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Mahfod M. Aldoseri
Department of Finance, College of Business Administration, Prince Sattam bin Abdulaziz University, Al Kharj, Saudi Arabia, mm.aldoseri@psau.edu.sa

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Mahfod M. Aldoseri

Department of Finance, College of Business Administration, Prince Sattam bin Abdulaziz University, Al Kharj, Saudi Arabia

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Abstract: This study examines the relationship between annual report readability and investment decision efficiency, as well as the impact of management characteristics. Using content analysis of annual reports from 118 non-financial companies listed on the Saudi Stock Exchange, the study found a positive correlation between readability and investment decision efficiency. It also identified negative correlations between certain management characteristics and both readability and efficiency. The study contributes practical evidence from the Saudi business environment, addressing debates and research gaps in this area.

Keywords: Annual reports readability, investment decision risks, managerial entrenchment, managerial myopia, narcissism, management overconfidence

1 Introduction

Nowadays businesses are operating in a highly competitive market with different types of firms including and not limited to multinational firms that possess various tools to strengthen their competencies, therefore businesses are trying to build up better confidence in their operations from investors and other stakeholders by disclosing more relevant and reliable information that is comparable, understandable, and free of complexity so that users of financial reports can make better decisions [1].

Prior research has stressed on the positive reflection on businesses enterprises from enhancing the readability of their reports [2], [3], these positive effects include enhancing performance [4], reducing the time required for issuing audit reports [5], increasing the quality and efficiency of stock information [6], and decreasing borrowing costs [7], [8], as well as its positive impact on agency cost reduction [9]. Other studies pointed to the negative effects that may be caused by any ambiguity or difficulty in understanding financial reports, For example, Hassan et al., [10] found that excessive disclosure of information and low readability of annual financial reports can lead to a state of confusion among investor and delayed response to good information and thus making inappropriate decisions, which is reflected as a decrease in trading volume and stock liquidity.

In the same context, several international bodies, and organizations such as the US Securities Exchange Commission (SEC), the French Capital Market Authority, and the Financial Reporting Council of the United Kingdom have attempted to develop many rules and guidelines that can improve the comprehensibility and readability of financial disclosures [11]. Readability refers to the extent to which investors and different groups of stakeholders are able to understand the messages between the lines of the annual financial reports, when not present this can result in misunderstanding of these reports and making wrong investment decisions. Therefore readability reflects the coherence and consistency between different parts of annual report, readability then can be perceived as an important factor for the success, survival, growth and continuity of companies in the markets, as well as one of the pillars on which investors and stakeholders rely on when making their investment decisions [12].

Readability of annual financial reports along with the economic characteristics of companies are affected by the personal characteristics of managers, characteristics such as managerial entrenchment, managerial myopia, narcissism, and management overconfidence, companies with highly qualified managers are less prone to hide their real performance as they tend to inform investors and analysts about their good performance [2].

Accounting literature has presented several theories that attempted to explain management's motives for readability of annual reports [10]. According to Agency Theory, companies send positive signals and prevent the publishing of bad news, so companies with good performance do not tend to give any kind of ambiguity to their financial reports, but on the

*Corresponding author e-mail: mm.aldoseri@psau.edu.sa

contrary, they try to simplify disclosed information to highlight the quality of their performance in order to ensure that all users of financial reports understand this information. According to both the Obfuscation Theory and the Management Theory when managers poorly perform, they tend to make financial reports lengthy and more complex, which requires investors to spend more time and effort to relevant information for decision-making. Agency theory suggests that managers may use the authorities granted to them to maximize their benefits at the expense of shareholders and other stakeholders by withholding negative information from them through preparing less readable annual reports, which results in increased information asymmetry. and agency problems. Similarly, Stakeholder Theory claims that business firms deal with different groups of stakeholders, not just the current and potential investors, these groups may include some with limited or no experience in financial fields and therefore require that the information provided through annual reports to be less complex and more understandable.

Based on the previous discussion, it is clear that annual reports readability is extremely critical for businesses because of their positive implications on stock liquidity and their reflection of firms' ability to compete in today's capital markets, that surrounds firms by many types of risks. One of the most important ways for businesses to compete in the capital markets is through their stock liquidity, as this presents one of the most important determinants of attracting investments to a certain firm rather than another firm [13], [14]. Many studies have confirmed that and stressed that readability of annual reports is reflected on the degree of stock liquidity [3], [15].

Overall, there are several motives for this study, among them that prior research did not provide conclusive evidence on the impact of management characteristics (managerial entrenchment, managerial myopia, narcissism, and management overconfidence) on the relationship between readability of annual reports and the efficiency of investment decisions, and therefore the analysis of this relation in the Saudi business environment will help in explaining the variation in the quality level of financial reports and the extent to which they are understood by stakeholders. Moreover, most prior studies were carried in developed countries that differs in characteristics from developing countries and emerging economies, which may lead to difficulties in the generalizability of results. Additionally, there is a noticeable increase in the interest of international professional bodies in the readability of annual reports and factors affecting this readability, for being an important indicator of financial reporting quality.

Thus, the research gap is represented by the scarcity of research on the impact of the psychological characteristics of managers on the relationship between annual reports readability and the efficiency of investment decision. Based on the above, the present study attempts to answer the following research question:

Can management characteristics affect the relationship between annual reports readability and the efficiency of investment decision?

The previous main question, can be addressed by answering the following sub-questions:

a) What is the impact of annual reports readability on the efficiency of investment decision?
b) Does managerial entrenchment affect the relationship between annual reports readability and the efficiency of investment decision?
c) Does managerial myopia affect the relationship between annual reports readability and the efficiency of investment decision?
d) Does management narcissism affect the relationship between annual reports readability and the efficiency of investment decision?
e) Does management overconfidence affect the relationship between annual reports readability and the efficiency of investment decision?

The rest of the study is structured as follows: the second section literature review and hypothesis development, the third section the methodology, the fourth section findings of the empirical study, and the fifth section the summary and conclusion.

