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Article

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Annual report readability and firms' investment decisions

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ABSTRACT

An easy-to-read report may carry positive information for decision making and conversely. In that spirit, this paper investigates the relationship between the *readability of companies' annual reports, defined as the easiness to read, understand, and extract information from the reports*, and investment decisions of Singapore companies. Empirical results with an DGMM analysis on 251 domestic companies listed on the Singapore Stock Exchange (SGX) show a positive relationship between the readability of annual reports this year and investments next year. As such, reports' readability can serve as a signal significant to predict companies' future investments. Our findings are consistent with signaling theory and contribute significantly to the literature for empirical investigations on the relationship of annual reports' readability and firms' investment decisions.

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1. Introduction

Annual reports, which are legally required to be published by all listed companies, are a means of communication of companies' leadership to capital market participants such as investors, creditors, and other stakeholders (Ertugrul et al., 2017); they are a critical source of information for the latter. The related role of the reports' readability, defined as the ease of understanding given information based on a report (Barnett & Leoffler, 2016), is underlined by various research findings (Cazier & Pfeiffer, 2016, 2017; Huddart et al., 2007; Lim et al., 2018; Loughran & Mcdonald, 2014; Yu & Miller, 2010). The readability of the annual report is found to have a significant impact on the effective communication of information to stakeholders (Loughran & Mcdonald, 2014). There are also evidences that investors and/or stakeholders rely on the information in annual reports to make decisions (buy or sell, invest or not, lend or control lending) (Cazier & Pfeiffer, 2016, 2017; Huddart et al., 2007; Lim et al., 2018). Detailed reports with low degree of readability may imply less information and confusion for readers; this can limit readers' judgment and evaluation, and hence decision-making ability (Li, 2008; Lim et al., 2018; You & Zhang, 2008; Yu & Miller, 2010).

According to signaling theory and related research, through annual reports, a company's owners and managers may disclose some signals of business strategy (Lim et al., 2018; You & Zhang, 2008). According to studies related to reading comprehension, readability affects the ability to understand published/disclosed information, which in turn impacts readers' judgments (Kintsch & van Dijk, 1978; Masson & Waldron, 1994; Rennekamp, 2012). Intuitively, the clearer and easier the information from the

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report is to read and comprehend, the better it is for investors as well as other stakeholders to understand the firm performance and make more accurate decisions (Lim et al., 2018; Rennekamp, 2012; Shah & Oppenheimer, 2007).

In this paper, we conduct empirical research, with data of Singapore financial market, to investigate the relationship between annual report readability and firm investment decisions. In this research we define the readability of a report as the easiness to read the report; a low readability level means the report is difficult to read, and conversely, a higher level of readability means that the report is more readable, i.e. easier to read and understand. Specifically, this paper seeks to answer the questions what the relationship between a firm's annual report readability and its investments is, and further if the readability of the report is a signal, which can help investors and/or stakeholders predict the company's future investment viability—hence, it is a channel that readers (investors, stakeholders) can rely on to react promptly and make decisions, including investment ones.

Singapore is a country with a developed economy and an advanced financial market; also, it can be considered a financial center of the Asia Pacific region (Chow & Pei, 2018). The Global Financial Centers Index updated to 2021 ranks Singapore as the fifth most influential financial center in the world, after New York, London, Shanghai, and Hong Kong (Wardle & Mainelli, 2021). The Singapore Stock Exchange (SGX) is the largest internationalized exchange in Asia with more than 40% of companies listed on the platform originating outside of Singapore; it has about 800 companies and is also the largest Real Estate Investment Trust (REIT) after Japan (Chow & Pei, 2018). Therefore, the listed companies' annual reports are deemed to meet high standards of completeness and transparency of a developed financial market (Au, Thompson, & Yeung 2006). Consequently, corporate reporting serves as a significant and meaningful indicator for stakeholders.

