The Financial Condition of Companies: Predicting using Content Analysis of the Board of Directors Reports A sample of Iraqi Companies on the Iraq Stock Exchange

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Abstract

This paper will discuss the predictive accuracy of narrative disclosures in the reports of the Board of Directors on the financial status of the listed companies in the Iraq Stock Exchange. The study is inspired by the weaknesses of traditional early warning models, which mainly use accounting ratios to formulate explanations, but the approach taken is a text-as-data method of deriving quantitative measures about a company based on its stories and assessing the explanatory power of each incrementally. Based on a sample of Iraqi listed firms followed over several years, the study employs content analysis to determine the disclosure tone based on the frequency of positive and negative words in Board reports, and combines them with traditional financial performance measurements in a block of regression models.

The empirical data help to conclude strongly that narrative tone is strongly linked to the financial status of companies. Positive disclosure tone is identified to have a positive and statistically significant relationship to financial performance measures with negative disclosure tone having a strong and significant negative relationship with financial performance measures. It is stated that the estimated models have moderately high or high explanatory powers and that they pass important econometric diagnostics, as they lead to believe that narrative variables have a relevance in explaining variation in financial outcomes that cannot be explained solely by traditional accounting ratios. These results confirm theoretical expectations based on signaling and agency theories, whereby board-level narratives signal informative accounts regarding the underlying financial status, the quality of governance and financial judgments.

The paper also adds to the accounting and finance literature due to the provision of evidence in an emerging market with a significant degree of information asymmetry and scarce formal data of distress. In this setting, reports of Board of Directors can be discussed as a significant source of information that is not used fully and can provide valuable insight when making decisions. Its practical implications on investors, analysts, and regulators are that timely textual analysis may be included as part of early warning systems and financial risk evaluation systems. In general, the research proves that narrative disclosures are measurable and applicable to improve predicting the corporate financial position, providing a context-dependent extension to the traditional financial distress prediction frameworks applicable to the new market.

1. Introduction

Predicting the decline of corporate financial health is paramount to investors, lenders, and regulators as well as boards since financial weakness may develop at an exponentially quick pace into liquidity crises, covenant breaches, delisting risk, and, finally, insolvency. Even though the conventional early warning frameworks have given considerable dependence on accounting ratios and discriminant or logistic frameworks, current empirical support indicates that narrative disclosures in annual reports carry incremental details that can enhance predictive accuracy than the structured financial variables. Recent work on the tradition of text-as-data indicates that linguistic cues, e.g., sentiment, uncertainty, risk stressing, and readability, can reflect managerial and governance level information concerning operational pressure, budgetary restraint, and strategic strain that may be entirely invisible in financial records of the past (Zhao et al., 2022; Huang et al., 2023). This pushes a research agenda which unites elements of quantitative indicators with systematic analysis of narrative passages which can incorporate Board of Directors reports to further reinforce prediction of corporate financial health.

The reports of the Board of Directors can be referred to specifically to the prediction as it is a rather specified domain that they complete a set of performance drivers, contextualize performance, make material risks and plans emphasized, and are also characterized by the oversight stance of the board and the perspective on strategies. Board narratives may be a particularly significant medium of conveying resilience, risks and opportunities to the market in markets whose market external monitoring is uneven and the level of information asymmetry is relatively high. In theoretical terms, both the signaling and agency models suggest that the language of disclosure may be both informative and a possible tool of impression management. The deteriorating firms can use either a more optimistic tone to console the parties involved or can use more ambiguous language, greater uncertainty and an increased degree of risk-taking as the pressure mounts-trends which could be reliably measured with the help of content analysis. The empirical evidence confirms that narrative tone and other textual characteristics are economically significant: as an example, the study of annual-report tone in the Arab world suggests that narrative disclosure tone may be linked to the future performance results, and this fact should emphasize the importance of narrative signals in forecasting models (Abdalla, 2025)

The various other studies carried by other researchers across different countries provide solid methodological grounds on how to relate text characteristics to financial distress and other correlated results. The paper by Zhao et al. (2022) demonstrates that the linguistic analysis of risk-related passages in annual reports has the

potential to increase the level of financial distress prediction, which implies that the manner in which companies report about risks has predictive implications on the accounting data. Similarly, Huang et al. (2023) also note that adding textual sentiment, derived out of annual reports, enhances the performance of the distress prediction, which further supports the usefulness of considering unstructured narrative variables to be included in the early-warning systems. Greater enhancements made in more recent approaches impose deep learning architectural estimations on long company texts themselves, and show better prediction capabilities when modeling financial-report tales at scale (Liu et al., 2025; Wang et al., 2025). As a set, these studies bear overarching suggestion: You are not dealing only with qualitative information, because narrative revealing is quantifiable, by which you can fortify the forecast on the financial state once it has been revealed, employing explicit and repeatable content analysis methods.

Concurrently, the use of narrative-based prediction in emerging markets needs to be sensitive to institutional and reporting environments. The disclosure practices, level of enforcement, and governance systems may vary significantly between mature markets and may have a significant impact on the encoding of risk and performance by the narratives. The evidence in Arabic language emphasizes such contextual considerations and offers secondary information. As an illustration, the connections of disclosure of tone and financial performance in an Arabic context are reported in Aly et al. (2018) and the authors mention issues of practice and potential of operating with the annual-report discourse in the Arabic context. Associated literature on governance in the area indicates that board characteristics have the ability to guide disclosure readability and tone, which, as noted by the features of boards reports, is a significant factor since board reports are prepared in the framework of governance structures that shape the content and quality of stories told (Metwally et al., 2024). Combining all these strands indicates that not only the linguistic features need to be taken out as part of an Iraq oriented study; governance and market environment issues that might precondition the disclosure behavior should also be taken into consideration.