2 Literature review and hypotheses

2.1 Investment decision risks

When making investment decisions, it is crucial to consider the element of risk and the potential for associated losses. This is because there is generally a perceived positive relationship between the level of risk involved in an investment decision and the likelihood of incurring losses. Conversely, investors expect to receive higher returns when they perceive an investment as being riskier. Risks can be categorized into various types based on their sources, including business risk, operational risk, management risk, legal risk, credit risk, hedging risk, and political risk. Additionally, risks can be classified based on their relationship with the company, such as systematic risks that cannot be mitigated through diversification due to exposure to uncontrollable economic, social, and political conditions, and unsystematic risks that can be mitigated through diversification as they are specific to circumstances [16].

Given the diversity and complexity of risks, the implementation of risk management is essential to avoid future losses, achieve relative stability in profit rates, and minimize the potential costs associated with managing financial losses. Risk management entails a series of activities that can be categorized into the following stages: gaining a qualitative

understanding of the risks faced by the company, assessing the positive and potential negative impacts of these risks, and identifying potential strategies for risk management and control.

2.2 The relationship between annual reports' readability and investment decisions

A firm's annual report represent one of the most important sources that investors rely on when making decisions, whether in emerging or developed countries. According to this fact the accounting literature is highly concerned with analyzing the impact of linguistic features in firms' annual reports including both the efficiency of information and its impact on investment decision [17]. According to efficient markets theory, information efficiency refers to the degree to which stock prices correctly reflect and adapt to all relevant information. Therefore, stock prices may fluctuate according to the quality of information and the degree of ambiguity associated with this information [18].

The importance of financial and accounting information in developing countries is increasing and this is mainly due to the lack and scarcity of resources, if there is ambiguity or complexity in the used language of annual reports' information, stock prices will be more exposed to severe fluctuations, and investment risks will therefore rise, and in order to support investors' decisions, professional bodies have obligated firms to disclose high-quality information to benefit from the role of this information in reducing the degree of information asymmetry [19].

Theoretically, financial theories have indicated a positive relationship between annual reports readability and the efficiency of the investment decisions, for example Miller [20] provided an empirical evidence that longer and more complex annual reports negatively affect the efficiency of information and weaken the response and ability of the market to process such reports and thus can negatively affect the efficiency of investment decisions, while Hesarzadeh and Rajabalizadeh [21] found that readability of financial reports enhances information efficiency and this is more highlighted within firms with higher degrees of information asymmetry. On the other hand, Gosselin et al. [22] claimed that readability of financial and non-financial disclosures positively affects the decisions of both financial analysts and investors in understanding organizational behaviors. Based on the previous discussion, the first hypothesis can be formulated as follows:

H1: Annual reports readability positively affects the efficiency of investment decisions.

2.3 The impact of managerial entrenchment and managerial myopia on the relationship between annual reports' readability and investment decisions

Managerial myopia refers to the adoption of managers to short-term approaches that target the achievement of temporary interests with non-strategic values in the long term, this behavior negatively affects the quality of firm's performance and market value. Managerial myopia in strategic decisions may take one of many forms, for example the tendency to ignore problems, ignoring long-term goals, and not paying attention to indicators that may lead to financial failure [23]. Managerial myopia is associated with some opportunistic management practices where managers are interested in increasing accounting profits and reducing costs during current period at the expense of achieving long-term benefits such as investing in research and development, and linked with this behavior, managers tend to provide more complex and less readable financial reports, that can leads to poor long-term firm's performance and negatively affects investment decisions [24].

On the other hand, managerial entrenchment, is one of the prominent manifestations of the agency problem, however it can be either beneficial or harmful to the firm. One of the main measures of managerial entrenchment is the length managers' existence in their managerial positions and this is more persisting in the case of dual role of CEO, as in this case managers gain higher authority that enables them to use the firm's resources to achieve their own interests instead of that of shareholders [5]. Frankel and Kelly [25] also suggest that managerial entrenchment is associated with earning management practices as sometimes managers try to make financial statements more complex and unclear to investors in order to hide their mal or illegal practices, likewise the study of Chakrabarty et al., [26] indicated that managers who face high risks tend to provide less readable disclosures. Ben-Amar and Belgacem's [27] also found a positive association between firm's social performance and complexity of financial reporting content. Thus, the second and third hypotheses can be formulated as follows:

H2: There is a significant impact for managerial entrenchment on the relationship between annual reports readability and the efficiency of investment decisions.

H3: There is a significant impact for managerial myopia on the relationship between annual reports readability and the efficiency of investment decisions.

2.4 The impact of narcissism and increased managerial overconfidence on the relationship between readability of annual financial reporting and investment decisions.

Based on managerial ambiguity theory, managers with a high degree of competence do not tend to reduce the transparency of financial reports for the purpose of hiding their efficient performance, and both narcissism and overconfidence of management are considered managerial characteristics that may have either a positive or negative impact on firm's performance [28]. On the other hand, based on signaling theory, narcissistic managers are more prone to disclose information related to their performance and to reduce the degree of information asymmetry, they are also more willing to

present themselves and their achievements in various ways, the most important tool to achieve this goal is to make financial statements more readable for investors, financial analysts, and stakeholders. with their high performance and efficiency [29]. On the other hand, less readable annual reports are more difficult to understand in a timely manner and more costly to analyze, so narcissistic managers are not likely to produce these type of reports. Miller [20] also claim that annual reports readability contributes to reducing capital costs, which is reflected on improving firms' performance and investment opportunities.
Kim [30] also suggests that overconfident managers performance is more associated with overinvestment and stock buybacks. In the same context results of Lee [31] study shows that CEO overconfidence is positively associated with weaknesses in internal control over financial reporting, accordingly the fourth and fifth hypotheses are formulated as follows:
H4: There is a significant impact for CEO narcissism on the relationship between annual reports readability and investment decisions.
H5: There is a significant impact for overconfidence on the relationship between annual reports readability and investment decisions.

3 Methodology

The research methodology illustrated through the following:

3.1 Study population and sample

The study population includes all listed firms on the Saudi Stock Exchange during the period from 2018) to 2022, financial institutions (banks and insurance companies) were excluded because of the special accounting treatments for their operations. Firms with no available data on the study variables are also excluded, thus the final study sample consists of (118) firms with a total of (590) observations (year-company), the study sample covers firms from (19) sectors out of a total of (21) sectors that are presented within the Saudi capital market.
The study data was extracted from published financial reports of the sample firms, which were collected from these firms' websites, the Saudi Stock Exchange Company (Tadawl), and Mubasher website.

