

Development and Testing of a Causal Model of Financial Reporting Configurations in Zombie Firms Based on the Interaction Between Resource-Financing Structures and Perception Management



Mehdi Noori¹, Seyyed Abbas Borhani^{2,*}, Mojgan Safa³ and Hossein Jahangirnias⁴

¹ Department of Accounting, Qo.C., Islamic Azad University, Qom, Iran; 

² Department of Accounting, Qo.C., Islamic Azad University, Qom, Iran; 

³ Department of Accounting, Qo.C., Islamic Azad University, Qom, Iran; 

⁴ Department of Accounting, Qo.C., Islamic Azad University, Qom, Iran; 

* Correspondence: sa.sborhani1352@iau.ac.ir

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Abstract: The purpose of this study was to explain the mechanisms underlying financial reporting configurations in firms exhibiting zombie characteristics, with a particular focus on the interaction between leveraged and Ponzi structures. Using an exploratory-developmental approach and phenomenological methodology, the study sought to identify and explain professional actors' experiences and perceptions regarding the formation of reporting practices within the context of resource-financing mechanisms and their influence on stakeholder perceptions. Accordingly, a systematic review of the relevant theoretical foundations was first conducted, through which leveraged structures and Ponzi structures were identified as the two initial dimensions of the analytical framework. Subsequently, relevant themes and categories were extracted through semi-structured interviews, open coding, and categorization. Based on the research data, 16 interviews were conducted and 223 initial open codes were extracted. After eliminating redundant codes and merging semantically equivalent concepts, 24 propositional themes remained for final analysis. This stage provided the foundation for proceeding to the quantitative phase of the study. The statistical population of the quantitative phase comprised experts and practitioners in accounting, auditing, finance, and financial reporting in Tehran and Alborz Provinces. Based on structural equation modeling requirements, the minimum sample size was set at 200 participants. Data in this phase were collected using a researcher-developed questionnaire constructed on the basis of the qualitative findings. The quantitative results obtained through partial least squares structural equation modeling (PLS-SEM) indicated that seven of the eight examined relationships were statistically significant at the 95% confidence level. The findings showed that "expectation manipulation" was significantly associated with "competitive reporting" and "justificatory reporting"; "governance manipulation" was significantly associated with "conservative governance reporting"; "capital resource financing" was significantly associated with "competitive reporting" and "assertive governance reporting"; and "institutional resource financing" was significantly associated with "justificatory reporting" and "conservative governance reporting." In contrast, the relationship between "governance manipulation" and "assertive governance reporting" was not statistically significant. Overall, the findings indicate that leveraged and Ponzi structures play a substantial role in explaining different financial reporting configurations.

Keywords: Zombie firms, financial reporting configuration, resource-financing structures, stakeholder perception management, structural equation modeling

1. Introduction

The persistence of economically weak firms that remain operational despite prolonged financial distress has become an increasingly important issue in accounting, finance, corporate governance, and industrial organization. Such entities are commonly described as “zombie firms,” a term generally applied to firms that exhibit chronically weak profitability, insufficient operating performance, persistent debt-servicing difficulties, or continued dependence on external financing despite having limited prospects for sustainable recovery. Early research on the Japanese economy demonstrated that the survival of financially impaired firms could be facilitated by continued bank support, regulatory forbearance, and the incentives of creditors to postpone the recognition of losses. This process can delay corporate restructuring and impede the reallocation of productive resources toward more efficient firms [1]. Related analyses of Japan emphasized that the continued operation of nonviable firms may distort competition, reduce productivity, and create broader macroeconomic inefficiencies by maintaining organizations that would otherwise exit or undergo substantial restructuring [2]. These early contributions established the foundation for a broader research stream that now views zombification not merely as an isolated manifestation of corporate distress, but as a phenomenon with important implications for credit allocation, market discipline, corporate behavior, and the quality of information available to stakeholders.

Subsequent research has shown that the zombie-firm phenomenon is neither confined to Japan nor restricted to a single institutional setting. The persistence of low interest rates, accommodative credit conditions, delayed restructuring, and creditor incentives to continue lending to distressed borrowers has contributed to the emergence of zombie firms across a variety of economies. Banerjee and Hofmann documented the increasing prevalence of zombie firms and linked their expansion to declining interest rates, weak bank health, and reduced competitive pressure, while emphasizing the potentially adverse consequences for productivity and capital allocation [3]. More recent cross-country evidence further demonstrates that zombie firms have become a global phenomenon rather than a country-specific anomaly, with their prevalence shaped by macroeconomic conditions, financial systems, firm characteristics, and institutional environments [4]. A systematic review of the growing literature likewise indicates that zombie firms have been examined from multiple perspectives, including their identification, financing conditions, productivity effects, survival dynamics, innovation, governance, and broader economic consequences [5]. This expansion of the literature underscores the need to move beyond the question of whether zombie firms exist toward a more detailed analysis of how they operate, communicate, finance themselves, and manage relationships with those who provide the resources required for their continued survival.