Conducting an empirical analysis, using the Flesh Kincaid Grade (FKG) and Simple Measure of Gobbledygook (SMOG) as indicators for readability, where lower the values of the indicators indicating a higher level of readability of a document, and employing Difference Generalized Method of Moments (DGMM) model to address endogeneity and data of domestic companies listed on the Singapore Stock Exchange (SGX), we find that report readability carries signals significant for predicting firms' investments; more specifically, when reports are considered easy to read, companies invest more and conversely; as such investors can rely on the readability of the report as a predictor for investment viability. Conducting a quantile regression, we detect a positive relationship between the reports' readability and companies' investments with medium to high investment volumes (insignificant in a company with a low investment volume), thereby confirming the above finding. To our best knowledge, this paper, with the research questions posed and empirical analysis with data from SGX, fills in the gap of literature for empirical investigations on the relationship of report readability and investment decisions of enterprises. This paper can be considered a novel study on annual report readability and investment decisions.

2. Literature review

2.1. Readability of reports and investment decisions

The signaling theory Spence (1978) proposes explanation of the behavior of two parties who differ in ability to receive and transmit information. A party as an informant (the party making a report) must choose, whether or not, to provide information that is complete and understandable (Washburn, 2017) and this can be done either intentionally or unintentionally. On the one hand, recipients of information from the report including shareholders, investors, and other stakeholders, choose how to interpret the signals they receive (Washburn, 2017). The signal given by the manager will be the information for investors and stakeholders to make their decisions. For listed companies, the publication of annual reports is a way to reduce information asymmetry in the market (Asare & Wright, 2012). However, these disclosures can positively or negatively impact information users, including shareholders, investors, depending on if the signals they carry are positive or negative (Connelly et al., 2011). Previous studies have primarily employed signal theory to explain the relationship between annual report readability and financial performance (Eugene-Baker & Kare, 1992; Dalwai et al., 2021) or annual report readability and

earnings management (Li, 2008; Lo et al., 2017). Therefore, research utilizing signal theory to elucidate the relationship between annual report readability and investment decisions remains limited.

Related theoretical and empirical results also show that readability and related aspects can influence the perception and decisions of a reader (Lim et al., 2018; Rennekamp, 2012; Shah & Oppenheimer, 2007). In making judgments, fluent, or easy to process, information is weighed more heavily than disfluent information (Shah & Oppenheimer, 2007). Related research also finds that more readable disclosures, which facilitate processing fluency, can affect investors' valuation judgments. Intuitively, processing fluency from a more readable report can serve as a subconscious hint and reinforce investors' beliefs whether they should rely on the report; as more specific finding, small investors react more strongly to more readable reports, with more positive changes in valuation judgments when news is good and conversely (Rennekamp, 2012). Consistently, if it is easy for a recipient reads and understands information in a report, it can be considered a positive signal helpful for the reader's decision making (Connelly et al., 2011). Complex information requires investors and other stakeholders to make more conscious efforts. This undermines recipients' understanding and ability to assess a company's prospects based on the information and hence may dampen their decision-making capacity (Lee, 2012; Lim et al., 2018).

More directly related to annual report readability, there are findings that easy-to-read reports help readers make timely decisions (Libby, Bloomfield, & Nelson, 2001; Grossman, 1980); and hard-to-read reports distract or confuse the readers (Courtis, 1998; Lim et al., 2018; Rutherford, 2003). Intuitively, the information from annual reports helps investors and stakeholders with detailed, transparent information, thus strengthening their understanding of a company's potential and position (Lee, 2012; Lim et al., 2018). Some studies also show that the readability of reports is related to firm performance (Eugene Baker & Kare, 1992; Biddle et al., 2009; Courtis, 1995, 1998; Hassan et al., 2018; Lee & Tweedie, 1975; Smith et al., 2006); for example, companies with higher annual report readability have higher profits and lower agency costs (Hassan et al., 2018; Smith et al., 2006); companies with annual reports that are easier to read have positive earnings which are more persistent (Li, 2008). Readability and tone ambiguity of a firm's financial disclosures are also proved to be related to managerial information hoarding; and less readable and more ambiguous annual reports are associated with an increased cost of external financing (Ertugrul et al., 2017). Some other studies suggest that reports' readability can affect the tightening of enterprises' borrowing (Huddart et al., 2007).