3.2 Dependent variable

Efficiency of investment decisions was measured by calculating the difference between actual investment and expected investment. The actual investment is the cash payments for the investment activities that are extracted from the second section of the cash flow statement, while the expected investment is measured using the firm's growth opportunities, which is calculated through the following model:

$$INVi,t = Y_0 + Y_1\ REVGROWS_{I,t-1} + \varepsilon_i$$

Where:

- INV_i: represents the volume of investment during the current year.
- REVGROWS: represents the annual revenue growth rate during previous year, which is calculated by dividing the difference between the revenues of the current year and the revenues of previous year divided by the revenues of previous year.
- The residuals value is the measure of investment efficiency.

3.3 Independent variables

3.3.1 Readability (READ)

There are several ways to measure readability of annual reports, including Fog, and the Flesch indices, which are based on measuring complexity of the report words, and the length of sentences within the report. These indices are suitable for the reports that prepared in English, and despite their importance, they may not be suitable for most business environments, and they do not take into account all the factors affecting the readability of annual reports.
On the other hand, Lewis and Young [32] suggested measuring readability using the number of words in a paragraph or through measuring the frequency of certain keywords.
This study depends on using the natural logarithm of the number of pages (or words) of the annual report following Cho et al. [33] and De Souza [4] studies, this approach is characterized by a low likelihood of exposure to the impact of differences in linguistic features and is also suitable for application in the Saudi business environment as most companies prepare their reports in Arabic except for a few companies that use English as the language for their reports.

3.3.2 Managerial Entrenchment (ME)

Based on the study Salehi et al. [5], managerial entrenchment is measured through a scale of six items which are the length of CEO service within the firm, the dual role of the CEO, board independence, board compensation plans, managerial ownership, CEO rotation, each item take a value of either zero or one and one indicates the presence of managerial entrenchment and therefore the index score ranges between zero to six and the higher the score the higher the level of

managerial entrenchment.

3-3-3 Managerial myopia (MYO)

Based on the study of Anderson and Hsiao [34](1982) the return on assets (ROA) and the cost of marketing and sales MKTG are calculated respectively for the firm (i) in year (t) as follows:

$$\mathbf{ROA_{it}} = \beta_0 + \beta_1(ROA_{it-1}) + \varepsilon_{it}$$

$$\mathbf{MKTG_{it}} = \beta_0 + \beta_1(MKTG_{it-1}) + \varepsilon_{it}$$

The expected values are compared with the actual values and if the difference between the expected return on assets and the real return on assets is positive, and the difference between expected and real sales and marketing cost is negative, then the firm has a positive financial performance and its sales and marketing costs are declining and therefore this firm has a managerial myopia and takes (1), and (zero) otherwise .

3.3.4 CEO Narcissism (NAR)

Several studies have relied on the size of the CEO's signature and the rewards he receives, though this study depended on developing a six-levels narcissism index that is based on the study of Kuncoro et al. [35] and Olsen & Stekelberg [36] as follows:

- Scores (1) if the annual report does not contain a photograph for the CEO.
- Scores (2) if the CEO is photographed with other executives.
- Scores (3) if the CEO is photographed alone in a size less than or equal to a quarter of a page.
- Scores (4) if the CEO is photographed alone in more than a quarter of a page but less than or equal to half the page.
- Scores (5) if the CEO is photographed alone in more than half a page but less than a full page.
- Scores (6) if the CEO is photographed alone on a full page.

3.3.5 Overconfidence (OVERC)

According to Malmendier & Tate [37] overconfidence is the tendency of a manager to buy his firm's shares increasingly, a dummy variable equal to (1) is used if the manager buys his firm's shares during the year and equal to (zero) otherwise. Moreover, according to Schrand & Zechman [38] overconfidence is the impractical expectation about performance results, a dummy variable equal to (1) is used if the actual earnings per share is less than the estimated rate and equal to zero otherwise. Thus, an index ranging from (zero) to (2) is used to measure managerial overconfidence based on the summation of the previous two variables.

3.4 Control variables

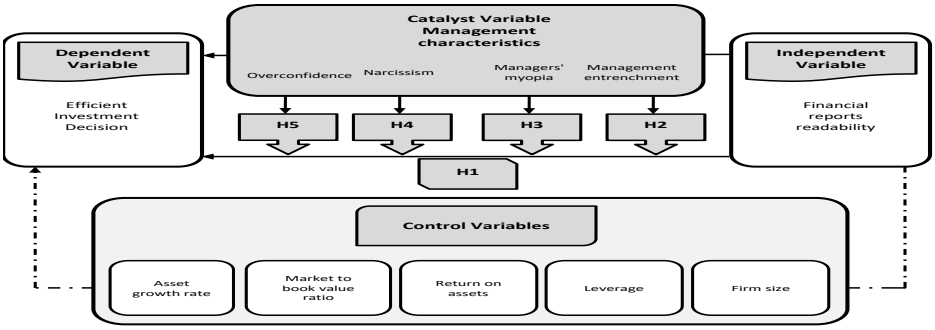
The study models included some control variables that were perceived by previous studies to have an impact on the relationship between the independent variables and the dependent variable. These variables and the method of measuring them can be illustrated through the following table:

Table (1) Control Variables

Control Variables	Symbol	Measurement
Firm size	SIZE	The natural logarithm of total assets at the end of the year
Leverage	LEV	Total long-term debt to total assets at the end of the year.
Return on assets	ROA	Net profit after tax to total assets during the period.
Market to book value of equity	MTB	Market value of equity to book value at the end of the year
Growth rate of the firm's assets	GRO	(Total assets at the end of the period – Total assets at the beginning of the period) to total assets for the first period.

3.5 Empirical Models

The following figure shows the research framework and the nature of the relationship between the study variables.



From the previous figure , the following models were developed to test the study hypotheses.

