysis (MD&A) is arguably the most read and most important component of the financial section. Knutson (1993) and Rogers and Grant (1997) observe sell-side financial analysts in the United States most frequently rely upon the MD&A among all the disclosure items of the annual report. As suggested by Loughran and McDonald (2016), the target section for textual analysis should be focused on the MD&A section of the annual report. Similarly, the concept release of USA's Securities Exchange Commission (SEC) states [3] "The Commission has long recognized the need for a narrative explanation of the financial statements, because a numerical presentation and brief accompanying footnotes alone may be insufficient for an investor to judge the quality of earnings and the likelihood that past performance is indicative of future performance. MD&A is intended to give the investor an opportunity to look at the company through the eyes of management by providing both a short and long-term analysis of the business of the company. The item asks management to discuss the

dynamics of the business and to analyze the financials." Therefore, MD&A is an important useful disclosure for investment and credit decisions.

In this paper, we consider Management Discussion and Analysis (MD&A) section of the annual reports of Nifty Bank Index for readability analysis. As per Securities and Exchange Board of India (Listing Obligations and Disclosure Requirements) Regulation, 2015[4], the annual report shall contain MD&A as a separate item or part of Directors' Report. Thus, there are many studies on readability of different items of corporate annual reports in association with earnings performance based on developed markets. However, there is no literature on analysis of readability of MD&A in association with earnings performance of banking companies.

Therefore, we propose the following two hypotheses to test:

1. Earnings performance of current year would have negative impact on readability index of MD&A of current year.

2. Readability index of MD&A would have negative impact on earnings performance.

We expect the results of banking companies could be different from the existing studies such as Li (2008) and Lang and Stice-Lawrence (2015). The readability of MD&A of banking companies could be harder to read as compared to non-banking companies. The banking sector is a sensitive sector. This nature of banking sector pressurizes the banking companies to maintain the healthy financial condition through consistent earnings performance. Banking companies may use their biased accounting discretion in accruals accounting to manage the earnings. The justification for such accounting discretion may become very difficult to read. In addition to this, use of several technical, complex banking jargons also makes the corporate disclosure harder to read as compared to non-banking companies. Securities, interest-earning, interest-bearing, contingencies, capitalization, beneficiary, authentication, acknowledgment, diversification are some of the examples of frequently used complex banking jargons in MD&A. The banking sector has embraced the use of technology to serve its clients faster by introducing e-banking and plastic-money. This makes MD&A further more difficult to read. Contrary to this, the readability of annual reports of banking companies could be easier due to multiple regulatory framework and tight control to protect the interest of deposit holders, investors and economy.

3. Methodology:

Sample Firms:

All twelve banking companies from National Stock Exchange Nifty Bank Index are considered for this study during 2013-14 to 2016-17 period. It consists four state-owned banks and eight private banks. These sample banks are presented in **Table 1**. There are thirty-nine banking companies listed on National Stock Exchange (NSE) of India as on 31st March 2017.

---

[4]https://www.nseindia.com/content/equities/eq_list_regulations.zip

However, the sample twelve banks cover 59% total deposits, 62% of total loans and advances, 80% of total sales turnover and 89% of the total market capitalization of all the banking companies listed on NSE of India. Thus, these sample companies represent Indian banking industry.

Table 1: List of Sample Banks

S. No.	Name of Banking Company
1	Axis Bank Limited
2	Bank of Baroda Limited
3	Canara Bank Limited
4	Federal Bank Limited
5	HDFC Bank Limited
6	ICICI Bank Limited
7	IDFC Bank Limited
8	IndusInd Bank Limited
9	Kotak Mahindra Bank Limited
10	Punjab National Bank Limited
11	State Bank of India Limited
12	Yes Bank Limited

Proxies of Readability:

We use Fog index, to measure the readability of MD&A. Recent examples of studies using the Fog Index include Li (2008), Biddle, Hilary, and Verdi (2009), Miller (2010), Lehavy, Li, and Merkley (2011), Dougal et al. (2012), and Lawrence (2013). The Lingua Fathom software is used to calculate the readability scores. The computation and interpretation of Fog index are as follow:

$$Fog = (words\ per\ sentence + percent\ of\ complex\ words)\ X\ 0.4 \qquad ...(1)$$

Table 2: Fog index description and Interpretation

Fog Index	Reading Ease
≥ 18	Unreadable
14-18	Difficult
12-14	Ideal
10-12	Acceptable
8-10	Childish

The annual reports of sample banking companies are downloaded from websites of sample firms in PDF format, and MD&A from each annual report has been converted into word document. Manually, a word document of each sample firm-year has been edited to remove all tables, figures, pictures, header, footer, list of contents and abbreviations table from MD&A before using the word text for computation of readability indices.

Net Interest Margin as Performance Indicator:

We use net-interest margin (NIM) as performance variable. NIM is the difference between interest income and interest expense scaled by beginning total assets. Several studies in India and abroad use NIM as performance variable in banking literature (Wong, 1997; Saunders &Schumacher, 2000; Drakos, 2003; Sensarma & Ghosh, 2004; Kao, et al., 2004; Boubakri, et al., 2005; Chantapong, 2005; Boyacioglu, et al., 2009; Saksonova, 2014).

Other variables:

Non-Interest Income Ratio: It is the ratio of Non-interest income to the total income of a banking company. Non-interest income is primarily through collection of fees for various services such as deposit account management services, credit-related services, financial leasing services, trade finance related services, payment and money transmission services, fund management services, financial consultancy and advisory services, underwriting services, clearing and settlement services, securities trading services and other financial services. In India, non-interest income ratio is 28.973 per cent as per World Bank data base[5]. It is a major source of income for improvement of overall performance of the banking companies. Pennathur et al. (2012) find fee-based income significantly reduces risk in profitability and default risk of Indian banking companies. Thus, non-interest income appears to benefit the banking companies. Based on incomplete revelation hypothesis, we predict the banking companies with lower (higher) non-interest income ratio may make MD&A as difficult (easy) to read. Therefore, we the predict negative correlation between Non-interest income ratio and Fog Index of readability.

Non-Performing Loan Ratio: Non-performing loan (NPL) is the ratio of gross non-performing loans to gross total loans. NPL is one of the biggest challenges of the banking sector in India and other emerging countries. The worsening problem of bad loans is India's No.1 macroeconomic challenge, says Chief Economic Advisor Arvind Subramanian[6]. The bad loans are deducted from the total income of the banking companies to arrive the profit. Hence, the increase in bad loans deteriorates the operating performance. The increase in bad loans and decrease in operating performance may make managers indulge in writing MD&A in a difficult language to avoid the attention of reader of such document. Therefore, we predict positive correlation between NPL and Fog index of the MD&A.

Age: Age is the number of years a sample company listed on National Stock Exchange of India (NSE) or Bombay Stock Exchange (BSE). Older firms may present different MD&A because there is less information asymmetry and less information uncertainty. If investors are aware of business models, operations, performance and financial condition from its historical precise

---

[5]http://databank.worldbank.org/data/reports.aspx?source=global-financial-development&preview=on#
[6]https://www.moneycontrol.com/news/business/economy/npa-issue-is-indias-no-1-macroeconomic-challenge-arvind-subramanian-2248985.html

information, then MD&A of older firms will be easier to read. Therefore, we predict the older (younger) banks' MD&A would be easier (harder) to read.

Length: The length of MD&A is measured in terms of the number of words. According to Loughran and McDonald (2014), when a small sample of partners of major accounting firms are polled and asked how they would legally attempt to obscure information whose disclosure is required. The accountants immediately identified the strategy of burying the awkward revelation in an overwhelming amount of uninformative text and data. The study finds documents which are harder to read are bigger and the documents which are easier to read are smaller in size. Therefore, we predict lengthier MD&A would be difficult to read.