The behavior of zombie firms is particularly important because continued survival under weak economic fundamentals usually requires some form of ongoing access to external resources. Unlike healthy firms that may finance investment and operations primarily through internally generated cash flows or market-based financing justified by expected returns, zombie firms frequently depend on the tolerance, support, or expectations of banks, institutional lenders, governments, shareholders, or other resource providers. Research on Chinese manufacturing firms has demonstrated that the presence of zombie firms is closely associated with excess capacity and inefficient resource allocation, suggesting that their continued operation may be supported by financing arrangements that are not fully aligned with market-based efficiency criteria [6]. At the same time, the literature cautions against treating all forms of lending to weak firms as inherently inefficient. Under certain circumstances, continued lending may preserve firm-specific assets, provide time for restructuring, or generate welfare gains when temporary distress rather than permanent nonviability is involved [7]. This distinction is important because it suggests that

the financing structures surrounding zombie firms are heterogeneous. Some firms may rely predominantly on institutional sources of support, whereas others may seek continued access to capital markets, investors, or equity-related resources. Consequently, the manner in which these firms report financial and nonfinancial information may vary according to the type of resource provider whose support they seek to preserve or obtain.

The heterogeneity of zombie firms is also reflected in their recovery, exit, and survival trajectories. Evidence from Portugal indicates that zombie status is not necessarily permanent and that some firms recover while others ultimately exit, with firm characteristics and financial conditions influencing these outcomes [8]. Research examining crisis and post-crisis periods similarly shows that zombie firms may respond differently to changing economic conditions and that the persistence of zombification can be influenced by shocks, firm-specific vulnerabilities, and financial constraints [9]. Cross-sectional evidence on zombie firms further suggests that these entities differ systematically in their corporate policies, financing behavior, and organizational characteristics [10]. More recent research on Italian firms also indicates that zombification can affect innovation behavior and the allocation of resources toward innovative activities, reinforcing the view that zombie status has strategic as well as purely financial consequences [11]. These findings imply that the reporting behavior of zombie firms should not be assumed to be homogeneous. Rather, reporting may be configured strategically in accordance with the specific survival mechanisms, financing dependencies, governance arrangements, and stakeholder expectations faced by each firm.

An important analytical challenge in this area concerns the identification and measurement of zombie status itself. Conventional definitions often rely on accounting ratios, debt-servicing capacity, interest coverage measures, firm age, or repeated weak performance. However, such criteria may be imperfect when information asymmetry is substantial or when firms have incentives to influence the information environment surrounding their financial condition. Lin argues that zombie-enterprise measurement becomes more complex under information asymmetry because observed accounting information may not fully reveal the underlying economic condition of the firm [12]. This issue is particularly relevant for financial reporting research because it raises the possibility that zombification is not simply reflected in accounting numbers but may also affect the way those numbers, disclosures, narratives, and governance signals are selected and presented. A firm whose continued survival depends on external resources may have strong incentives to emphasize certain information, contextualize negative outcomes, highlight governance mechanisms, or frame future prospects in ways that influence the perceptions of lenders, investors, government institutions, auditors, and other stakeholders.

The information effects of zombie firms also extend beyond the firms themselves. Research has shown that the presence of zombie firms can affect the transparency of financial information disclosed by other firms, suggesting that zombification can alter the broader information environment and competitive reporting incentives within markets [13]. This finding is especially important because it indicates that financial reporting in the context of zombie firms cannot be interpreted solely as a passive reflection of firm performance. Instead, reporting may function as a mechanism through which firms manage stakeholder expectations, seek legitimacy, preserve financing relationships, and respond to competitive pressures. In such settings, the content and emphasis of reporting may depend not only on the magnitude of financial distress but also on the identity of the intended audience and the type of resources at stake. For example, firms seeking capital-market resources may emphasize valuation, growth opportunities, asset values, or market-oriented performance indicators, whereas firms dependent on institutional support may emphasize employment, continuity, strategic importance, governance arrangements, or external constraints affecting profitability.

Audit-related evidence further supports the importance of examining zombie firms through an information and disclosure lens. Expanded audit reports can contain information that reflects heightened risks and uncertainties associated with zombie firms, thereby influencing how external users interpret financial condition and reporting quality [14]. The role of auditors is particularly relevant because financially distressed firms typically present increased going-concern uncertainty, valuation difficulties, refinancing risk, and incentives for managerial discretion. Consequently, the reporting environment of zombie firms may contain a tension between the need to reveal economic weakness and the organizational incentive to preserve access to resources. This tension creates a setting in which reporting choices, disclosure emphasis, governance narratives, and future-oriented information can become important components of stakeholder perception management.