The first model: measuring the impact of annual reports readability on the efficiency of investment decisions:

$INVI_{it}= \beta_0+ \beta_1(READ_{it}) + + \beta_2(SIZE_{it}) + \beta_3(LEV_{it})+ \beta_4(ROA_{it}) + \beta_5(MTB_{it}) + \beta_6(GROit) + \varepsilon_{it.}$

Where:

- (INVI): Efficiency of investment decision.
- (READ): Annual reports readability.
- (SIZE): Firm size.
- (LEV): Leverage.
- (ROA): Return on assets.
- (MTB): Market value to book value ratio of equity
- (GRO): Sales growth rate

The second model: measuring the impact of managerial entrenchment on the relationship between annual reports readability and efficiency of investment decision.

$INVI_{it}= \beta_0+ + \beta_1(READ_{it)} + \beta_2(ME_{it}) + \beta_3(ME^* READ_{it}) + \beta_4(SIZE_{it}) + \beta_5 (LEV_{it})+ \beta_6(ROA_{it}) + \beta_7 (MTB_{it}) + \beta_8 (GRO_{it}) + \varepsilon_{it}$

Where:

- (ME): Managerial entrenchment
- (ME*READ): The interactive relationship between managerial entrenchment and annual reports readability.

The third model: measuring the impact of managerial myopia on the relationship between annual reports readability and efficiency of investment decision.

$INVI_{it}= \beta_0+ \beta_1(READ_{it}) + \beta_2(MYO_{it}) + \beta_3(MYO^* READ_{it}) + \beta_4(SIZE_{it}) + \beta_5 (LEV_{it})+ \beta_6(ROA_{it}) + \beta_7 (MTB_{it}) + \beta_8 (GRO_{it}) + \varepsilon_{it}$

Where:

- (MYO): Managerial myopia
- (ME*READ): The interactive relationship between managerial entrenchment and annual reports readability.

The fourth model : measuring the impact of executive director narcissism on the relationship between annual reports readability and efficiency of investment decision.

$INVIit= \beta0+ \beta1(READit) + \beta2(NARit) + \beta3(NAR^* READit) + \beta4(SIZEit) + \beta5 (LEVit)+ \beta6(ROAit) + \beta7 (MTBit) + \beta8 (GROit) + \varepsilon it$

Where:

- (NAR): CEO Narcissism
- (ME*READ): The interactive relationship between CEO narcissism and annual reports readability.

The fifth model: Measuring the impact of excessive administrative confidence on the relationship between annual reports readability and efficiency of investment decision.

$INVI_{it}= \beta_0+ \beta_1(READ_{it}) + \beta_2(OVERC_{it})+\beta3(NAR^*READ_{it}) + \beta_4(SIZE_{it}) + \beta_5 (LEV_{it})+ \beta_6(ROA_{it}) + \beta_7 (MTB_{it}) + \beta_8 (GRO_{it}) + \varepsilon_{it}$

Where:

- (OVERC): Managerial overconfidence
- (OVERC*READ): The interactive relationship between managerial overconfidence and annual reports readability.

4 Results

This section ams present testing the validity of the statistical analysis data, the descriptive statistics of the study

variables, univariate analysis (correlation analysis), and the regression analysis in order to test the study hypotheses:

4.1 Data validity test for statistical analysis:

To verify how continuous variables data are close to their normal distribution, Kolmogorov-Smirnov test and Shapiro-Wilk test were used, and the results showed that the (P. value) or (Sig.) is less than (0.05), which means that data does not follow the normal distribution for all variables, and this result is confirmed by the Skewness coefficient which is not close to (zero), and kurtosis coefficient which is not close to (3) for most variables. To solve this issue, the natural logarithm function was used for these variables so that they are close to the normal distribution, and since the number of observations of the sample is large (465 observations), the issue of not following the normal distributing will not affect the validity of the study models, since the level of significance (sig) for the study variables is equal to (0.000) this can be shown through the following table:

Table (2) Results of Natural Variables Test

	Kolmogorov-Smirnova			**Shapiro-Wilk**		
	Statistic	df	Sig.	Statistic	df	Sig.
READ	.132	465	.000	.958	465	.000
INVE	.099	465	.000	.941	465	.000
SIZE	.094	465	.000	.972	465	.000
LEV	.109	465	.000	.964	465	.000
ROA	.103	465	.000	.961	465	.000
MBT	.102	465	.000	.938	465	.000
GRO	.416	465	.000	.082	465	.000

Linear interference was examined through the Multicollinearity test, the Variance Inflation Factor (VIF) was calculated for independent variables to measure the effect of correlation between independent variables as follows:

Table (3) Linear Interference Test Results

Model	Collinearity Statistics	
	Tolerance	VIF
READ	.129	7.773
ME	.136	7.380
MYO	.298	3.357
FIRE	.122	8.166
OVERCON	.300	4.659
SIZE	.215	4.657
LEV	.241	4.143
ROA	.244	4.104
MBT	.271	3.692
GRO	.968	1.033

4.2 Descriptive analysis of study variables:

Table (4) shows a description of the continuous variables in the study models, which are investment decision efficiency, readability of annual financial report, managerial entrenchment, narcissism, overconfidence, firm size, degree of leverage, rate of return on assets, ratio of market value to book value of equity, and sales growth rate.

Table (4) Descriptive statistics of the variables of the continuous study

Variable	Obs	Mean	Std. Dev.	Mn.	Max
INVE	465	1.654	1.263	-3.17	3.86
READ	465	4.357	1.482	1.28	7.45
ME	465	3.271	1.762	0	6
FIRE	465	3.34	1.606	0	6
OVERCON	465	1.026	.969	0	2
SIZE	465	11.486	1.746	8.14	15.74
LEV	465	4.667	1.638	2.11	9.23
ROA	465	.436	.133	.174	.684
MBT	465	3.227	2.12	.124	7.55
GRO	465	1.704	6.828	.124	4.63

The previous table shows that the mean for investment decision efficiency was (1.654) with a standard deviation of (1.263), and the mean for the natural logarithm of the number of pages of annual financial reports was (4.357) with a standard deviation of (1.482), as a measure of the readability of annual financial reports, and the mean for managerial entrenchment was (3.271) and a standard deviation of (1.762), while the mean for management overconfidence of was (1.026) and with a standard deviation of (0.969). As for the control variables, the maximum value for the natural logarithm of total assets was (15.74) and the minimum value was (8.14) with a mean of (11.486), the maximum leverage was (9.23) and the minimum value was (2.11) with a of (4.667), while the mean for return on assets was (0.436). The mean for market to book value of equity was (3.227) and with a standard deviation of (2.12), while the maximum growth rate was (4.63) and the minimum value was (0.124).