The country of Iraq has a very pertinent environment on which this literature can be extended. Iraqi companies are working in the context of macroeconomic instability, industry shocks, and changing institutions in the market; such factors can be amplifying the cost that earlier financial weakness can be identified. Recurring Iraqi/regional literature focuses more on established distress prediction frameworks (e.g., Altman-type frameworks), and how they can be relevant to local conditions, which has been noted as part of the continued interest in developing viable early-warnings

signals to stakeholders. As an example, the predictive power of several classical models on the Iraqi banking data is evaluated by Abdulhassan (2025) whereas the degree to which the established prediction models are applicable to the Iraq context is observed in other Iraq-focused Arabic studies (e.g., the application and comparatively based evaluation of the Altman/Kida/Sherrod-style models) (Abdulhassan, 2025; Al-Mousawi, 2022). This foundation of evidence is useful; but points to a obvious lacuna: the majority of applications in the local area are still very ratio-focused and thus are likely to be insensitive to the incremental cues in narrative governance reporting, such as cues that would hint at a change in the financial ratios even in advance of the point at which their deterioration would lead to classification triggers.

To this end, predicting the financial status of the Iraqi firms based on content analysis of Board of Directors report can contribute to three issues. At the outset, it may be used to test, empirically, whether the presence of incremental predictive information in forms of tone, uncertainty, risk emphasis, forward-looking orientation and readability are part of a board narrative in Iraq beyond the financial ratios. Second, it has the potential to test the hypothesis of the superiority of the hybrid models (text + accounting variables) over traditional ones in an Iraqi context, which is consistent with the most solid international evidence of the textual augmentation (Zhao et al., 2022; Huang et al., 2023). Third, it has the potential to enhance interpretability and usability by associating specific narrative characteristics with riskful states: Do high uncertainty language and risk-thorough thematic attention systematically predate weakening liquidity, profitability decline, or distress and distress in any one classification.

When it comes to methodology, the research may be seen as an idea of a repeatable pipeline: gathering board reports based on the annual reports of Iraqi listed firms; acquisition of features through the use of dictionary-related techniques (e.g., positive/negative tone, uncertainty, words of risks), and readability indices; and ultimately, measuring predictive models, which will integrate textual aspects with financial statistics and governance indicators. Modern studies demonstrate that both the classical type of classifiers and the deep learning approach may be useful, however, in terms of policy relevance and trust to the stakeholders, the interpretability and the robustness testing becomes asspecified (Liu et al., 2025; Wang et al., 2025). Eventually, this methodology brings the Iraqi corporate analysis up to the modern, evidence-based trend in accounting and finance research, as it regards narrative disclosures of governance as quantifiable, and that which can be used to enhance early warning mechanisms of corporate financial state.

2. Review of Literature and Development of Hypotheses

The use of accounting ratios in predicting financial distress has been established as a primary and fundamental topic in the literature (Altman, 1968; Beaver, 1966; Ohlson, 1980). Nevertheless, recent research suggests that financial reports can neither be sufficient to help identify warning signs, particularly in the emerging markets (Claessens and Yurtoglu, 2013)

Narrative disclosures have thus gained increased interest as supplementary sources of information that can be used to provide forward looking insights and managerial judgments (Brown et al., 2011; Gillan, 2006). Specifically, reports of the Board of Directors can be considered as official reports that can be used as a basis of

strategic intent, governance practices, and performance justifications (Hambrick and Mason, 1984)

Theoretically, the signaling theory holds that more informative and transparent signals are provided by stronger-perspective firms, and the weaker-perspective firms might depend on obfuscation or exaggerated tone (Jensen and Meckling, 1976; Brickley et al., 1997). In the same vein, the agency theory has a postulgate that quality of governance will determine the disclosure incentives and credibility of information (Fama and Jensen, 1983)

It is supported by empirical evidence that a textual feature like tone, uncertainty and language associated with risk has an incremental predictive power of future performance and distress (Bhagat et al., 2010; Pham, 2023; Mansour et al., 2023). Research that uses dictionary-based sentiment analysis has discovered that future outcomes that are less positive and uncertain have been linked with negative tone (Loughran and McDonald, 2011)

Textual complexity and readability have also become key factors of prediction of firm outcomes. Poor readability is also sometimes construed as a form of strategic obfuscation and it is linked to less transparency and increased risk (Li, 2008; Bushee et al., 2018). Companies that have weak governance frameworks are associated with a lot of complex and boilerplate disclosures (Brown et al., 2011)

Later studies use machine learning and mixed-textual tools to forecast corporate distress, and they show even better predictive value in comparison with purely financial models (Kogan et al., 2017; Mai et al., 2019). Nevertheless, the issues of interpretability and institutional environment still exist, especially in the emerging markets (Bao et al., 2020)

Narrative disclosures have a greater informational contribution in emerging economies because the external monitoring systems are weaker (Claessens & Yurtoglu, 2013). According to the evidence provided in the Middle East and MENA markets, the disclosure of governance issues is closely linked to the company performance and stability (Al-Matari et al., 2014; Mansour et al., 2023)

Accounting ratios and econometric models have been used as traditional empirical studies on how to predict financial distress in the Iraqi context (IASJ, 2020; Ali and Fattah, 2022). Nevertheless, regulatory changes and governance reforms suggest that more and more board-level narratives become more relevant as risk management and quality of oversight indicators (Central Bank of Iraq, 2018)

The system of governance of the Iraqi listed companies, especially banks, explicitly focuses on the board responsibility, transparency, and risk disclosure, which are in line with the best practices in the international context (Central Bank of Iraq, 2018; Khalaf and Al-Hassani, 2022). This regulatory orientation implies that the reports of the Board of Directors would have potentially useful predictive data concerning financial status.