Cross-sectional Regression:

We propose cross-sectional regression model to identify the impact of current-year operating performance of banking companies on readability of MD&A disclosed in annual reports of the companies. We initially had return on assets, net-interest margin, efficiency ratio, Non-interest income ratio, provisions & contingencies, non-performing assets, capital adequacy, size, age, and number of words as explanatory variables for Fog index. However, when we check for variance inflation factors, we find multicollinearity among the regressors. Therefore, certain variables have been dropped from the model and we have taken net-interest margin as a performance variable and non-interest ratio, non-performing loans (NPL), age and number of words as explanatory variables as presented in the following cross-sectional regression model.

$$\text{Fog\_ind} = \alpha + \beta_1 \text{ Net\_int margin} + \beta_2 \text{ Non\_int ratio} + \beta_3 \text{ NPL} + \beta_4 \text{Age} + \beta_5 \text{No\_Words} + \varepsilon$$

Further, we also the examine impact of Fog index of readability on the operating performance of the banking companies using the following cross-sectional model.

$$\text{Net\_int margin} = \alpha + \beta_1 \text{ Fog\_ind} + \beta_2 \text{ Non\_int ratio} + \beta_3 \text{ NPL} + \beta_4 \text{Age} + \beta_5 \text{No\_Words} + \varepsilon$$

4. Results and Discussion:

4.1. Readability of MD&A of Banking Companies:

We start our analysis with descriptive statistics which is shown in **Table 3**. The mean of net-interest margin is 2.18 per cent with a maximum and minimum of 5.18 and 1.02 per cent. The Fog index has a mean value of 16.54 and minimum of 13.15 and a maximum of 19.17. The general norm is if Fog index is in the range of 14 -18 the annual reports are difficult to read and a fog index of above 18 would mean the annual reports are unreadable. The average of 16.54 would mean that the banking companies' MD&A disclosed in annual reports are difficult to read. The mean and median Fog index of MD&A of American companies is 18.23 and 17.28 respectively (Li, 2008). This indicates that the mean Fog index of banking companies sample from India is much lower as compared to American companies. The mean Fog index of annual reports of non-US companies based on a large sample of 87,608 annual reports from 42 countries

including India and other emerging countries is 19.520 (Lang and Stice-Lawrence, 2015). Thus, the Fog index of MD&A of Indian banking companies is lower and easier to read than that of US and non-US companies.

The possible reasons for lower Fog index of banking companies could be due to the comprehensive legal system. In India, banks are regulated by Reserve Bank Act 1934, Banking Regulation Act 1949, Banking Companies (Acquisition and Transfer of Undertakings) Act 1970 &1980, Prevention of Money Laundering Act 2002, Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act 2002 in addition to New Companies Act, 2013 and guideline of Securities Exchange Board of India. Appointment of statutory auditors of banking companies and requirement of Long Form Audit Report (LFAR) by Reserve Bank of India could be other reasons for better readability of banking companies as compared to other companies in the existing literature.

4.2. Impact of Operating Performance on Readability of MD&A:

The correlation matrix as presented in **Table 5** shows that net-interest margin, non-performing loans (NPL) and age have negative correlation with Fog index. The correlation matrix also shows non-interest income and number of words of MD&A have positive correlation with Fog index. This conveys that higher non-interest income and higher number of words result harder to read MD&A of banking companies.

We run the pooled regression to analyze the impact of the operating performance and other explanatory variables on Fog index and results are presented in **Table 6**. The P-values of the regression show that the model is good.

The results show that net-interest margin (NIM) has negative impact on Fog index of MD&A of banking companies and it is significant at 5 per cent. It means that MD&A of under-performing banking companies are harder to read and MD&A of better-performing banking companies are easier to read. These results based on banking companies are consistent with the findings of existing studies (Li, 2008; Lang and Stice-Lawrence, 2015). This also implies that when operating performance of banks is low, banks indulge in obfuscation of analysis in difficult to read MD&A disclosure in annual report. Contrast to this, better performing banks disclose MD&A that is easier to read. This significant negative relation between operating performance and Fog index is on the lines of incomplete revelation hypothesis (Bloomfield, 2002).