The following table (Table 5) shows the dummy variables (Managerial myopia) descriptive statistics.

Table (5) Descriptive Statistics of Dummy Variables

MYO	Freq.	Percent	Cum.
0	223	48.06	48.06
1	241	51.94	100.00
Total	464	100.00	

In the context of the previous table (5), the number of companies that are characterized by "Managerial myopia" is 241 (51.94%), while those characterized by a lack of "Managerial myopia" are 223 (48.06%).

4.3 Analysis and discussion of the hypothesis testing results:

To test the validity of the hypotheses, correlation and regression analysis of the relationship between the independent variables and the dependent variable in the study models was performed using the statistical software package (SPSS) as follows:

First: Correlation Analysis Results:

The Pearson correlation coefficient was used to determine the strength and direction of the relationship between management characteristics and the readability of the annual financial report and the investment decision, and Table (6) shows the correlation matrix for the study variables.

Table (6) Correlation Matrix

GRD	MBT	ROA	LEV	SIZE	OVERCON	NAR	MYO	ME	OVERCON	NAR	MYO	ME	READ	INVE		
														1	Pear.Corr.	INVE
															Sig. (1-tailed)	
													1	.816**	Pear.Corr.	READ
														0.000	Sig. (1-tailed)	
												1	.886**	-.807**	Pear.Corr.	ME
													0.000	0.000	Sig. (1-tailed)	
											1	.796**	.821**	-.736**	Pear.Corr.	MYO
												0.000	0.000	0.000	Sig. (1-tailed)	
										1	.805**	.902**	.909**	.786**	Pear.Corr.	NAR
											0.000	0.000	0.000	0.000	Sig. (1-tailed)	
									1	.791**	.831**	.784**	.824**	-.720**	Pear.Corr.	OVERCON
										0.000	0.000	0.000	0.000	0.000	Sig. (1-tailed)	
								1	.806**	.914**	.811**	.959**	.950**	-.830**	Pear.Corr.	ME
									0.000	0.000	0.000	0.000	0.000	0.000	Sig. (1-tailed)	
							1	.889**	.842**	.847**	.969**	.831**	.895**	-.786**	Pear.Corr.	MYO
								0.000	0.000	0.000	0.000	0.000	0.000	0.000	Sig. (1-tailed)	
						1	.891**	.959**	.803**	.967**	.810**	.891**	.957**	.810**	Pear.Corr.	NAR
							0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Sig. (1-tailed)	
					1	.891**	.896**	.889**	.972**	.841**	.842**	.824**	.901**	-.777**	Pear.Corr.	OVERCON
						0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Sig. (1-tailed)	
				1	.802**	.876**	.827**	.875**	.737**	.862**	.775**	.849**	.875	.810**	Pear.Corr.	SIZE
					0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Sig. (1-tailed)	
			1	-.756-**	.818**	.862**	.792**	.863**	.768**	.849**	.745**	.834**	.851**	-.695-**	Pear.Corr.	LEV
				0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Sig. (1-tailed)	
		1	-.809-**	.784**	-.806-**	-.863-**	-.804-**	-.871-**	-.749-**	-.849-**	-.751-**	-.843-**	-.846-**	.764**	Pear.Corr.	ROA
			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Sig. (1-tailed)	
	1	.769**	-.769-**	.799**	-.775-**	-.838-**	-.783-**	-.862-**	-.725-**	-.834-**	-.742-**	-.860-**	-.831-**	.744**	Pear.Corr.	MBT
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Sig. (1-tailed)	
1	.154**	.156**	-.165-**	.166**	-.177-**	-.173-**	-.174-**	-.160-**	-.173-**	-.170-**	-.170-**	-.136-**	-.175-**	.143**	Pear.Corr.	GRD
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.001	Sig. (1-tailed)	

Table (6) shows that there is a positive correlation between the readability of annual financial reports and efficiency of investment decisions, where the correlation coefficient signal was positive (.816) and the level of significance (sig.) is less than (0.05). This indicates that increased readability of annual financial report (a smaller number of pages) leads to increasing the efficiency of investment decisions, the current study confirms that more readable annual financial reports that are relevant to the needs of reports' users and if presented in a timely manner are positively related with the higher efficiency of investment decisions. The study also indicated that reducing the complexity of financial reporting using simple language and avoiding ambiguity can enables investors, and financial analysts to make accurate estimates of the company's future cash flows. The study found negative relationship between managerial entrenchment and investment efficiency, as the sign of correlation coefficient is negative (-.807), which indicates that in the case of managerial entrenchment, managers tend to offer more complex financial statements to hide their illegal practices, there is also a negative correlation between managerial myopia and the efficiency of investment decisions, as the correlation coefficient sign was negative (-.736) and significance level (.sig) is less than (0.05). The narcissism of CEO is positively associated with the efficiency of investment decisions, as the correlation coefficient signal is positive (.786), which indicates that narcissistic managers tend to prepare more readable financial reports to inform investors and stakeholders about their outstanding performance and attracts more funding to their companies. While management overconfidence has negative correlation with investment efficiency, as the correlation coefficient sign was negative (-.720) and the level of significance (sig.) is less than (0.05), and this may be because of the relation between excessive management overconfidence and weak internal controls, which is reflected on more complexity of financial reports, less clarity and negative impact on efficiency of investment decision.