Corporate governance is another central dimension in understanding financial reporting behavior under such conditions. A substantial body of accounting research has established that governance characteristics can influence reporting quality, managerial discretion, and accounting conservatism. García Lara et al. demonstrated that stronger corporate governance mechanisms are associated with accounting conservatism, highlighting the role of governance arrangements in shaping the recognition and reporting of economic losses and gains [15]. Evidence from India likewise confirms meaningful relationships between governance mechanisms and conservative accounting practices [16]. In the context of zombie firms, however, governance disclosures may perform an additional function. Beyond their conventional monitoring role, governance-related information can also signal organizational control, managerial capability, board oversight, ownership structure, or institutional legitimacy to parties whose support is necessary for the firm's continued operation. Therefore, governance reporting may become part of a broader perception-management mechanism through which firms attempt to reassure resource providers despite underlying economic weakness.

This possibility is reinforced by research directly examining governance and the exit dynamics of zombie firms. Evidence from French zombie firms indicates that corporate governance characteristics can influence the duration of zombie status and the timing of exit, demonstrating that governance structures are materially related to whether and how firms remain in a zombie condition [17]. Such findings suggest that governance should not be treated merely as a background control variable in the analysis of zombie firms. Instead, governance can be part of the mechanism through which stakeholders evaluate the credibility, viability, and recoverability of distressed firms. Reporting that emphasizes board composition, managerial ownership, independent directors, internal controls, related-party transactions, legal contingencies, or governance procedures may therefore influence the willingness of investors or institutions to continue providing resources. This makes it necessary to examine not only whether governance is "good" or "bad," but also how governance information is configured and used within the reporting process.

A second relevant dimension concerns the strategic management of stakeholder expectations. Zombie firms operate under conditions in which expectations regarding future performance are particularly consequential because present financial indicators may be insufficient to justify continued financing. Consequently, information about future growth, expected profitability, customer relationships, asset revaluation, market opportunities, or operational recovery may acquire greater importance. The reporting behavior of such firms may therefore include mechanisms intended to reinforce favorable expectations or reduce the salience of persistent weakness. The distinction between current economic reality and future-oriented stakeholder perception becomes especially important when resource providers must decide whether to refinance, invest, restructure, or withdraw support. In

this context, reporting can function as a bridge between present weakness and anticipated recovery, and the strategic presentation of expectations can become an important survival mechanism.

At the same time, the financing structure of the firm determines which stakeholders are most relevant and which reporting narratives are likely to be emphasized. Institutional resource dependence may involve banks, government agencies, parent institutions, public-sector bodies, or other formal organizations whose decisions are influenced by considerations such as continuity, employment, strategic importance, governance compliance, or systemic effects. Capital resource dependence, by contrast, involves shareholders, market investors, and other providers of risk capital whose decisions are more directly linked to return expectations, valuation, growth, and investment attractiveness. Thus, two firms with similar levels of financial distress may produce different reporting configurations if their survival depends on different sources of financing. This proposition is consistent with the broader zombie-firm literature, which shows that the phenomenon is shaped by credit conditions, corporate policies, institutional settings, and heterogeneous financing arrangements rather than by a single universal mechanism [4, 10].

Despite the substantial development of zombie-firm research, the existing literature remains fragmented in its treatment of financial reporting. Most prior studies have focused on the prevalence and identification of zombie firms, their macroeconomic consequences, productivity effects, bank lending, exit dynamics, innovation, and governance. The literature has provided valuable insights into how zombie firms emerge and persist, but considerably less attention has been devoted to how their financial reporting practices are configured in response to the simultaneous pressures of resource dependence and stakeholder perception management. The systematic review by Upadhyay and Baag highlights the broad and multidisciplinary nature of the field while also implying the need for more integrative perspectives connecting financial, governance, and informational dimensions [5]. Similarly, recent work on audit disclosures and information asymmetry shows that the reporting environment of zombie firms contains distinctive informational features, but does not fully explain how alternative reporting patterns arise from different combinations of financing structures and perception-management mechanisms [12, 14].

Accordingly, a conceptual gap remains between the literature on resource support for zombie firms and the literature on reporting, governance, and information management. Existing studies have established that continued financing can sustain zombie firms [1, 3], that zombie status can affect market efficiency and transparency [6, 13], that governance shapes reporting and firm outcomes [15, 17], and that zombie firms can either recover or remain trapped in prolonged distress [8, 9]. However, these strands have rarely been integrated into a single explanatory model of how financial reporting configurations emerge. In particular, there is limited understanding of how the interaction between different resource-financing structures and different mechanisms of influencing stakeholder perceptions produces distinct reporting outcomes. Addressing this gap is important because the same disclosure practice may serve different functions depending on whether the firm is seeking market capital, institutional support, favorable expectations, or confidence in its governance capacity.