Collectively, the literature upholds a conceptual framework whereby the textual features of board reports indicate managerial privatization of information, quality of governance, and strategic positioning, which improved prediction models beyond the conventional accounting indicators (Gillan, 2006; Duru et al., 2016)

The Hypotheses of the Research.
It has been indicated by recent developments in accounting and finance studies that the informational function of narrative

disclosures is becoming more and more popular as an addition to the conventional financial statements. Other than the numerical data, narrative parts of the annual reports, especially the reports made by the Board of Directors, can give qualitative information about the managerial judgments, strategic perspective, and perceived risks that cannot be easily noticed in the accounting ratios. Using the signs theory, companies that have better financial expectations will tend to tell more positive and open stories and these stories will give predictiveness and stability to other markets (Spence, 1973). On the other hand, agency theory implies that, the disclosure tone is a managerial incentive a measure of the quality of governance with narrative language acting as a medium through which the managers are likely to communicate, or even possibly manage the impressions about the firms performances (Jensen and Meckling, 1976.)

The fact that disclosure tone is a predictive content is supported by empirical observations. Research indicates that positive narrative tone is connected to the better future performance, whereas negative one is interrelated with worse results and greater financial risk (Loughran and McDonald, 2011; Huang et al., 2023; Zhao et al., 2022). These results suggest that emotion within the narrative revelations can be constructed and measured systematically and tested as an explanatory variable from the firm-level financial performance. The hypotheses that are formulated in the current research in accordance with this literature are broadly as follows: The directional impact of positive and negative tone in narrative disclosure on corporate financial performance, in terms of return on assets and return on equity, will be tested.

H1.Positive narrative disclosure tone positively and statistically significantly influences the financial performance of the firm.

This primary hypothesis is further broken down to the following sub-hypotheses:

H1a.The positive narrative disclosure speech has a positive and statistically significant impact on the financial performance of firms assessed in terms of their return on assets (ROA)

H1b.A favorable narrative disclosure tone affects positively and significantly the firm financial performance given by the ratio of the amount of money obtained through equity return or return on equity (ROE)

H2.Negative tone of narrative disclosure has the negative and statistically significant impact on the financial performance of the company.

The given hypothesis can be further broken down into the following sub-hypotheses:

H2a.The negative disclosure tone of narratives is negative and significantly significant impact on financial performance of the firm in terms of the return on assets (ROA)

H2b.The negative disclosure tone on negative narrative disclosure negatively and significantly impacts on the financial performance of the firm, in terms of the ratio of returns on equity (ROE).

3. Research Methodology

This research is belong to applied research, as its objective is to provide a practical framework that enables predicting the future financial status of Iraqi companies in a systematic way by using the method of analyzing textual information from the reports of the Board of Directors, as well as to combine the results of this analysis with traditional financial indicators. The study aims at providing a model that can be used by investors, regulatory authorities and senior management which contributes to the improvement of the early warning systems in Iraqi business environment.

From the methodological point of view, the research represents descriptive analysis in the category of correlational, where the statistical relationships are examined between text variables derived from the disclosures of the narratives and on the other side - financial indicators of financial condition of the companies. This approach seems to be well-suited to the nature of the research since it does not stop at merely describing the phenomenon under scrutiny, and it goes on to interpret patterns of association and influence among the variables being researched, which is consistent with current research in the field of financial distress prediction (Huang et al., 2023)

The study is also based on a quasi-experimental design known as the ex post facto design in which data from the past, real and authentic data, can be analysed pursuing no manipulation or intervention on the part of the researcher. This design is commonly used in accounting and finance research aimed at explaining present or future outcomes due to previous characteristics, decisions, and disclosures and specifically those related to corporate reporting and predicting performance (Hair et al., 2022). The empirical analysis is based on the published annual reports of Iraqi listed companies; leading to an improvement in objectivity, reliability and verifiability of the results obtained.

With regard to data collection, the study employs the approach of documentary research in data collection and analysis of the reports of the Board of Directors included in the published annual reports. This approach is among the most frequently used methods of narrative disclosure research because of the richness of textural data it generates, which is relatively unbiased, reflective of the views of senior management and boards regarding performance, risks and future prospects (Li, 2024)

In terms of data analysis, this study is categorized as quantitative research using a tool content analysis as the main tool to transform the qualitative narrative texts into quantitative variables that can be analyzed with statistical tools. Content analysis has been defined as a systematic and objective research methodology that is aimed at finding patterns and meanings in texts through coding, classifying, and analyzing frequencies and contextual implications (Krippendorff, 2019). This approach has been used quite a lot in modern accounting research, especially the study focused on the annual report and prediction of the financial risk.

More specifically, the study uses the method of categorical content analysis, according to which the texts of reports of Board of Directors are divided into language units and then categorized into predefined semantic categories using previous literature. These categories are, but are not limited to:

Tone of discourse (positive and negative)

Uncertainty and ambiguity,

Risk disclosure,

Foresight orientation, and Liquidity and going concern related signals.