2.2. Measuring annual report readability

For the sake of clarity, first let's make it clear that the readability of a report is understood as the easiness or difficult to read, understand and extract information from the report. There are different indicators of report readability as proposed by research in computational linguistics, such as Flesch Kincaid Grade (FKG) and Simple Measure of Gobbledygook (SMOG) Index; each indicator has a different calculation method. As will be clarified below, more accurately, FKG and SMOG are in fact interpreted directly as measures of *non-readability* of reports, in the sense that they represent how difficult a text is to read; more specifically, the higher the values of the indicators, the lower the readability of a report, and conversely (The FKG, SMOG is larger, the annual report is more difficult to read). The authors describe and use both indicators in this research.

The FKG index as an indicator for report readability (Li, 2008; Solnyshkina et al., 2017; Worrall et al., 2020), also known as the Kincaid index, is calculated using the following formula:

$$FKG = 0.398\left(\frac{words}{sentences}\right) + 11.8 * \left(\frac{syllables}{words}\right) - 15.59$$

FKG indicates the number of years of education generally required to understand a report. Hence, the higher the FKG score for a report, the more difficult it is to read the report. As such, we can also interpret FKG as a measure of non-readability of reports, where a higher FKG score of a report implies a higher non-readability level the report assumes.

The SMOG (Simple Measure of Gobbledygook) index was introduced by Mc Laughlin (1969) to assess readability. It is a two-variable formula, as followed:

$$SMOG = 1.0430 * \sqrt{\left(30 * \frac{complex\ \ words}{sentences}\right)} + 3.1291$$

where complex words are words with 3 or more syllables (Mc Laughlin, 1969). The index is an estimate of the education level a reader needs to ensure a thorough comprehension of a text, for example SMOG Grades 13-16 indicate the need for college education (Mc Laughlin, 1969). Like the FKG index, SMOG of a report can also be interpreted more directly as a measure of non-readability - the reading difficulty - of the report.

3. Method

3.1. Research hypothesis and model

To address the research questions and decipher the relationship between the readability of firms' annual reports and firms' investments, the paper formulates the following research hypothesis.

Hypothesis: A higher readability of a company's annual reports predicts a higher future investment level of the company, and conversely.

To test the hypothesis and address the research question posed, we consider the following the econometric model:

$$Investment_{it} = \alpha_i + \gamma\, NonReadability_{it-1} + \boldsymbol{\delta}\, Control\ \ Variables_{it-1} + \varepsilon_{it} \quad (1)$$

where, $\boldsymbol{\delta}$ is a coefficient vector, α_i is time-invariant unobserved variable (firm fixed effect), and ε_{it}, is error term.

The variables are described in detail in Table 1.

In this study, investment is represented by the CAPEX index (Capital Expenditure). The FKG and SMOG in this study represent the non-readability of the annual reports; specifically, the lower the FKG and SMOG values, the more readable a report is and conversely, as elaborated above. As such, an expected negative sign associated with each of these variables is interpreted as a positive relationship between the readability and the dependent variable (investments).

The leverage, revenue growth, and firm size are the control variables in this research. Leverage is measured by the ratio of debt to total assets. The higher the leverage of a company, the greater the risks associated with interest expenses if the company is not as efficient as expected (Nguyen, Nguyen et al., 2021). Therefore, with a larger leverage ratio, a company would tend to reduce its investment volume to control potential issues related to interest expenses (e.g. an increase in the borrowing costs, a business risk dampening the company's revenue or an unexpected cost undermining the company's repayment plan etc.). The logarithm of total assets is the proxy for the firm size in this study. The size of a company may contain information about the company's development strategy (Nguyen et al., 2020; Nguyen, Ho et al., 2021). Finally, the revenue growth is also included to control the impact of report readability on the investment volume. A higher revenue growth rate of a company may indicate a higher development cycle for the company (Nguyen, Nguyen et al., 2021). This, in general, would help companies to be more confident with their investment decisions.