Against this background, the present study conceptualizes financial reporting in zombie firms as an outcome of the interaction between resource-financing structures and stakeholder perception-management mechanisms. It distinguishes between institutional and capital resource financing and between expectation manipulation and governance manipulation, and proposes that their interaction generates four theoretically distinct reporting configurations: competitive reporting, justificatory reporting, conservative governance reporting, and assertive governance reporting. By integrating qualitative evidence from professional actors with quantitative validation

through partial least squares structural equation modeling, the study seeks to move beyond conventional analyses of zombie-firm identification and survival and toward an explanation of the reporting mechanisms through which these firms communicate with, influence, and seek continued support from their stakeholders.

Therefore, the aim of this study is to develop and empirically test a causal model of financial reporting configurations in zombie firms based on the interaction between resource-financing structures and stakeholder perception-management mechanisms.

2. Methods and Materials

In terms of purpose, the present study is exploratory-developmental, and in terms of methodology, it adopts a mixed-methods sequential exploratory design. Under this design, the study was conducted in two principal phases, qualitative and quantitative. The findings of the qualitative phase formed the basis for identifying, conceptualizing, and operationalizing the dimensions and components of the model. Subsequently, in the quantitative phase, the extracted conceptual structure was validated using quantitative data, and the relationships among the constructs were tested. The selection of a sequential exploratory design is consistent with the nature of the research problem because the financial reporting configurations examined in this study had not previously been conceptualized within a coherent structural model based on the interaction between the two structures of “leverage” and “Ponzi.” Therefore, it was first necessary to extract the dimensions and components associated with these structures from experts’ experiences and perceptions and subsequently to test their validity and structural relationships in a broader statistical population.

In the qualitative phase, a phenomenological approach was employed to understand professional actors’ experiences and perceptions concerning resource-financing mechanisms, stakeholder expectation management, and the manner in which reporting practices emerge in firms exhibiting zombie characteristics. In the quantitative phase, the model derived from the qualitative findings was evaluated using partial least squares structural equation modeling (PLS-SEM).

Accordingly, the general logic of the study followed the sequence below:

Qualitative exploration → Extraction of constructs and components → Development of the quantitative instrument → Quantitative validation → Structural model testing → Explanation of four reporting configurations

In the qualitative phase, participants were selected from experts with professional and specialized experience in accounting, financial reporting, auditing, standard setting, corporate governance, and financial decision-making. The inclusion criteria consisted of possessing specialized knowledge relevant to the research topic and sufficient professional or academic experience in corporate reporting and resource financing. Purposive sampling was employed, and participant recruitment continued until conceptual adequacy and theoretical saturation were achieved. In the initial research dataset, 16 professional actors were identified for the interview process, including certified public accountants, faculty members, members of accounting standards-setting committees, members of professional councils and associations, and members of the technical committee of the Audit Organization. Given the exploratory nature of the qualitative phase, the objective of participant selection was to achieve diversity in professional viewpoints and to extract components associated with the constructs under investigation rather than to statistically generalize the qualitative findings to the entire population.

Qualitative data were collected through semi-structured interviews. The interview questions were designed on the basis of the research problem and the two principal dimensions of the model, namely leveraged structures and Ponzi structures. Within this framework, participants were asked about corporate resource-financing methods, the

nature of relationships between firms and resource providers, mechanisms used to shape stakeholder expectations, the manner in which information regarding the firm's future is presented, governance quality, and how these mechanisms are reflected in financial reporting. Following participants' informed consent, the interviews were recorded, transcribed, and prepared for analysis. Qualitative data were analyzed through open coding, categorization, and thematic extraction. At this stage, an effort was made to identify initial concepts without imposing a predetermined structure and subsequently to organize similar concepts into conceptual categories. Across different sections of the initial research dataset, a total of 223 open codes were identified. Following the removal of duplicate codes, integration of semantically equivalent concepts, and content refinement, 24 propositional themes remained for the final categorization stage. These themes provided the initial basis for identifying the dimensions and components of the study's conceptual model.

Following the extraction of the initial themes, expert judgment was used to evaluate the relevance, clarity, and simplicity of the components. At this stage, the extracted themes and components were presented to experts, who evaluated their degree of correspondence with the constructs under investigation. Content validity indices were also used in the initial study to assess the extent to which the components were accepted by the experts. This process was retained in the present study to ensure that the components extracted from the qualitative phase were conceptually consistent with the theoretical concepts and the research problem. The outcome of this stage was the identification and refinement of the dimensions and components subsequently used as the basis for developing the measurement instrument in the quantitative phase.