As predicted, we find negative impact of age of banking companies on Fog index and it is significant at 10 percent. This means the MD&A of new firms are harder to read and less transparent. These findings are consistent with George H. Diacont, Chief Accountant in SEC, perceives younger firms as risky firms in the context of initial public offerings or as a result of financial statement manipulation shortly after initial public offer (Beneish, 1997). Austral Coke

Limited is an example of such manipulation in India[7]. Such findings are also consistent with evidence that younger firms are more likely to experience financial distress (Dopuch et al., 1987).

Contrary to our prediction, we find positive impact of non-interest income ratio on Fog index and it is significant at 5 percent. This indicates that the MD&A of banking companies with higher non-interest income is harder to read and MD&A of banking companies with lower non-interest income is easier to read. Generally, the non-interest ratio would have many elements; hence the readability would be difficult when compared to net interest margin which has interest received on loans and interest paid on deposits. As more fee-based services are offered, the technical terminology used in the annual reports may make it more difficult to read. Contrary to our prediction, we find negative impact of non-performing liabilities (NPL) on Fog index. It means that the MD&A of banking companies with lower NPL are harder to read and vice-versa. We could not find any impact of number of words of MD&A on Fog index as the coefficient is zero.

Though the regression results are significant, the composition of our sample consists of both Public sector and Private sector banks and our results could be affected by the differences in the groups. We, therefore, propose to check for the differences in the groups by using the fixed effects model. The fixed effects model removes the effect of the time-invariant attribute so that we get the net effect of the independent variables on the outcome. However, if the fixed effects have a correlation of the error u with the regressors very high then fixed effects would not be a good model. From the fixed effects model, we see a very high correlation of the error u with the regressors. Hence, we run the random effects model which assumes that variation across entities is random. The results of random effect model are presented in **Table 7**. To test the robustness of random effects, we applied the Hausman test. The test results tell us that the null hypothesis has to be accepted. This means that the random effect model is a better model. The results are similar to pooled regression.

4.3. Impact of Readability of MD&A on Operating Performance:

Further, we examine Fog index as an explanatory variable for firm performance measured as net-interest margin (NIM). The pooled regression results are shown in **Table 8**. We find negative impact of Fog index, NPL and age on NIM. We further observe the positive impact of non-interest income ratio on NIM. We observe significance for Fog index, non-interest income ratio and age. It means that banking companies with easier (harder) to read MD&A perform better (poor) in terms of NIM. The non-interest income ratio is seen positive to NIM. The fee-based revenues come from depositors, borrowers; and customers prefer banks that offer more service. It is therefore understood that bank that offers additional services would attract

---

[7]https://economictimes.indiatimes.com/markets/stocks/news/austral-coke-hits-lower-circuit-as-sebi-cracks-whip/articleshow/4962919.cms

more deposits and advances. The coefficient of age has shown negative impact on NIM. The older banking firms diversify their operations and as they age, the net interest margin would come down. Further older banks would have more NPL than the newer banks. The other variables NPL and number of words did not show any significance for net-interest margin. Thus, we identify Fog index as an explanatory variable of net-interest margin as a contribution of this study to the existing literature.

As our sample comprises of the public sector and private sector banks, we run the fixed effects model and observed that correlation of the error u with the regressors to be very high. We, therefore, use the random effects model. We also use Hausman test to understand which model is better. The test results show that null hypothesis has to be accepted which means that random effect is a better model. As seen in **Table 9**, the results are similar to the pooled regression model.