As for the combined impact of managerial entrenchment and readability of annual financial report, the results of Table (6) showed that they had a negative relationship with the efficiency of investment decision, as the correlation coefficient sign was negative (-.830) and the level of significance (sig.) was less than (0.05). While the correlation between managerial myopia and the readability of annual financial report with the efficiency of investment decisions was negative, as the value of the correlation coefficient was negative (-.786). Narcissism and readability of annual financial report were positively associated with the efficiency of investment decisions as correlation coefficient value was positive (.810) and its significance level (.sig) is less than (0.05). Management overconfidence and readability of annual financial report are negatively related with the efficiency of investment decisions as the correlation coefficient sign was negative (-.777) and its significance level (.sig) is less than (0.05).

As for the control variables, it is clear from Table (6) that there is a positive correlation between firm size, rate of return on assets, ratio of equity market value to book value, rate of sales growth and the efficiency of the investment decisions, while the degree of leverage is negatively related to the efficiency of investment decisions.

Second: Regression Analysis Results

The Ordinary Least Squares (OLS) method was used in formulating the regression model to measure the impact of the annual financial report's readability as an independent variable on the efficiency of the investment decision as a dependent variable, and to analyze the impact of management characteristics as modified variables on this relationship.

4.3.1 Hypothesis 1: Annual reports readability positively affects the efficiency of investment decisions.

The following table shows the results of a linear regression analysis of the relationship between annual reports readability and the efficiency of investment decisions.

Table (7) Linear regression results for the first model

$INVI_{it}= \beta0+ \beta1(READit) + + \beta2(SIZEit) + \beta3 (LEVit)+ \beta4(ROAit) + \beta5 (MTBit) + \beta6 (GROit) + \varepsilon_{it.}$						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	1.433	.657		2.181	.030
	READ	.283	.059	.332	4.829	.000
	SIZE	.249	.039	.344	6.463	.000
	LEV	-.080-	.039	-.104-	-2.063-	.040
	ROA	2.018	.473	.213	4.268	.000
	MBT	.066	.028	.110	2.321	.021
	GRO	.001	.005	.005	.216	.829
R Square		.442				
Adjusted R Square		.412				
F		9.973 Sig= .000				

Table (7) shows that the (F. value) for the first regression model (9.973) is statistically significant, as the (p- value) = (0.000), which is less than the level of significance of 5%, this shows the validity of the model to test the relationship under study. The coefficient of determination value (Adj. R^2) shows that the explanatory ability of the model is (0.442). which indicates the percentage of changes in the dependent variable that can be explained by changes in the independent variable and although it may seem low, this can be due to the fact that the simple regression model focuses on only one variable and that there are many other variables that can affect the efficiency of investment decisions other than the readability of annual financial reports. Table (7) also shows that the independent variable (readability of annual reports) was significant in influencing the efficiency of investment decisions, where the value of the regression coefficient was (0.283), and the p-value (Sig. 0.000), which proves the validity of the first hypothesis "Annual reports readability positively affects the efficiency of investment decisions", and this agrees with the findings of Alduais [39] and Arora & Chauhan [40] that the readability of annual financial reports improves the transparency of disclosure, reduces information asymmetry, and affects the company's future performance, growth opportunities and future profits, this is also consistent with signaling theory which suggests that companies with good results shows the strength of their performance by sending signals to investors and stakeholders to simplify their annual financial reports and make them more readable [41].

Based on the above, a regression model for the impact of the readability of annual reports on the efficiency of investment decisions can be formulated as follows:

Based on the above, a regression model for the impact of the readability of annual reports on the efficiency of investment decisions can be formulated as follows:

INVIit= 1.433+ .283 (READit) + .249 (SIZEit) + .080 (LEVit)+ 2.018(ROAit) + .066 (MTBit) + .001 (GROit) + εit.

4.3.2 Hypothesis 2: There is a significant impact for managerial entrenchment on the relationship between annual reports readability and the efficiency of investment decisions.

The following table shows the results of linear regression analysis for the impact of managerial entrenchment on the relationship between annual reports readability and the efficiency of investment decisions.

Table (8) Linear regression results for the second model

$INVI_{it}= \beta0+ + \beta1(READit) + \beta2(MEit) + \beta3(ME* READ it) + \beta4(SIZEit) + \beta5 (LEVit)+ \beta6(ROAit) + \beta7 (MTBit) + \beta8 (GROit) + \varepsilon_{it}$				
Model	**Unstandardized Coefficients**	**Standardized Coefficients**	**t**	**Sig.**

		B	Std. Error	Beta		
2	(Const.)	.610	.702		.869	.385
	READ	.173	.075	.203	2.290	.023
	ME	-.108	.067	.150-	1.599-	.010
	READ_ME	-.020	.014	.197-	1.461-	.043
	SIZE	.214	.039	.295	5.479	.000
	LEV	-.116	.039	-.150-	-2.953-	.003
	ROA	1.481	.485	-.156-	-3.054-	.002
	MBT	.021	.030	.036	.706	.481
	GRO	0.001	.005	.001	.055	.956
R Square		.365				
Adjusted R Square		.367				
F		8.715 Sig= .000				

Table (8) shows that the (F. value) for the second regression model (8.715) is statistically significant, as the (p- value) = (0.000), which is less than the level of significance of 5%, this shows the validity of the model to test the relationship under study. The coefficient of determination value (Adj. R^2) shows that the explanatory ability of the model is (0.367). which indicates a low percentage of changes in the dependent variable can be explained by changes in the independent variable and this may be due to the fact that there are a large number of other variables that can affect the efficiency of investment decisions other than the readability of annual financial reports and managerial entrenchment. Table (8) also shows that managerial entrenchment has a negative significant impact on the relationship between readability of annual financial reports and the efficiency of investment decisions, where the value of the regression coefficient was negative (-0.020), and the p-value was significant (Sig.=0.043), which proves the validity of the second hypothesis, this is consistent with Salehi et al., [42] results which showed that managerial entrenchment provides greater authority for management that may be used to carry out some opportunistic practices to achieve their interests, which is supported by the theory of confusion or management opacity, as it indicated that the company's management may deliberately block bad news when the performance is weak by writing less readable annual financial reports, which requires investors and stakeholders to exert more time and effort to access the appropriate information for decision-making, which reflects negatively on the efficiency of decision making, Kumar and Rabinovitch [43] found that entrenched managers are likely to choose investment and financial policies that may not serve the interests of many shareholders in the company. However, this contradicts the study of Seifzadeh et al., [2], which confirmed that managerial entrenchment leads to increased management independence, which can contribute to improving company performance, creates value, and enhances shareholder interests.