Table 1. The variable definition.

Variable name	Content	Expected
	Dependent variables (Investment)	
LnCAPEX	= Ln (Capital Expenditure)	
	Independent variables (Non-Readability)[a]	
FKG	Annual report readability (Flesch Kincaid Grade)	–
SMOG	Annual report readability (Simple Measure of Gobbledygook)	–
	Control variables	
SIZE	=Ln (Total assets)	+
LEV	=Liability/total assets	–
GROWTH	= ($Revenue_t$-$revenue_{t-1}$)/$revenue_{t-1}$	+

aFKG and SMOG are indicators of readability; by definition of the readability, we make clear above for this research, FKG and SMOG are directly measure of non-readability, as the higher the values of these indicators, the more difficult it is to read and understand a document.

Table 2. Descriptive variables – the indicators (FKG and SMOG) of annual report readability.

Variable	Obs	Mean	Std. Dev	Min	Max
FKG	1,530	3.56	2.67	0.10	10.40
SMOG	1,530	4.34	2.28	3.2	10.8

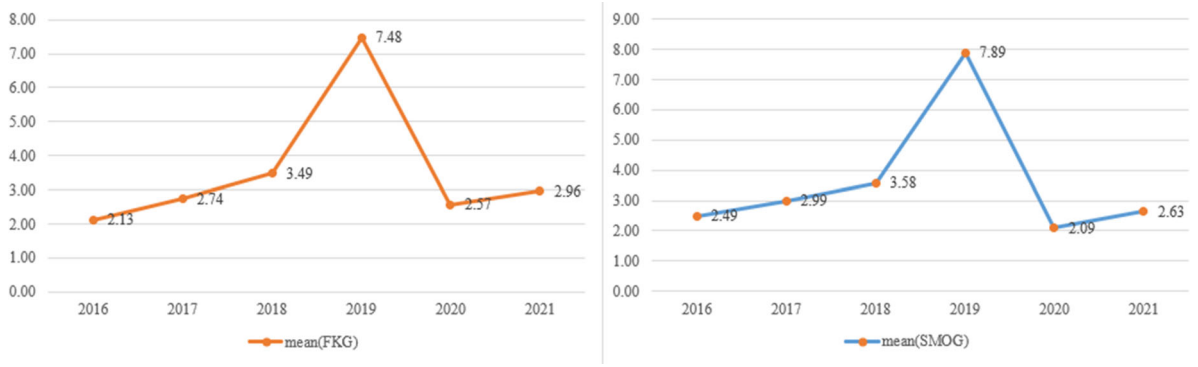

Figure 1. The Annual report readability.

3.2. Data

Singapore is one of the world's five largest financial markets. Listed companies on the Singapore Exchange (SGX) are required to provide more stringent information, leading to more reliable data collection. Data is collected for the sample of domestic companies (of Singapore) listed on the Singapore Stock Exchange (SGX) from 2016 to 2021. Out of 443 companies with data collected from the SGX, the research excludes financial companies and companies with incomplete reporting data, namely those with 2 consecutive years without annual reports. After data cleaning and filtering, there are 251 companies remained, and they are all non-financial.

The summary statistics of data on readability are described in detail in Table 2. The results show that the FKG index takes values between 0.1 (min) and 10.4 (max); the average value of the FKG index is 3.56. It means that, on average, the level of non-readability/difficulty to read of the documents in the sample is rather low, i.e. the documents are rather easy to read. Similarly, the mean SMOG index of 4.34 also indicates that the annual reports are at a relatively easy level to read and comprehend. The details of comparison between annual report readability indicators over years in Figure 1.

The Table 3 describes the variables about firms' characteristics, control variables of the research model.

With 251 companies included in the analysis, descriptive statistics of research variables show that the mean of CAPEX is $60 million; i.e. on average, companies tend to invest more instead of withdrawing their investments or selling assets. In addition, the mean of LEV (Liability/total assets) is 0.496, the mean of GROWTH is 0.057 (5.7%) and the mean of SIZE for the whole period is 19.84. Summary statistics of the variables are presented in detail in Table 3.