In the quantitative phase, data were collected from a statistical population of individuals working in accounting, financial reporting, auditing, and corporate management in Tehran and Alborz Provinces in order to validate the extracted conceptual structure and test the relationships among the research constructs. The data collection instrument was a researcher-developed questionnaire whose items were formulated on the basis of the qualitative findings, theoretical foundations, and prior research. In designing the questionnaire, an effort was made to operationalize each construct and dimension of the model through a set of measurable items. Before final administration, the instrument was submitted to a number of experts for evaluation in terms of clarity, item appropriateness, correspondence with the relevant constructs, and adequacy of content coverage. Following the required revisions, the final version of the questionnaire was used for quantitative data collection. The sample size for the quantitative phase was determined on the basis of structural equation modeling requirements and the number of constructs, items, and relationships included in the model. Based on the minimum sample-size requirements for structural equation modeling, the sample was set at 200 participants.

Partial least squares structural equation modeling (PLS-SEM) was employed to analyze the quantitative data and test the conceptual model. The selection of this method was consistent with the exploratory-developmental nature of the study and its objective of developing and validating a new structural model.

Quantitative analysis was conducted at two levels:

a) Assessment of the Measurement Model

At this stage, construct reliability and validity were examined. Cronbach's alpha and composite reliability were used to assess reliability, whereas average variance extracted (AVE) was employed to examine convergent validity. Discriminant validity and the degree of distinction among the constructs were also evaluated.

b) Assessment of the Structural Model

Following confirmation of the quality of the measurement model, the relationships among the research constructs were examined. At this stage, path coefficients, statistical significance of relationships, coefficients of

determination, effect sizes, and the predictive capability of the model were evaluated. Bootstrapping was used to assess the statistical significance of the path coefficients. The primary focus of the structural analysis was to determine whether the two principal structures examined in the study, namely leveraged structures and Ponzi structures, could explain the emergence of different reporting configurations and whether the dimensions extracted from the qualitative phase exhibited the expected factorial structure and theoretical relationships.

In a sequential exploratory mixed-methods design, the findings of the quantitative phase are not regarded merely as an analysis independent of the qualitative phase; rather, their principal function is to validate and test the conceptual structure derived from the qualitative phase. Accordingly, during the integration stage, the components extracted in the qualitative phase and validated in the quantitative phase were incorporated into the final research framework. The relationships between the dimensions of leveraged and Ponzi structures and their consequences in the form of reporting configurations were then interpreted. This integration enabled the in-depth and context-specific findings obtained from the interviews to be combined with the quantitative evidence derived from structural modeling, thereby ensuring that the final model was based neither exclusively on expert perceptions nor solely on statistical relationships, but rather on both forms of evidence.

Following the extraction and validation of the model dimensions, the two principal dimensions of the study were incorporated into a structural framework. The first dimension, leveraged structures, consists of “institutional resource financing” and “capital resource financing,” whereas the second dimension, Ponzi structures, consists of “expectation manipulation” and “governance manipulation.”

The intersection of these two dimensions produces four theoretical financial reporting configurations.

Table 1. Four Theoretical Financial Reporting Configurations

Reporting Configuration	Influence Mechanism	Resource Financing
Competitive reporting	Expectation manipulation	Capital resources
Assertive governance reporting	Governance manipulation	Capital resources
Justificatory reporting	Expectation manipulation	Institutional resources
Conservative governance reporting	Governance manipulation	Institutional resources

Within this framework, the four configurations are not regarded as four independent and pre-existing reporting styles; rather, they represent conceptual outcomes arising from the interaction between the two principal structures examined in the study. Accordingly, the qualitative phase was responsible for identifying the underlying logic and content of these configurations, whereas the quantitative phase validated their structure and the relationships among their constituent dimensions.

3. Findings and Results

Analysis of the interviews revealed a set of themes related to disclosure of related-party transactions, customer concentration, board composition and characteristics, managerial ownership, legal risks, cost structure, profitability, human resources, free float, fair value of assets, financial statement restatements, and other aspects of reporting. These themes indicate that the reporting practices of firms exhibiting zombie characteristics extend beyond direct financial indicators and simultaneously encompass governance, ownership, resources, risk, and stakeholder expectations.

First Mechanism: Institutional Resource Financing

Within the institutional dimension, firms rely on resources received from superior institutions, government entities, or financial institutions in order to continue operating. Under such conditions, reporting may emphasize

the firm's economic role, employment generation, production, going-concern status, governance, and the necessity of institutional support. This mechanism provides the foundation for justificatory reporting and conservative governance reporting configurations.

Second Mechanism: Capital Resource Financing

Within the capital dimension, the firm seeks to attract or retain resources from shareholders and investors. In this context, information concerning growth in free-float shares, asset values, customers, performance, and governance characteristics may be emphasized to enhance investment attractiveness. This mechanism provides the foundation for competitive reporting and assertive governance reporting configurations.

Third Mechanism: Expectation Manipulation

Expectation manipulation focuses on shaping a positive perception of the firm's future. Within the identified themes, examples of this logic include providing information concerning growth, profits, predictable revenues, major customers, and other information capable of strengthening favorable expectations regarding future performance. When combined with institutional resource financing, this mechanism results in justificatory reporting, whereas its combination with capital resource financing results in competitive reporting.