Based on the above, a regression model for the impact of managerial entrenchment on the readability of annual reports and the efficiency of investment decisions can be formulated as follows:

INVI it= .610 + .173 (READit) -.108 (MEit) - .020 (ME* READ it) + .214 (SIZEit) -.116 (LEVit)+ 1.481 (ROAit) + .021 (MTBit) + .001 (GROit) + εit

4.3.3 Hypothesis 3: There is a significant impact for managerial myopia on the relationship between annual reports readability and the efficiency of investment decisions.

The following table shows the results of linear regression analysis for the impact of managerial myopia on the relationship between annual reports readability and the efficiency of investment decisions.

Table (9) Linear regression results for the third model

$$INVI_{it} = \beta 0 + + \beta 1(READit) + \beta 2(MYOit) + \beta 3(MYO^* READ\ it) + \beta 4(SIZEit) + \beta 5\ (LEVit) + \beta 6(ROAit) + \beta 7\ (MTBit) + \beta 8\ (GROit) + \varepsilon_{it}$$

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
3	(Constant)	1.363	.662		2.059	.040
	READ	.190	.070	.223	2.704	.007
	MYO	.116-	.281	.046-	-.412	.080
	READ_MYO	.097-	.063	.218-	1.539-	.025
	SIZE	.232	.039	.321	-5.994	.000
	LEV	-.086	.039	-.111	-2.21	.027
	ROA	1.846	.473	.195	-3.903	.000
	MBT	.061	.028	.102	2.150	.032
	GRO	.001	.005	.007	.299	.765
R Square		.294				
Adjusted R Square		.271				
F		7.265 Sig= .000				

Table (9) shows that the (F. value) for the third regression model (7.265) is statistically significant, as the (p- value) is less than the level of significance of 5%, this shows the validity of the model to test the relationship under study. The coefficient of determination value (Adj. R^2) shows that the explanatory ability of the model is (0.271). which indicates a low percentage of changes in the dependent variable can be explained by changes in the independent variable and this may be due to the fact that there are other variables that can affect the efficiency of investment decisions other than the readability of annual financial reports and managerial myopia.

The results of the regression in Table (9) showed that managerial myopia has a negative significant impact on the relationship between readability of annual financial reports and the efficiency of investment decisions, where the sign of the regression coefficient (β) was negative and the probability value (Sig=0.000) was less than the level of significance of (0.05), which proves the validity of the third hypothesis, and this is consistent with the study of Chowdhury [23] that managerial myopia refers to the desire of managers to short term investment in the term and changing the way resources are allocated from long-term projects to short-term projects in order to achieve a temporary increase in the share price, which negatively affects the performance and value of the company, and that managerial myopia may push managers to ignore problems, and not to think about long-term goals in addition to being associated with some opportunistic practices, which negatively effects the readability of the annual reports and the efficiency of investment decisions [42].

Based on the above, a regression model for the impact of managerial myopia on the readability of annual reports and the efficiency of investment decisions can be formulated as follows:

INVI it=1.363 + .190 (READit) - .116 (MYOit) - .097 (MYO* READ it) + .232(SIZEit) - .086 (LEVit)+ 1.846 (ROAit) + .061 (MTBit) +.001 (GROit) + εi

4.3.4 Hypothesis 4: There is a significant impact for CEO narcissism on the relationship between annual reports readability and investment decisions.

The following table shows the results of linear regression analysis for the impact of CEO narcissism on the relationship between annual reports readability and the efficiency of investment decisions.

Table (10) Linear regression results for the fourth model

$INVI_{it} = \beta0 + \beta1(READit) + \beta2(NARit) + \beta3(NAR* READ it) + \beta4(SIZEit) + \beta5 (LEVit) + \beta6(ROAit) + \beta7 (MTBit) + \beta8 (GROit) + \varepsilon_{it}$					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std.	Beta		

			Error			
4	(Constant)	1.463	.718		2.038	.042
	READ	.237	.081	.278	2.914	.004
	NAR	.024	.082	.031	.297	.037
	READ_NAR	.011	.015	.107	.744	.027
	SIZE	.244	.040	.338	6.112	.000
	LEV	-.085-	.040	-.110-	-2.118-	.035
	ROA	1.947	.487	.206	4.001	.000
	MBT	.064	.029	.108	2.219	.027
	GRO	.001	.005	.005	.217	.829
R Square		.454				
Adjusted R Square		.437				
F		9.712 Sig= .000				

Linear regression results in table (10) showed that CEO narcissism has a positive significant impact on the relationship between the readability of annual reports and the efficiency of investment decisions, as the sign of the regression coefficient (β) was positive and the p-value (Sig=0.000) is less than the significance level of (0.05), this shows the validity of the fourth hypothesis, and is consistent with signaling theory, which assumes that narcissistic manager tries to communicate with stakeholders in different ways to express himself, show his performance and achievements, improve his reputation, and satisfy his narcissism, and that narcissistic manager tries not to appear negative in front of others, thus he tends to simplify financial reports so that they are more readable. This makes such reports more attractive to users and thus can positively affect the efficiency of investment decisions [2]. Perhaps this is more achievable in the presence of good governance mechanisms and effective control, since these can reduce the negative impact of narcissism on the content and quality of financial reports.

Based on the above, a regression model for the impact of CEO's narcissism on the relationship between readability of annual reports and the efficiency of investment decisions can be formulated as follows:

INVI it=1.363 + .237 (READit) + .024 (NARit) + .011 (NAR* READ it) + .244 (SIZEit) - .085 (LEVit)+ 1.947 (ROAit) + .064 (MTBit) +.001 (GROit) + εi

4.2.5 Hypothesis 5: There is a significant impact for overconfidence on the relationship between annual reports readability and investment decisions.

The following table shows the results of linear regression analysis for the impact of overconfidence on the relationship between annual reports readability and the efficiency of investment decisions.