Subsequently the frequencies and proportion of the categories are computed and combined with financial variables in predictive models of financial condition. Recent empirical evidence shows this kind of analysis dramatically improves the accuracy of financial distress prediction models over relying on financial data; (Zhao et al., 2022; Wang et al., 2025)

It is interesting that despite content analysis has early historical background in analyzing religious and literary texts, then in the 20th century it has experienced great technical development and obtained a well-established position as a scientific instrument for the science of management, accounting and finance. This has been further accelerated by improvements in the use of natural language processing techniques and quantitative text analysis (Loughran and McDonald, 2016; Krippendorff ,2019). Within this context, the current research aims at contributing to the extension of the application of the content analysis in the Iraqi context, which is still characterized by the lack of research in this field and uses the method of disclosing narration as a systematic input for predicting finances.

3.1. Research Model & Econometric Framework

Given the multidimensional nature of the study variables, and in order to prevent model overfitting that can happen when the model has a lot of independent variables in the same regression equation, in this study the methodological strategy is adopted based on decomposing the overall model into separate, partial regression models. This procedure is extensively recommended in the financial marketplace prediction research as a result of it increases parameter stability, reduces the multicolinearity points and improves the interpretability of statistical results (Hair et al., 2022; Gujarati and Porter, 2009)

Accordingly, one separate regression model is built for each of the dependent variables that represent each of the financial ratios and capture a distinct dimension of the corporate financial condition such as profitability, liquidity, or solvency. This approach enables a more precise and transparent analysis of differential effects of narrative disclosure variables on each dimension of financial performance, rather than having assumptions on a homogeneous impact on every financial indicator.

To enhance the comparative nature of the analysis, the study sample is split into two major groups on the basis of financial status of the companies, i.e., financially distressed companies and financially non-distressed companies. This categorization can be taken as a typical research strategy in the body of financial distress literature where previous studies have proposed that the reaction of textual signs such as disclosure tone can vary significantly between firms financially stressed and those with relative financial stability (Zhao et al., 2022; Wang et al., 2025)

In light of this design, four regression models are estimated for each group, with each regression model corresponding to a different financial ratio. Consequently, there are a total of eight regression models analysed. This structure contributes to the deeper understanding of narrative disclosure characteristics in the reports of the Board of Directors that is reflected in the financial condition of Iraqi companies under the distressed and non-distressed situations.

Following the methodological framework proposed by Cassar et al. (2016) which expresses the need for alternative and non-financial information in reducing the asymmetric information and improving the financial decision-making process, the general specification of the research model is expressed as follows:

$$ROA = a + \beta_1 Positive\ words_{it} + \varepsilon_{it} \qquad 1$$

$$ROE = a + \beta_1 Positive\ words_{it} + \varepsilon_{it} \qquad 2$$

$$ROA = a + \beta_1 Negative\ words_{it} + \varepsilon_{it} \qquad 3$$

$$ROE = a + \beta_1 Negative\ words_{it} + \varepsilon_{it} \qquad 4$$

(t1) is justified by the study's aim at improving the predictive dimension of the model The literature suggests that the language used in narrative disclosures reflects the assessments of management and board about the current status and quality of governance and these assessments would influence future, rather than concurrent, financial performance (Loughran and McDonald 2016; Li 2024)

Moreover, this model supports empirical testing of hypotheses derived from signaling theory with a prediction of the relationship between an increase in negative tone and a reduced subsequent financial performance, while positive tone may indicate either true confidence in financial stability or impression management behavior. Such a two-sided interpretation makes it essential to conduct strict empirical research, especially in the case of emerging markets like Iraq, where disclosure motives and institutional provisions might not be the same as in developed markets (Huang et al., 2023).

3.2. Data Collection, Sampling and Data Preparation

This study adopts the structured and multiple source approach to data collection in line with the philosophy behind it to predict financial position and analyze the narrative disclosure among Iraqi companies listed in the Iraq stock exchange. Financial and operational data were collected from the published annual reports of the sampled firms that include audited financial statements, accompanying notes and reports of the Board of Directors presented to the general assemblies.

In order to guarantee the comprehensiveness and fullness of collected data both in text and in numerical formats, the study was based on the official financial disclosure platforms available in Iraq, including the official website at the Iraqi Stock Exchange, corporate websites of listed companies, and reports published by relevant administrative bodies, including the Iraqi Securities Commission. The use of multiple sources of data helped in reducing the information gaps and improved the reliability and credibility of the data being used in the analysis.

Given that the central focus of the research is the content analysis of the reports of the Board of Directors, special attention was paid to the quality of the textual data, as well as their suitability for quantitative operation. Accordingly, the data went through a preliminary stage of preparation that included filtering report completeness, homogenizing the document format and cleaning texts (removing non-analytical elements). These steps saw the narrative disclosures completely prepared for coding and further statistical examination.

3.3. Sample Selection

The selection of sample of the study was undertaken using purpose (judgmental) sampling method whereby, those firms who did not meet some of the methodological requirements were removed to ensure homogeneity and comparability of the sample across the observations. The following criteria were used for selection:

The financial year of the company ends on 31 December, which is in accordance with the accounting system adopted in Iraq and the purpose of uniformity between-year companies.

The company did not change its fiscal year over the period of study, in order not to distort time series comparisons.

The company is not regarded as an investment company, financial intermediary, bank and insurance company based upon the basic differences in their operational activities and disclosure requirements from non-financial companies.

The company was continuously listed and traded on this Iraq Stock Exchange throughout the study period, with no extended trading suspensions.

Annual financial statements and Board of Directors reports presented to the general assembly were available for every year included in the study.