Fourth Mechanism: Governance Manipulation

Governance manipulation focuses on emphasizing the firm's governance structure and governance capabilities. Disclosures concerning board composition, managerial ownership, board meetings, related-party transactions, compensation, and legal proceedings were among the themes associated with this mechanism. When this mechanism is combined with institutional resource financing, conservative governance reporting emerges, whereas its combination with capital resource financing produces assertive governance reporting.

First Configuration: Competitive Reporting

This configuration is located at the intersection of "capital resource financing" and "expectation manipulation." Its dominant logic is to enhance the firm's attractiveness to investors and facilitate market-based financing. Themes including disclosure of the growth rate of free-float shares, fair value of assets, tax exemptions, financial statement restatements, and information relating to pledged shares were classified within this cluster. Competitive reporting can therefore be understood as an outcome of the interaction between the need for capital resources and attempts to create favorable expectations.

Second Configuration: Assertive Governance Reporting

This configuration occurs at the intersection of "capital resource financing" and "governance manipulation." Under these circumstances, rather than primarily relying on institutional resources, the firm uses its governance capabilities to strengthen investor confidence and attract capital resources. Disclosures concerning the number of board meetings, related-party transactions, customer concentration, board compensation, legal proceedings, and managerial ownership are among the themes associated with this configuration. In the present study, the "assertive" characteristic of this configuration refers to the intensity with which governance mechanisms are used to attract capital resources and does not necessarily imply the actual strength or weakness of corporate governance.

Third Configuration: Justificatory Reporting

This configuration is situated at the intersection of "institutional resource financing" and "expectation manipulation." Under this configuration, reporting emphasizes the firm's economic role, employment, production, increasing costs, declining profitability, and other external or structural factors in order to highlight the necessity of continued institutional support. Themes such as disclosure of workforce recruitment relative to downsizing,

reporting of cost stickiness, increases in operating expenses relative to sales, cumulative profits, and interim profit reporting were classified within this cluster.

Fourth Configuration: Conservative Governance Reporting

This configuration occurs at the intersection of “institutional resource financing” and “governance manipulation.” In this situation, the firm seeks to strengthen the confidence of resource-providing institutions by emphasizing governance mechanisms, board composition, ownership, internal control, and managerial characteristics. Themes such as highlighting the political and institutional composition of the board, internal control weaknesses, membership of non-executive directors, ownership concentration, and board size were classified within this configuration.

Taken together, the findings indicate that the four reporting configurations can be conceptualized as the outcome of combining two types of resource requirements with two types of influence mechanisms. Accordingly, reporting in firms exhibiting zombie characteristics is neither a decision entirely independent of their financial and institutional structures nor merely a reflection of actual performance; rather, it is shaped within an interactive environment involving resource financing and stakeholder perception management.

Table 2. Final Configuration Mechanism Framework

Leveraged Structure Dimension	Ponzi Structure Dimension	Configuration	Dominant Logic
Capital resource financing	Expectation manipulation	Competitive reporting	Attracting/retaining capital by reinforcing positive expectations
Capital resource financing	Governance manipulation	Assertive governance reporting	Attracting capital by emphasizing governance capabilities
Institutional resource financing	Expectation manipulation	Justificatory reporting	Justifying continued operation and the need for institutional support
Institutional resource financing	Governance manipulation	Conservative governance reporting	Strengthening institutional trust by emphasizing governance mechanisms

Table 3. Structure of the Quantitative Research Instrument

Section	Construct	Number of Items
Leveraged structure	Institutional resource financing	5
Leveraged structure	Capital resource financing	6
Ponzi structure	Expectation manipulation	4
Ponzi structure	Governance manipulation	5
Outcome	Competitive reporting	6
Outcome	Justificatory reporting	6
Outcome	Conservative governance reporting	6
Outcome	Assertive governance reporting	6

The table above presents the overall structure of the research data collection instrument and the number of items allocated to each principal construct and dimension. Based on the study’s conceptual framework, the variables were classified into three principal sections: leveraged structure, Ponzi structure, and reporting outcomes. Overall, the research instrument consisted of 44 items designed to measure the various dimensions of the constructs under investigation. Within the leveraged structure section, the two constructs of “institutional resource financing” and “capital resource financing” were assessed. Institutional resource financing was measured using 5 items, whereas capital resource financing was measured using 6 items. Thus, a total of 11 items were allocated to assessing the dimensions of leveraged structure. These items were designed to evaluate dimensions associated with the manner

in which resources are financed and mobilized and the roles of institutional and capital resources within the framework under investigation.