Table (11) Linear Regression Results for the Fifth Model

$INVI_{it} = \beta 0 + \beta 1(READit) + \beta 2(OVERCit) + \beta 3(NAR* READ\ it) + \beta 4(SIZEit) + \beta 5\ (LEVit) + \beta 6(ROAit) + \beta 7\ (MTBit) + \beta 8\ (GROit) + \varepsilon_{it}$

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
5	(Constant)	1.654	.660		2.507	.013
	READ	.169	.073	.199	2.324	.021
	OVERCON	.091-	.158	-.069	.575-	.042
	READ_OVERCON	.059-	.036	-.260	1.644-	.001

	SIZE	-.245	.038	.339	6.420	.000
	LEV	-.099-	.039	-.128-	-2.532-	.012
	ROA	1.848	.472	.195	3.914	.000
	MBT	.063	.028	.106	2.255	.025
	GRO	.001	.005	.008	.313	.755
R Square		.481				
Adjusted R Square		.462				
F		10.362 Sig= .000				

Table (11) shows that the (F. value) for the fifth regression model (10.362) is statistically significant, as the (p- value) is less than the level of significance of 5%, this shows the validity of the model to test the relationship under study. The coefficient of determination value (Adj. R^2) shows that the explanatory ability of the model is (0.462). which indicates a low percentage of changes in the dependent variable can be explained by changes in the independent variable and this may be since there are other variables that can affect the efficiency of investment decisions other than CEO's overconfidence.
The regression results in table (11) showed that managerial overconfidence has a negative significant impact on the relationship between readability of annual financial reports and the efficiency of investment decisions, where the sign of the regression coefficient (β) was negative and the probability value (Sig=0.000) was less than the level of significance of (0.05), which proves the validity of the fifth hypothesis, according to behavioral theories, overconfidence is associated with the distortion of managerial decisions, as it affects managers' decisions and makes it biased, exaggerated in future estimates, ignores corrective reactions, and is also associated with weak internal control, which is reflected negatively on the company's performance and low efficiency of the investment decisions. According to agency theory, overconfident managers overinvest to achieve their own benefits, and overconfidence of CEO increases the likelihood of a company's exposure to bankruptcy risk as it may push managers to overinvest in projects with negative net present values [44], although this contradicts both Kunjal et al.. [45] and Seifzadeh et al., [2], which found that overconfidence drives managers to make decisions based confidence in their decisions and tends to improve the readability of annual report to attract investors and improve their companies' value, and perhaps this may be associated with developed environments where managers are aware of the limits of overconfidence and how to use this overconfidence so as not to be exposed to lawsuits.

Based on the above, a regression model for the impact of overconfidence on the relationship between readability of annual reports and the efficiency of investment decisions can be formulated as follows:
INVI it=1.654 + .169 (READ it) + .024 (OVERCON it) + .011 (OVERCON* READ it) + .244 (SIZEit) - .085 (LEVit)+ 1.947 (ROAit) + .064 (MTBit) +.001 (GROit) + εi

5 Conclusion and results

The current study aimed to analyze the relationship between readability of annual reports and the efficiency of investment decisions, in addition to studying the impact of management characteristics (managerial entrenchment, managerial myopia, narcissism, and overconfidence) on that relationship, an empirical study was undertaken on a sample of non-financial companies listed on the Saudi Stock Exchange (93 companies) during the period from (2018) to (2022).
The study has reached many findings, the most important are:
• There is a positive correlation between readability of annual reports and the efficiency of the investment decisions, as the use of simple language and avoiding increasing the size and complexity of the report contributes to reducing information asymmetry and enhances the ability of users to read and understand all the information in the financial report, it also enables them to evaluate the company's performance and monitor management's opportunistic behavior, which is reflected in the efficiency of their investment decisions [46-50].
• There is a negative significant impact for managerial entrenchment on the relationship between readability of annual reports and the efficiency of investment decisions, as the exploitation of managers of their authority and influence in choosing financial and investment policies to achieve their own interests negatively affects financial and operational performance and the efficiency of the investment decisions.
• There is a significant negative impact for managerial myopia on the relationship between readability of annual reports and the efficiency of investment decisions, as managers ignorance for problems and not thinking about long-term goals can negatively affects the efficiency of investment decisions.

• There is a significant positive impact for the CEO narcissism on the relationship between readability of annual reports and the efficiency of investment decisions, as narcissistic manager tries to send signals stakeholders on his role and achievements in various ways and means, including improving the readability of annual reports, and avoiding unethical behavior, which reflects positively on investment decisions.

• There is a significant negative impact for overconfidence on the relationship between readability of annual reports and the efficiency of investment decisions, as managers with excessive confidence tend to be ambiguous in financial reporting and over-invest in a way that can negatively affect the efficiency of investment decisions, as they trend more towards acquisition and merger decisions.

Based on the above findings, the study recommends the following:

• Directing management to use simple language, avoid complexity, and not disclose any unnecessary information to improve the readability of annual reports, as readability is an important factor for the success, survival, growth and continuity of companies in markets.

• The need of professional and supervisory bodies in the Kingdom of Saudi Arabia to issue a guideline that defines the basic features of the readability of annual reports in terms of the language used, the number of words, the length of the sentences, and the number of pages of the report and impose fines on companies that deliberately use complex language when preparing their financial reports.

• Increasing the knowledge of investors and stakeholders about the psychological characteristics of management and its motivations to provide less readable annual reports, enabling them to estimate the risks they are exposed to, which affect their investment decisions.

• Increasing awareness among the preparers and users of annual reports on the importance of readability and its positive impact on the company by increasing financing opportunities, investment opportunities available to it, and helping investors to read, understand and interpret the information in these reports.

As for the proposed future research areas, the current study may open prospects for upcoming research areas, including:

•The relationship between intellectual capital and readability of annual reports: the mediating role of management characteristics.

• The impact of the readability of the annual reports on financial flexibility and its reflection on investment opportunities.

• The impact of auditor's characteristics (narcissism, overconfidence, rotation, fees, industrial specialization) on the readability of the audit report.

• The impact of disclosure tone and financial risk on the readability of annual financial reports.

• The impact of the firm's strategy and the readability of the annual financial reports on the quality of financial reports.

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