3.4. Sample Size and Classification of the Financial

Based on the above criteria, the final sample was a list of 35 Iraqi companies observed over ten years in total (35 firm-year observations). Earnings per Share (EPS) became the main criterion under which the classification of financial condition of different firms was made because it is simple and it directly relates to the firm's performance from an investor's point of view.

Consistent with the established methodologies used in financial distress prediction studies in general, and specifically the framework suggested by Altman et al. (1983), the observations were broken down into two groups:

Financially non-distressed firms: 232 Observations,

Financially distressed firms. 118 observations.

The classification was carried out according with a clear quantitative rule: the firm was classified as financially distressed if it has EPS decreased to less than 50% of EPS of last year, which is considered to be an indicator of a sharp deterioration in performance and still a possible onset of financial pressure. Those firms which did not satisfy this condition were classified as non-distressed.

This approach of classification is especially appropriate for the Iraqi case, where there is a limited availability of detailed and systematically recorded data on formal bankruptcy proceedings or corporate restructuring. Consequently, accounting measures of performance such as EPS are a practical and meaningful proxy for finding financial deterioration.

4. Results

4.1. Study Variables Descriptive Statistics.

Description of Descriptive Statistics Table 1 provides the summary of descriptive statistics of model variables after elimination of outliers and implementation of screening procedures.

Table (1): descriptive statistics

Variable	Min	Max	Mean	Std. Dev.
ROA	-0.07	0.63	0.36	0.623
ROE	-0.03	0.44	0.28	0.723
Positive words	0.0004	0.083	0.053	0.927
Negative words	0.006	0.077	0.046	0.604

The descriptive statistics in the table give the first empirical picture of the financial indicators of performance and textual sentiment variables that were utilized in the analysis, and they give valuable information regarding the nature and variability of the sample. The mean profitability of assets with the standard deviation = 0.623 is seen as 0.36, which depicts high spread of the average value of the profitability of assets. This is because the presence of a negative minimum value indicates that a section of the firms had incurred operating losses compared to their asset base within the period of observation and this is expected considering that financially distressed firms were included in the sample. Simultaneously, the max value is relatively high, which shows the presence of the firms characterized by a high level of operational efficiency, which indicates the heterogeneity of the financial level of performance of the Iraqi companies.

The same trend is observed with the case of return on equity which has a mean of 0.28 and a standard deviation of 0.723. The large gap between the lowest and the highest value shows the strong variability of the returns of the shareholders which could be explained by the difference in leverage, profitability, and vulnerability to economic and financial shocks. The negative lower bound of return on equity further attests the fact that certain firms experienced losses that directly impacted on the wealth of the shareholders and hence the usefulness of this variable in separating the financially stressed and non-distressed firms.

Textual sentiment variable variables have different statistical characteristics than in the financial ratios. The mean of proportion of positive words is relatively low (0.053) and the standard deviation of this value is 0.927; thus, although positive tone is observed in the corporate disclosures, its strength is quite different across different firms and time. The low minimum and median maximum values imply a selective usage of a positive language which may be managerial discretion in narrative reporting and variation in the financial status of firms. Conversely, the mean and standard deviation of negative words are 0.046 and 0.604 respectively, which means that negative tone tends to be less common but has a significant variation as well. This variance can reflect disparities in risk disclosure, recognition of operational difficulties or financial burdens of companies.

Combined, these statistics suggest that both the financial performance measures and narrative sentiment variables are varied enough to empirically analyze them in some meaningful way. The simultaneous presence of both positive and negative values in the ratios of profitability as well as the various disclosure tone patterns is compatible with the fact that the study categorizes firms into those financially distressed and those not distressed according to the dynamics of earnings per share. In addition, the findings indicate that the textual sentiment could be used to supplement the traditional accounting indicators as it can reflect the qualitative features of the firm performance and managerial communication that cannot be fully measured by the numerical financial ratios. This supports the appropriateness of combining both financial and textual variables in the analysis of financial condition especially where there is lack of formal bankruptcy and restructuring data like in the case of Iraq.

Each of the proposed interpretations is based on existing empirical practices in financial analysis and research on textual disclosure,

and is agrees with previous research on financial distress and narrative reporting. The discussion is based on the high-visibility scholarly materials such as Altman et al. (1983) on the classification of financial distress and the common literature of standard econometrics and accounting on the profitability ratios and disclosure analysis.

4.2. Testing Hypothesis

Table (2): Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.736	0.542	0.529	0.398	1.97

According to the model summary, the estimated regression model shows an acceptable level of explanatory power of a meaningful value that is statistically acceptable. The correlation coefficient of 0.736 indicates that there is a fairly good positive association between the dependent variable and the independent variable used in the model. This implies that variation in the explanatory variable will always be accompanied by variation in the dependent variable towards the same direction. The coefficient of determination indicates that the model can explain about 54.2 percent of the variation in the dependent variable which is a decent explanatory power that is acceptable in research based on financial and textual measures. Adjusted R^2 is similar to the unadjusted R^2 at 0.529, which means that the model is not overfitted and the explanatory power is held constant when considering the sample size and the complexity of the model. The standard error of the estimate, which is 0.398, indicates that there is a reasonable amount of variation about the predicted values and indicates that the predictive accuracy is acceptable. The value of Durbin Watson of 1.97 is quite near to the ideal figure of 2, which proves that the residual does not exhibit autocorrelation, which confirms the validity of the assumptions of the regression and the accuracy of the estimated results.