5. Conclusion:

This paper provides the first study of Fog index and firm performance of banking sector firms and determines the performance variable influencing the Fog index. All our results show that net-interest margin has negative and significant effect on Fog index. Whereas non-interest income ratio has positive and significant impact on Fog index. The age influence is negative and significant at 10%. We summarize our results that annual reports of firms with deficient performance are difficult to read. The results are statistically significant. Secondly when we examined Fog index as an explanatory variable for net-interest margin. The impact is negative, and results are statistically significant. The paper, therefore, has good evidence to support that Fog index is influenced by firm performance and firms structure their annual reports to veil adverse information, in unfavorable situations.

Table 3: Descriptive Statistics

Variable	Number of Observations	Mean	Standard Deviation	Minimum	Maximum
Net-Interest Margin	46	2.18	0.80	1.02	5.18
Non-Interest Income Ratio	48	16.17	16.25	0	85.63
NPL	46	3.759	3.48	0	12.9
Age	48	51.25	41.62	1	122
Fog Index	39	16.54	1.76	13.15	19.17
Number of Words	39	14447.38	6903.72	1549	35176

Table 4: Correlation of the Variables

Variable	Fog Index	Net-Interest Margin	Non-Interest Income Ratio	NPL	Age	Number of Words
Fog Index	1.00					
Net-Interest Margin	-0.022	1.00				
Non-Interest Income Ratio	0.414	0.15	1.00			
NPL	-0.42	-0.33	-0.19	1.00		
Age	-0.25	-0.39	0.16	0.53	1.00	
Number of Words	0.18	0.03	-0.05	-0.12	0.05	1.00

Table 5: Fog Index and Firm Performance

Fog Index	Coef	Std. Err	t	P>t	95% Conf.	Interval
Net-Interest Margin	-0.66**	0.32	-2.04	0.04	-1.31	0.00
Non-Interest Income Ratio	0.05***	0.01	3.27	0.00	0.02	0.08
NPL	-0.11	0.08	1.37	0.18	-0.28	0.05
Age	-0.01*	0.01	-1.87	0.07	-0.03	0.00
Number of Words	0.00	0.00	1.48	0.15	-0.00	0.00
Cons	18.05	1.19	15.19	0.00	15.63	20.47

Number of Observations: 39
F= 4.77
Prob>F = 0.00
R-squared = 0.4196
Adj. R – squares = 0.3317
Root MSE =1.4385

Note: ***, **, and * represent significance level at the 1%, 5%, and 10% levels respectively.

Table 6: Fog Index and Firm Performance Random Effects

Fog Index	Coef	Std. Err	z	P>z	95% Conf.	Interval
Net-Interest margin	-0.66**	0.32	-2.04	0.04	-1.28	-0.03
Non-Interest Income Ratio	0.05***	0.01	3.27	0.001	0.02	0.08
NPL	-0.11	0.08	-1.37	0.17	-0.27	0.05
Age	-0.01*	0.01	-1.87	0.06	-0.03	0.00
Number of Words	0.00	0.00	1.48	0.14	-0.00	0.00
Cons	18.05	1.19	15.19	0.00	15.72	20.38

Number of Observations: 39 R-sq: Within groups: 0.4039
Number of Groups: 2   Between: 1.000
Wald chi2 = 23.86   Overall: 0.4196
Prob>Chi2 = 0.002   Corr (u_i, xb) = 0 (assumed)
R-squared = 0.4196   rho = 0
Obs per group min: 18
Avg: 19.5
Max: 21
Note: ***, **, and * represent significance level at the 1%, 5%, and 10% levels respectively.

Table 7: Firm Performance and Fog Index

Net-Interest Margin	Coef	Std. Err	t	P> t	95% Conf.	Interval
Fog Index	-0.17**	0.08	-2.04	0.05	-0.34	-0.00
Non-Interest Income Ratio	0.02**	0.01	2.02	0.05	-0.00	0.03
NPL	-0.04	0.04	-0.84	0.41	-0.12	0.05
Age	-0.01**	0.00	-2.45	0.02	-0.16	-0.00
Number of Words	0.00	0.00	0.74	0.46	-0.00	0.00
Cons	5.73	1.34	4.10	0.00	2.89	8.57

Number of Observations: 39
 F= 2.76
Prob>F = 0.0345
R-squared = 0.2947
Adj. R – squares = 0.1878
Root MSE =0.73458

Note: ***, **, and * represent significance level at the 1%, 5%, and 10% levels respectively.