3.3. Data analysis

This study uses panel data of 251 companies collected from the Singapore Stock Exchange (SGX) for the period 2016 to 2021. Conventional Fixed effect model (FEM) and Random effect model (REM) are used to investigate the predictability of annual report readability for companies' investments. The FEM is a further development of Ordinary least squares (OLS) to address the unobserved time-invariant heterogeneities across the individuals; REM estimates both the within-individual and between-individual variances, allowing for handling unobserved heterogeneity and also more generalizable results. There is no relationship between the residuals and the model's independent variables in the REM. However, both Fixed Effects Model (FEM) and Random Effects Model (REM) have some limitations when it comes to addressing endogeneity, which can lead to less reliable estimation results. Therefore, in this case, the

Table 3. Descriptive variables – firms' characteristics – control variables of the model.

Variable	Mean	Std. Dev	Min	Max
CAPEX	60	300	0	5000
LEV	0.496	0.408	0.022	8.875
GROWTH	0.057	0.562	−1.000	8.962
SIZE	19.846	1.737	11.249	24.796
Observation = 1,530				

Table 4. The result of regressions – FEM, REM an DGMM models: Estimation of the relationship between measures of readability (FKG, SMOG) and firms' investments.

Variables	(1) Fixed effect model	(2) Fixed effect model	(3) Random effect model	(4) Random effect model	(5) DGMM	(6) DGMM
$LnCAPEX_{t-1}$					0.657***	0.652***
					(0.0790)	(0.0784)
FKG_{t-1}	−0.0281***		−0.0275***		−0.0405***	
	(0.0106)		(0.0106)		(0.0115)	
$SMOG_{t-1}$		−0.0239**		−0.0264**		−0.0448***
		(0.0121)		(0.0121)		(0.0125)
LEV_{t-1}	−0.566***	−0.562***	−0.405**	−0.400**	−3.199***	−3.113***
	(0.172)	(0.173)	(0.161)	(0.161)	(1.192)	(1.195)
$GROWTH_{t-1}$	0.292***	0.291***	0.287***	0.287***	0.221***	0.229***
	(0.0529)	(0.0530)	(0.0528)	(0.0528)	(0.0676)	(0.0674)
$SIZE_{t-1}$	0.454***	0.440***	0.790***	0.787***	0.412***	0.413***
	(0.134)	(0.134)	(0.0632)	(0.0633)	(0.0933)	(0.0927)
Constant	6.334**	6.603**	−0.456	−0.382	−1.380**	−1.298**
	(2.662)	(2.663)	(1.261)	(1.263)	(0.653)	(0.640)
Observations	1,229	1,229	1,229	1,229	1,223	1,223
Number of firms	251	251	251	251	251	251
Hausman test			0.000			
AR(1)					0.000	0.000
AR(2)					0.803	0.858
Hansen test					0.377	0.388

Standard errors in parentheses.
***$p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Difference Generalized Method of Moments (DGMM) model is employed. In addition, note that in similar setups, endogenous phenomena are often encountered. Furthermore, the DGMM model employs differencing to eliminate endogeneity issues without focusing on identifying strictly exogenous variables. Therefore, it can be said that DGMM is a straightforward method suitable for research data with a small T and a large N. This model is used to address the endogeneity, by adding the lagged variable of the dependent variable to the regression model and taking the first difference. (see footnote for a detailed explanation of the mechanism).[1]

We also conduct quantile regressions at 25%, 50%, 75%, and 95% to examine the effect of report readability on investment decisions in firms with different levels of investment.