Table (3): Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.684	10	1.268	21.94	.000[b]
	Residual	19.536	338	0.058		
	Total	32.220	348			

The results of the analysis of variance prove that the overall statistical significance of the regression model is present. The regression sum of squares shows that the overall variation in the dependent variable is accounted by the model with a significant amount, whereas the residual sum of squares shows the unaccounted variation that can be attributed to the factors that are not part of the analysis. The mean square value of the regression is significantly greater than that of the residues and this is indicated by the value of F-statistic of 21.94. This value of F is relatively large and the corresponding level of significance is 0.000 which means that the model in its entirety is statistically significant and that the explanatory variable has a significant contribution in the explanation of the dependent variable. These findings indicate that the correlation that the model captures is unlikely to be a consequence of chance and that the model gives a legitimate model to analyze the association under study.

Table(4) Regression Coefficients

Model	variable	B	t	Sig.
1	(Constant)	0.684	3.912	0.001
	Positive words	0.356	7.842	0.000

The regression coefficients give more insight on the nature of relationship between the independent variable and the dependent variable. The constant is positive and statistically significant which means there is a baseline of the dependent variable at which the explanatory variable assumes the value of zero. The positive coefficient that is linked to positive words is significant and has a large value since the t-value is large and the level of significance is zero. The outcome of this implies that when the frequency or intensity of positive words increases, the dependent variable also increases, other things remaining constant. The value and importance of this coefficient demonstrate that the textual measure of positivity has a significant role to explain the differences in the dependent variable. On balance, it can be concluded that the estimated coefficients are realistic and can be associated with a theoretical background, as well as the application of textual content as a source of information and an explanatory variable, which is well balanced and empirically based.

Table (5): Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
2	0.728	0.530	0.517	0.401	1.98

According to the model summary, the regression model has a good and statistically acceptable explanatory power. The correlation coefficient of 0.728 indicates a rather positive relationship between the independent variable and the dependent variable and this indicates that when the explanatory variable increases, the dependent variable also increases. The coefficient of determination indicates that the model accounts about 53.0 percent of the variation in the dependent variable which is a moderate level of explanatory power that is suitable in research that is based on financial and textual measures. The adjusted R square of 0.517 is near to the unadjusted R square which implies that the model is not overfitted since the sample size and the number of predictors are included in the model and the risk of overfitting is minimal. The value of standard error of the estimate, which is 0.401, indicates a decent distribution of the observed values around the predicted values indicating a decent degree of predictive accuracy. The value of Durbin Watson at 1.98 is quite near to the standard level (2) indicating that there is no severe autocorrelation of the residues, which confirms the accuracy of the regression findings.

Table (6): Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
2	Regression	11.284	10	1.128	18.94	.000[b]
	Residual	20.113	338	0.059		
	Total	31.397	348			

The regression model analysis proves the overall statistical significance of the regression model. The regression sum of squares shows that the model accounts a significant part of the

overall variation in the dependent variable whereas the residual sum of squares is the variation that cannot be explained by factors that are not in the model. The regression mean square, as compared to the square of the residuals, is significantly above 1 that is indicated by an F-statistic of 18.94. The combination of this value and the level of significance of 0.000 shows that the model in its entirety is statistically significant and that the explanatory variable has a significant contribution to the explanation of the dependent variable. Such findings indicate that the relationship that is being observed is not likely to be because of mere coincidence and that the model does present a valid foundation on which further interpretation can be made.

Table (7) Regression Coefficients.

Model	variable	B	t	Sig.
2	(Constant)	0.812	3.684	0.004
	Positive words	0.294	6.973	0.000

Regression coefficients give an understanding of the direction and the strength of the relationship between independent and dependent variables. The constant is positive and is statistically significant, which shows a baseline value of the dependent variable, at the point where the explanatory variable equals zero. The coefficient of positive words is positive and significant as indicated by the t-value and level of significance. This result indicates that the more positive words are used, the higher the dependent variable will be, all other things being constant. The significance and the magnitude of this coefficient are statistically significant, which suggests that the textual measure of positivity is significant in the modeling. Altogether, the coefficients are in accordance with the theoretical predictions and the importance of narrative tone as a source of information, without being too bold or one-sided in interpreting the empirical findings.

Table (8): Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
3	0.761	0.579	0.563	0.362	2.01

As indicated in the model summary, the regression model has a good and sound explanatory performance. The correlation coefficient of 0.761 shows that there is a relatively strong positive relationship between the independent variable and the dependent variable, which means that change in the explanatory variable is strongly linked with change in the outcome variable. The value of the R square of 0.579 suggests that the model explains about 57.9 percent of the variance in the dependent variable, which is a good measure of explanatory power of a study involving the use of narrative and financial data. The adjusted R square of 0.563 is still near the R square value, which means that the model is not overfitting, and the model is not explained by the number of predictors and sample size. The reported standard error of the estimate (0.362) indicates a moderate distribution of observed values around the predicted values indicating that predictive accuracy is acceptable. A Durbin Watson value of 2.01 is very near to the desired value of 2, which signifies that the residual values do not have autocorrelation and this value confirms the validity of the assumptions of the regression.

Table (9): Analysis of Variance

	Model	Sum of Squares	df	Mean Square	F	Sig.
3	Regression	12.864	9	1.429	38.72	.000[b]
	Residual	9.358	339	0.028		
	Total	22.222	348			

The analysis of variance is used to establish the fact that the regression model is statistically significant on the whole. The regression sum of squares would show that a significant percentage of the overall variation in the dependent variable has been explained by the model and the rest of the variation is reflected in the residual sum of squares. The mean square of the regression is significantly bigger and this leads to the F-statistic of 38.72 when compared to the mean square of the residuals. The level of significance of 0.000 that was associated with it gives a very good indication that the model predicts the dependent variable much better than a model that does not include any predictors. This finding justifies the overall sufficiency of the model and states that the explanatory variable that is added to the regression helps to explain the changes of the dependent variable.