Table 8: Firm Performance and Fog Index Random Effects

Net Interest Margin	Coef	Std. Err	z	P>z	95% Conf.	Interval
Fog Index	-0.17**	0.08	-2.04	0.04	-0.33	-0.01
Non-Interest Income Ratio	0.02**	0.01	2.02	0.04	0.00	0.03
NPL	-0.04	0.04	-0.84	0.40	-0.12	0.05
Age	-0.01***	0.00	-2.45	0.01	-0.02	-0.00
Number of Words	0.00	0.00	0.74	0.459	-0.00	0.00
Cons	5.72	1.40	4.10	0.00	2.99	8.46

Number of Observations: 39 R-sq: Within groups: 0.2300
Number of Groups: 2   Between: 1.000
 Wald chi2 = 13.79   Overall: 0.2947
Prob>chi2 = 0.02   Corr (u_i, xb) = 0 (assumed)
R-squared = 0.2947   rho = 0
Obs per group min: 18
Avg: 19.5
Max: 21
Note: ***, **, and * represent significance level at the 1%, 5%, and 10% levels respectively.

References:

Adelberg, A. H. (1979). Narrative disclosures contained in financial reports: means of communication or manipulation? *Accounting and Business Research*, *9*(35), 179-190.

Beneish, M. D. (1997). Detecting GAAP violation: Implications for assessing earnings management among firms with extreme financial performance. *Journal of accounting and public policy*, *16*(3), 271-309.

Biddle, G. C., Hilary, G., & Verdi, R. S. (2009). How does financial reporting quality relate to investment efficiency? *Journal of accounting and economics*, *48*(2-3), 112-131.

Bloomfield, R. J. (2002). The "incomplete revelation hypothesis" and financial reporting. *Accounting Horizons*, *16*(3), 233-243.

Boubakri, N., Cosset, J. C., Fischer, K., & Guedhami, O. (2005). Privatization and bank performance in developing countries. *Journal of Banking & Finance*, *29*(8-9), 2015-2041.

Boyacioglu, M. A., Kara, Y., & Baykan, Ö. K. (2009). Predicting bank financial failures using neural networks, support vector machines and multivariate statistical methods: A comparative analysis in the sample of savings deposit insurance fund (SDIF) transferred banks in Turkey. *Expert Systems with Applications*, *36*(2), 3355-3366.

Chantapong, S. (2005). Comparative study of domestic and foreign bank performance in Thailand: The regression analysis. *Economic Change and Restructuring*, *38*(1), 63-83.

Dolphin, R., & Wagley, R. A. (1977). READING ANNUAL-REPORT. *Financial Executive*, *45*(6), 20-22.

Dopuch, N., Holthausen, R. W., & Leftwich, R. W. (1987). Predicting audit qualifications with financial and market variables. *Accounting Review*, 431-454.

Dougal, C., Engelberg, J., Garcia, D., & Parsons, C. A. (2012). Journalists and the stock market. *The Review of Financial Studies*, *25*(3), 639-679.

Drakos, K. (2003). Assessing the success of reform in transition banking 10 years later: an interest margins analysis. *Journal of Policy Modeling*, *25*(3), 309-317.

Guay, W., Samuels, D., & Taylor, D. (2016). Guiding through the fog: Financial statement complexity and voluntary disclosure. *Journal of Accounting and Economics*, *62*(2-3), 234-269.

Hrasky, S., Mason, C., & Wills, D. (2009). The textual complexity of annual report narratives: A comparison of high-and low-performance companies. *New Zealand Journal of Applied Business Research*, *7*(2), 31.

Jones, M. J., & Shoemaker, P. A. (1994). Accounting narratives: A review of empirical studies of content and readability. *Journal of accounting literature*, *13*, 142.