4. Results

As mentioned, the regression analysis with DGMM is used in this study to deal with endogeneity; however, the two models FEM and REM are also performed to compare with the DGMM. Table 4 summarizes the regressions results of alternative models: (1) and (2) are FEM models, (3) and (4) are REM models,

[1]The feature of the DGMM model is to add the lagged variable of the dependent variable to the regression model. Specifically, the initial equation in DGMM model is as follows:.

$$Y_{it} = (\beta_0 + \upsilon_i) + \beta_1 Y_{it-1} + \beta_2 X_{it} + \varepsilon_{it} \quad (2).$$

Eq (2) is transformed into first-difference form to suppress potential fixed effects assumed in panel data.

$$\Delta Y_{it} = \beta_1 \Delta Y_{it-1} + \beta_2 \Delta X_{it} + \Delta\varepsilon_{it} \quad (3).$$

Where:.

$$\upsilon_{it} = \nu_i + \varepsilon_{it} \Delta\upsilon_{it} = (\nu_i + \varepsilon_{it}) - (\nu_i + \varepsilon_{it-1}) = \Delta\varepsilon_{it}$$

Taking the difference would help eliminate the endogeneity problem in the model.

Table 5. Quantile regression.

	(1)	(2)	(3)	(4)
CAPEX	q25	q50	q75	q95
FKG_{t-1}	−0.0130	−0.0247**	−0.0362***	−0.0483**
	(0.0135)	(0.00972)	(0.0133)	(0.0210)
$SMOG_{t-1}$	−0.0112	−0.0223**	−0.0345**	−0.0464**
	(0.0142)	(0.0105)	(0.0146)	(0.0229)

Standard errors in parentheses.
***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

and (5) and (6) are DGMM models; in each pair of models, either FKG or SMOG is the used as the variable proxied for the report readability. The Hausman test with p-value = 0.000 shows FEM is more suitable than REM. Therefore, correlation of residuals and independent variables occurs. With p-value of AR(1) <0.05 and AR(2) >0.05, the DGMM shows the autocorrelation is corrected. The regression results show a consistency between DGMM and FEM or REM models. FKG_{t-1} and $SMOG_{t-1}$ are both significant signals to predict investment volumes ($\beta_{FKG} = -0.0405$ and significant at 1%; $\beta_{SMOG} = -0.0448$ and significant at 1%). The results also show that LEV_{t-1} has a negative effect on investment ($\beta_{LEV} = -3.199$ and significant at 1%); $GROWTH_{t-1}$ has a positive effect on investment ($\beta_{GROWTH} > 0$ and significant at 1%); $SIZE_{t-1}$ has a positive impact on investment ($\beta > 0$ and significant). The FEM, REM, and DGMM regression results are presented in detail in Table 4.

The results indicate that the more difficult the annual reports are to read, the lower the investment volumes. In other words, companies will make the decision to invest more when previous annual reports are considered easy to read. With the model setup with lags in explanatory variables, the empirical result can be interpreted that the reports' readability is a signal significant to predict future investments of firms. It can be showed that the annual report's readability, whether it is easy or difficult to read, may serve as a signal for a company's investments in the following year. Therefore, the signaling theory provides a good explanation for the relationship between readability and investment decisions. By providing a readable report, a company demonstrates transparent and easily understandable communication of information. Consequently, stakeholders are more likely to perceive positive developments within the company, as positive information tends to be conveyed more clearly than negative information. Therefore, the support of stakeholders for the company's decisions in the following year is likely to be higher. As a result, the company will find it easier to increase its investments in the next year (Cazier & Pfeiffer, 2016, 2017; Lim et al., 2018). Intuitively, reports that are hard to read indicate that the information given is not easy to decipher and it is difficult to connect to the necessary information (Huddart et al., 2007; Lim et al., 2018); the ambiguity of the wording can make investors and stakeholders confused and uncertain about the parameters in the report. This is a negative signal holding back the company from making decision to invest more in the future (Cazier & Pfeiffer, 2016, 2017; Huddart et al., 2007; Lim et al., 2018).

In addition, leverage has a negative impact on investments, indicating that a higher debt ratio makes managers more limited in investment. With the risks coming from payables in general and loans in particular, there are pressures on managers to consider their investments to bring expected firm performance (Ertugrul et al., 2017). The revenue growth has no impact on investments. This result indicates that an increase in revenue is not a cause for companies' investment decisions. Finally, total asset growth has a positive impact on investments. This result suggests that an increase in total assets results in a higher investment level.