Within the Ponzi structure section, the two constructs of “expectation manipulation” and “governance manipulation” were examined. Expectation manipulation was measured using 4 items and governance manipulation using 5 items; consequently, this section comprised a total of 9 items. Allocating multiple items to these constructs made it possible to evaluate different dimensions of expectation- and governance-related manipulation processes and their roles within the research model.

The third section of the research instrument was devoted to reporting outcomes, which were assessed through the four constructs of “competitive reporting,” “justificatory reporting,” “conservative governance reporting,” and “assertive governance reporting.” Six items were assigned to each of these four constructs, resulting in a total of 24 items measuring reporting outcomes. The use of an equal number of items for these four constructs enabled a balanced assessment and comparison of the various reporting dimensions within the structural model.

Overall, the largest proportion of questionnaire items was allocated to the outcome constructs and various dimensions of reporting. Specifically, 24 of the 44 items, equivalent to approximately 54.5% of the entire instrument, were related to reporting outcomes. In comparison, leveraged structure accounted for 11 items, or approximately 25%, whereas Ponzi structure accounted for 9 items, or approximately 20.5%, of all items. This distribution indicates that particular emphasis was placed on measuring the various reporting dimensions as the principal outcomes under investigation. Accordingly, the research instrument consisted of 44 items across 8 constructs, systematically covering the three principal sections of the model: leveraged structure, Ponzi structure, and reporting outcomes. This structure made it possible to examine relationships between the predictor variables and reporting outcomes using partial least squares structural equation modeling (PLS-SEM).

Table 4. Demographic Characteristics of the Quantitative Sample

Variable	Category	Frequency	Percentage
Age	Under 30 years	32	16.0
	30–39 years	68	34.0
	40–49 years	61	30.5
	50 years and older	39	19.5
	Total	200	100.0
Educational level	Bachelor’s degree	46	23.0
	Master’s degree	103	51.5
	Doctoral degree	51	25.5
	Total	200	100.0
Work experience	Less than 5 years	31	15.5
	5–10 years	59	29.5
	11–15 years	55	27.5
	More than 15 years	55	27.5
	Total	200	100.0

As shown in the table above, among the 200 respondents, the largest age group was 30–39 years, comprising 68 participants (34.0%). This was followed by the 40–49-year age group with 61 participants (30.5%). Furthermore, 39 respondents (19.5%) were aged 50 years or older, whereas 32 respondents (16.0%) were younger than 30 years. Overall, the relatively high concentration of participants in the 30–49-year age range indicates substantial representation of individuals with professional experience within the research sample.

In terms of educational attainment, the largest proportion of respondents held a master's degree, with 103 participants accounting for 51.5% of the sample. In addition, 51 respondents (25.5%) held doctoral degrees, whereas 46 respondents (23.0%) held bachelor's degrees. Thus, more than three-quarters of the respondents had postgraduate qualifications, which is consistent with the specialized nature of the research topic and its statistical population in the fields of accounting, auditing, and financial reporting.

Regarding work experience, 31 respondents (15.5%) had less than 5 years of experience, 59 respondents (29.5%) had between 5 and 10 years, 55 respondents (27.5%) had between 11 and 15 years, and 55 respondents (27.5%) had more than 15 years of professional experience. Thus, a substantial proportion of respondents had more than 10 years of professional experience, suggesting that the sample possessed considerable expertise in accounting, auditing, and financial reporting.