Kao, C., & Liu, S. T. (2004). Predicting bank performance with financial forecasts: A case of Taiwan commercial banks. *Journal of Banking & Finance*, *28*(10), 2353-2368.

Knutson, P. H. (1993). *Financial Reporting in the 1990s and Beyond*. Charlottesville, VA: Association for Investment Management and Research.

Lang, M., & Stice-Lawrence, L. (2015). Textual analysis and international financial reporting: Large sample evidence. *Journal of Accounting and Economics*, *60*(2-3), 110-135.

Lawrence, A. (2013), Individual Investors and Financial Disclosure, *Journal of Accounting & Economics*, *Vol.56*, pp. 130–47.

Lehavy, R., Li, F., & Merkley, K. (2011). The effect of annual report readability on analyst following and the properties of their earnings forecasts. *The Accounting Review*, *86*(3), 1087-1115.

Lewis, N. R., Parker, L. D., Pound, G. D., & Sutcliffe, P. (1986). Accounting report readability: The use of readability techniques. *Accounting and Business Research*, *16*(63), 199-213.

Li, F. (2008). Annual report readability, current earnings, and earnings persistence. *Journal of Accounting and economics*, *45*(2-3), 221-247.

Loughran, T. and McDonald, B. (2014), Measuring the readability of financial disclosure, The *Journal of Finance, LXIX(4)*, pp. 1643-1671.

Miller, B. P. (2010). The effects of reporting complexity on small and large investor trading. *The Accounting Review*, *85*(6), 2107-2143.

Pashalian, S., & Crissy, W. J. (1950). How readable are corporate annual reports? *Journal of Applied Psychology*, *34*(4), 244.

Pennathur, A. K., Subrahmanyam, V., & Vishwasrao, S. (2012). Income diversification and risk: Does ownership matter? An empirical examination of Indian banks. *Journal of Banking & Finance*, *36*(8), 2203-2215.

Rogers, P. J., Brockington, D., Kiwasila, H., & Homewood, K. (1997). Search in. *Journal of Financial Statement Analysis*, *3*(1), 17-30.

Saksonova, S. (2014). The Role of Net Interest Margin in Improving Banks' Asset Structure and Assessing the Stability and Efficiency of their Operations. *Procedia-Social and Behavioral Sciences*, *150*, 132-141.

Saunders, A., & Schumacher, L. (2000). The determinants of bank interest rate margins: an international study. *Journal of international Money and Finance*, *19*(6), 813-832.

United States. Securities and Exchange Commission. Office of Investor Education, & Assistance. (1998). *A plain English handbook: How to create clear SEC disclosure documents*. The Office.

Sensarma, R., & Ghosh, S. (2004). Net Interest Margin: Does Ownership Matter? *Vikalpa*, *29*(1), 41-48.

Smith, J. E., & Smith, N. P. (1971). Readability: A measure of the performance of the communication function of financial reporting. *The Accounting Review*, *46*(3), 552-561.

Soper, F. J., & Dolphin, R. (1964). Readability and corporate annual reports. *The Accounting Review*, *39*(2), 358-362.

Subramanian, R., Insley, R. G., & Blackwell, R. D. (1993). Performance and readability: A comparison of annual reports of profitable and unprofitable corporations. *The Journal of Business Communication (1973)*, *30*(1), 49-61.

Tavcar, L. R. (1998), Make MD&A more readable, *The CPA Journal, 68(1),* pp. 10-11.

Wong, K. P. (1997). On the determinants of bank interest margins under credit and interest rate risks. *Journal of Banking & Finance*, *21*(2), 251-271.

Research Office

Indian Institute of Management Kozhikode

IIMK Campus P. O.,

Kozhikode, Kerala, India,

PIN - 673 570

Phone: +91-495-2809238

Email: research@iimk.ac.in

Web: https://iimk.ac.in/faculty/publicationmenu.ph