It can be seen that high or low investment decisions can be differently affected by the readability or difficulty of reading the report. We also use quantile regressions to elaborate our evaluation of the predictability of readability for investment decisions in cohorts of companies with different investment volumes. With quantile regression analysis, the 25% quantiles; 50%; 75% and 95% of the dependent variable (investment decision) are considered in this study. The results show that the reports' readability is a sound predictor of investment decisions in companies with medium and high investment levels. However, taking a closer look, report readability is insignificant as a predictor of the investment volume for companies with a low investment level. Specifically, companies with investment volume in quantile 1 (25%) have no relationship between report's readability and investment volume (see Table 5).

5. Conclusions and implications

This paper investigates the relationship between the readability of companies' annual reports and their investment decisions. The major and most notable message is that the reports' readability carries signals of companies' investment decisions. The research is based on a panel data sample of 251 domestic companies listed on the Singapore Stock Exchange (SGX) as the country and the exchange maintain high standards of business conduct, especially those related to transparency and disclosure of companies' information. Such high standards are helpful for mitigating noises in the listed companies' annual reports and enhance the creditability of our findings. The results showed that companies with reports which are considered easy to read invest more; and conversely, for companies with an annual report difficult to read, their investment levels tend to be lower. For investors, the readability of companies' annual reports can serve as a significant signal to predict investment behavior of companies in the future, which can be helpful for them to make more accurate and effective investment decisions. In addition, the results also show that as a company's use of leverage increases, the investment volume of the company is likely to shrink; as such this could also be a channel helping investors and stakeholders to form prediction of a company's investment plan; based on which investors can have an effective investment plan and stakeholders have more effective decisions in line with their objectives. From these results, we can draw a few significant implications.

The study fills a substantial research gap on investment decisions influenced by annual report readability. First, developments in research have extended the application of signaling theory to understand better managers' psychology and behavior in the face of easy-to-read and difficult-to-read reports. Companies tend to make decisions to invest more when their reports are easier to read. Second, the study also found that the readability of annual reports affects firms with larger investments. Companies with a low volume of investment are unlikely to be affected by the readability of the annual report.

The readability of the annual report positively influences investment decisions. When the company gives an easy-to-read report is an indication of the future increase in investment of the enterprise. Accordingly, to attract the investment level of investors or company owners, making the report more readable will increase the report's transparency and bring investors' confidence. Therefore, building detailed and easy-to-understand reports is necessary to attract more investment sources for companies. This result also has implications for potential investors regarding information about the readability or difficulty of the annual report. With the report made easy to read, this will signal to prepare for a larger investment decision in the future. At the same time, when a company presents reports that are difficult to read, it serves as a signal that the company's investment prospects for the upcoming year are less favorable. Consequently, investors in the stock market can also take note of this to devise appropriate investment strategies.

6. Limitations and future research

Although the study has demonstrated that readability is indeed a signal in predicting the investment decisions of Singaporean companies, it also has some limitations. First, the study uses a sample of domestically listed companies on the SGX, so these results need further validation with foreign companies or companies in other financial markets. Second, the study does not consider the factor of corporate social responsibility, which may influence a company's decision to present either easy or difficult-to-read reports. Companies with higher levels of social responsibility practices may produce annual reports with varying readability levels.

From these limitations, the authors also propose recommendations for future research. First, it would be meaningful to expand our research to include companies from various stock exchanges or regions and conduct a longitudinal analysis with a then larger set of companies to gain more comprehensive insights into the relationship between annual report readability and investment decisions; with a cross-country dataset, such research will also help gain insights into cross-cultural differences in report readability and associated impacts on investment decisions. Finally, Subsequent studies could further investigate the role of corporate social responsibility practices in a company's construction of annual reports and their impact on investment decisions. Furthermore, besides the relationship between report

readability and investments, our research can also be extended to explore the relationship between the readability and other quantities and activities such as mergers and acquisitions, research and development, or financial investments. Regarding readability, it would also be meaningful to explore further the research direction investigating the readability of different types of reports with information about companies' quality of activities, such as the ESG reports.

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