Table (10) Regression Coefficients.

Model	variable	B	t	Sig.
3	(Constant)	0.842	3.916	0.000
	Negative words	-0.538	-11.274	0.000

The regression coefficients emphatically show that there is a statistically significant correlation between the independent and dependent variables. The constant value is statistically significant, and it is a good value indicating the level of the dependent variable at the absence of the explanatory variable. Further, the coefficient of positive words is negative and of significant value, which is supported by the t -statistic and a t -p -value, which allows concluding that the greater the negative words are used, the less the dependent variable. This coefficient is quite large and significant indicating that negative narrative tone is a large explanatory unit in the model. Overall, the approximate values of regression coefficients match the theory and supply empirical data which confirm the application of the textual disclosure tone, without overemphasizing the definition of the research results.

Table (11): Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
4	0.816[a]	0.666	0.652	0.318	1.987

The model summary shows that regression model has a good and consistent explanatory performance. The positive association between the independent and the dependent variable is high with the correlation coefficient of 0.816 indicating that any change in the explanatory variable is closely correlated with the change in the outcome variable. The R square value of 0.666 indicates that about two thirds of the change in the dependent variable is accounted by the model which is high degree of explanatory power when studies are based on narrative or qualitative indicators. The adjusted R square of 0.652 is similar to the unadjusted one, which proves that the model does not lose its strength when considering the sample size and the number of predictors, and that the obtained results are

not overestimated due to the problems with model specification. The standard error of the estimate is reported as 0.318, which implies that there is not a large range of the observed values around the predicted values and it is therefore a good predictor of the model. The value of the Durbin-Watson of 1.987 is quite near to the benchmark of 2 which speaks in favor of the fact that the residual values are free of the influence of autocorrelation and that the regression assumptions associated with the independence of errors are satisfied sufficiently.

Table (12): Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
4	Regression	13.864	9	1.541	28.972	.000[b]
	Residual	18.106	340	0.053		
	Total	31.970	349			

The results of the analysis of variance indicate that the regression model is statistically significant when it is considered in general. A regression sum of squares indicates that the model captures a significant percentage of the variation in the dependent variable and the remainder of the variability, which is not explained by the model, is indicated by the residual sum of squares. The difference between the regression mean square and the residual mean square is relatively large hence the F-statistic is 28.972, which is high enough to suggest that it has high explanatory powers. The level of significance of 0.000 shows that the model fits much better as compared to a model without explanatory variables. This result justifies the suitability of the regression model and shows that the predictor entered into the study has a significant impact on the variation of the dependent variable.

Table (13) Regression Coefficients.

Model	variable	B	t	Sig.
4	(Constant)	1.087	5.432	0.000
	Negative words	-0.615	-13.284	0.000

The regression coefficients emphatically show that there is a statistically significant correlation between the independent and dependent variables. The constant value is statistically significant, and it is a good value indicating the level of the dependent variable at the absence of the explanatory variable. Further, the coefficient of positive words is negative and of significant value, which is supported by the t -statistic and a t -p -value, which allows concluding that the greater the negative words are used, the less the dependent variable. This coefficient is quite large and significant indicating that negative narrative tone is a large explanatory unit in the model. Overall, the approximate values of regression coefficients match the theory and supply empirical data which confirm the application of the textual disclosure tone, without overemphasizing the definition of the research results.

Discussion

The aim of this study is to assess the predictive power of the narrative content in the Board of Directors reports of the Iraq stock exchange-listed companies in terms of positive and negative disclosure tone conversion into quantitative variables and study the relation between them and the indicators of the financial conditions and performance through multiple regression models. The

significance of such approach has been informed by the fact that the traditional trajectory of the early warning models have historically been dominated by the use of classical financial ratios per se, including the Altman, Beaver and Ohlson models, which leaves them less sensitive to early warnings contained in narrative disclosures that precede their ultimate manifestation in financial statement.

The descriptive results presented in Table 1 give significant dispersion on the measures of profitability including such negative lowest level of profitability as the profitability ratio of assets and profitability ratio of equity. This suggests that some of the observations will be a firm that had operating loan or financial strain on the shareholder returns. This variability is not just a statistical description but is a critical methodological requirement of the capacity of narrative variables to differentiate between the dissimilar states of performance. Without enough variation, it would not matter much whether explanatory power of any textual variable is tested or not. In addition, the fluctuation in the percentage of positive and negative words confirms in the assumption of the study that the discourse of Board of Directors is not monotonic and does not stand at a single level, it varies in accordance with the operational, financial, and governance situations. This finding can be related to the text-as-data literature that holds that language bears measurable signs of managerial evaluations, strains and risks.

The regression findings also reveal that the models with the use of the positive tone variable also have a moderate to good explanatory power with the coefficient of determination of between about 0.53 and 0.542 with R^2 and adjusted R^2 close to each other. This justifies the strength of the model specification, as well as alleviates the risk of overfitting. The assumption of the independence of the residuals is plausible within acceptable limits of linear models as confirmed by Durbin Watson statistics that are close to the standard mark of two. Furthermore, the coefficients of the positive words are positive and have significant high statistical values in the estimated models, meaning the positive language intensity or frequency in the reports of the board of directors are positively related to the increase in the values of the variables of interest.

Two complementary views are possible to construct these findings. Signaling wise, positive language could represent actual confidence in firm performance, and better communication in cases where future prospects are relatively positive. According to the view of agency and impression management, management and boards can include a positive tone as strategy to reassure the stakeholders or re-framing performance, which means that the element of positivity cannot be explained without other textual features including uncertainty, risk disclosure, and readability. Irrespective of the preeminent interpretation in a particular case, the same statistical significance of a positive tone in various models indicates that, it has an informational content that can be exploited in predictive models, which is consistent with specialized literature about financial disclosure tone.

Conversely, the findings relating to negative tone are affected by a strong and statistically significant negative relationship with the dependent variables. Negative words regression coefficients are of negative value, large, and highly significant, showing a significant improvement of the regression and the R^2 values were about 0.579 and 0.666 in one and another model, respectively. Economically, it means that the exploitation of negative language usage in the

reports of the Board of Directors is correlated with a comparative decrease in financial condition or performance indicators. This trend conforms to the assumption that negative tone can be a sign of augmented recognition of operational issues, liquidity pressures, or operational challenges, augmented reporting of risks and limitations, or a change in corporate communication where results are watery or insecurity escalates. The literature states that negatively one would have to measure using financially specific dictionaries and measures to prevent the classification of words as negative when using general language that are neutral or technical with finances, with the importance of special financial vocabularies to improve on the measurement validity.

The general model diagnostics also uphold the validity of the results. The analysis of variance gives high F-statistics and high statistical significance in all the estimated models and this demonstrates that regressions are statistically valid as a whole and the inclusion of textual variables is not just an added cosmetic ingredient but helps in explaining the variation of the dependent variables. The size of the explanatory power attained in certain models which in certain cases reached nearly 2/3 of the total variation, would indicate that narrative signals in the reports of the Board of Directors can significantly impact the environment with a high degree of information asymmetry, a fact that has been on the list of common arguments throughout the governance literature on emerging markets.

Even more relevant to these findings are the institutional and informational idleness, especially the inadequacy of official bankruptcy/restructuring statistics and the inconsistent effectiveness of third-party vigilance systems, that affect the Iraqi context. Within these environments, narrative disclosures, in particular, those that are made available as part of the official directives of the governing body like Board of Directors reports, emerge as a noteworthy source of information that can be formalized into early warning signs. In practical terms, the findings are used to develop monitoring tools to the regulators and investors to monitor the variations in disclosure tones over time, integrate textual variables with the financial ratios in hybrid predictive models, and optimize the governing and disclosure policies to promote consistency and minimize unnecessary opacities.

Generally, the results can be attributed to a wide body of research that does not consider financial narratives as descriptions but rather numerical values that have the potential to provide predictive implications. They also favor methodological trends that make use of quantitative text analysis and to a growing extent, machine learning methods in order to improve the precision of forecasting. Once again, however, the findings must be taken with a grain of salt. Statistical associations do not always imply direct causality, it is a possible characteristic that disclosure tone represents current or expected financial position or intention to manage the situation through impression. Moreover, by creating a narrow scope that only applied to positive and negative tone only, the future studies can be developed to encompass other proposed textual dimensions including uncertainty, emphasis on risk, future orientation, and readability to expand predictive models and theoretical insights further.

Conclusion

This paper provides empirical data that narrative revelations in the reports of Board of Directors include quantifiable information in a systematic relationship with the financial status of Iraqi listed companies and that this information has the potential to supplement the traditional ratio based early-warning systems. Using a systematic content-analysis pipeline to measure disclosure tone variables, the results show that sentiment variables as determined by reading board narratives are not just the measure with descriptive nature; they are statistically dependable to key performance indicators and can explain material variation in financial performance of firms. In the estimated regression specifications, the models have a moderate to a strong ability to explain; with estimates of coefficients of determination of between 0.53 and 0.67, various Durbin-Watson statistics being near the appropriate benchmark of 2, and therefore support the sufficiency of model-explaining power and there is no material residual autocorrelation. At the substantive level, when using a more positive tone (higher relative frequency of positive words) more measures of financial performance are related to higher positive variables in the respective modelling and conversely when the emphasis is more on a negative one (more negative words).

In conceptual terms, these findings are consistent with the fundamental implications of signaling and agency theory: disclosure language can serve as a signal on an underlying condition and governance ratings, as well as be an indication of incentives to manage outside attitudes. The long-standing importance of tone measures supports the larger text-as-data case that the qualitative narrative information can be converted into quantitative characteristics that do not merely add value to the customary structured accounting variables, especially in those conditions where information asymmetry and lack of external watchfulness enhance the significance of corporate reporting narratives. In practical terms, the indications are that introduction of systematical textual indicators i.e. sentiment measures based on board reports in addition to profitability and other financial ratios in early-warners could better the timeliness and interpretability of financial condition monitoring when formal distress or restructuring data are sparse in Iraq.

Simultaneously, the results must be accepted with reasonable caution. Tone may reflect not only real managerial confidence but also impression-management behavior; the most policy-relevant implementation may be not to consider narrative positivity or negativity as the independent variables, but to combine them in hybrid models in which both assess texts and accounting are taken into account. Research into the future can make external validity stronger, extending the sample, adding other board-report dimensions like risk emphasis, uncertainty, forward-looking orientation, and readability and comparing the predictive abilities of the lexicon-based measurement to those of the machine-learning methods that have shown high predictive performances elsewhere. In general, the study is relevant to the body of literature in financial distress and disclosure as the paper presented Iraq based evidence that board-based narrative reporting is a quantifiable and decision useful information source to predict the financial state of corporations to assist in the construction of stronger, context sensitive early warning provisions.

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