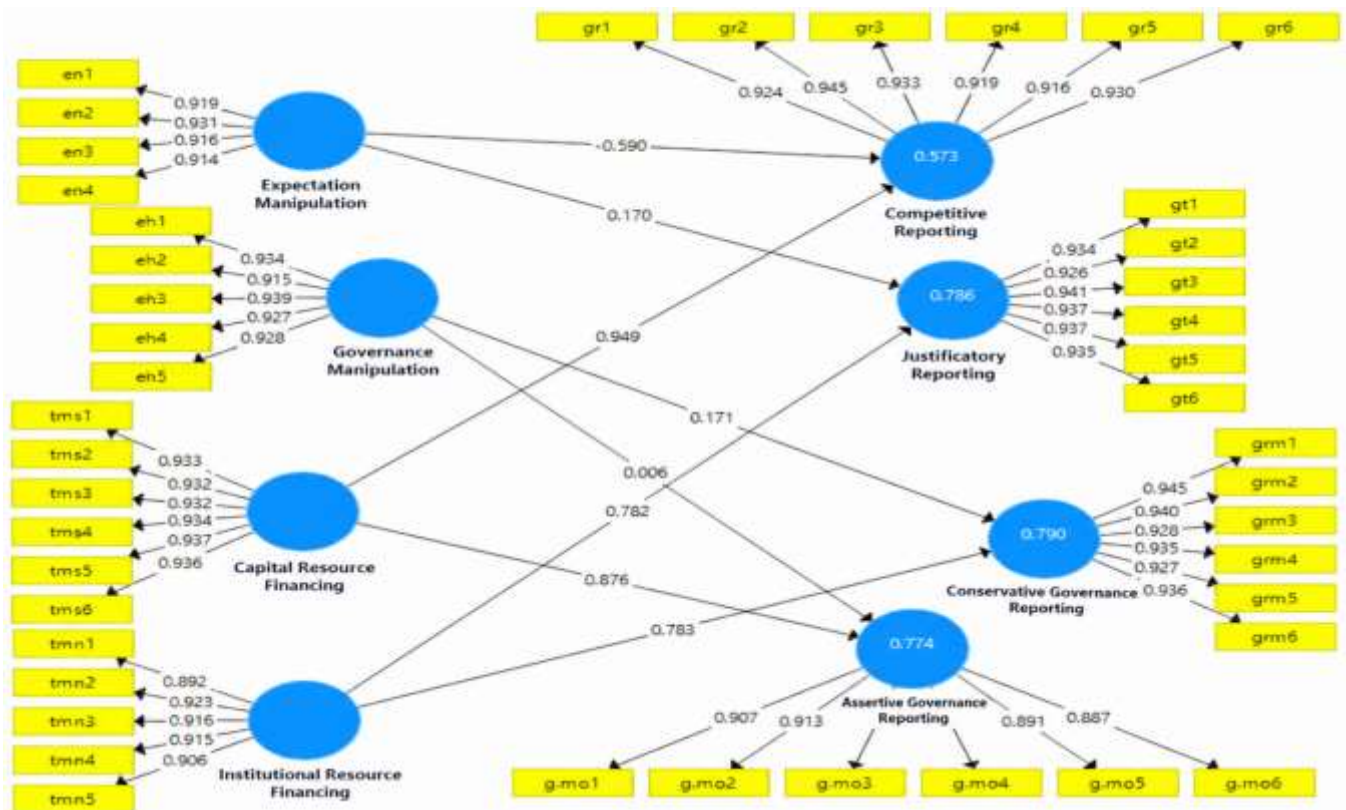


Figure 1. Factor Loadings and Path Analysis

Figure 1 presents the results of estimating the model using partial least squares structural equation modeling (PLS-SEM). The figure reports the factor loadings of the observed indicators, the path coefficients among the research constructs, and the coefficients of determination for the endogenous constructs.

As shown in the figure, the factor loadings of the items measuring the research constructs ranged approximately from 0.887 to 0.945. More specifically, the factor loadings of the "expectation manipulation" indicators ranged from 0.914 to 0.931, those of "governance manipulation" ranged from 0.915 to 0.939, those of "capital resource financing" ranged from 0.932 to 0.937, and those of "institutional resource financing" ranged from 0.892 to 0.923. The factor loadings associated with the reporting constructs were also at desirable levels. The factor loadings for competitive reporting ranged from 0.916 to 0.945, those for justificatory reporting ranged from 0.926 to 0.941, those for conservative governance reporting ranged from 0.928 to 0.945, and those for assertive governance reporting ranged from 0.887 to 0.913. Because all observed factor loadings exceeded the conventional threshold of 0.70, it can be

concluded that the indicators had adequate explanatory power for their respective constructs and that, at the indicator level, the measurement model provided satisfactory preliminary evidence of convergent validity.

The structural model results indicate variation in the path coefficients between the predictor constructs and the reporting dimensions. According to Figure 1, the path coefficient from “expectation manipulation” to competitive reporting was -0.0590 , whereas its coefficient for justificatory reporting was 0.170 . The path coefficient from “governance manipulation” to one reporting dimension was 0.171 , whereas the coefficient for the other path was 0.006 . Among the paths associated with resource-financing structures, the coefficient from “capital resource financing” to competitive reporting was 0.949 , whereas its coefficient for assertive governance reporting was 0.876 . Likewise, the coefficient from “institutional resource financing” to justificatory reporting was 0.782 , whereas its coefficient for conservative governance reporting was 0.783 . These coefficients represent the estimated magnitude and direction of relationships among the model constructs. However, observation of the path coefficients alone is insufficient for accepting or rejecting the hypotheses; therefore, the statistical significance of each path must be assessed using t-statistics, significance levels, or bootstrapped confidence intervals.

The values presented within the endogenous constructs represent their coefficients of determination (R^2). The R^2 value was 0.573 for competitive reporting, 0.786 for justificatory reporting, 0.790 for conservative governance reporting, and 0.774 for assertive governance reporting. Accordingly, the predictor constructs explained 57.3% , 78.6% , 79.0% , and 77.4% of the variance in the corresponding reporting dimensions, respectively. Therefore, the model demonstrated relatively high explanatory power for justificatory reporting, conservative governance reporting, and assertive governance reporting, whereas its explanatory power for competitive reporting was also acceptable. Overall, the results presented in the figure indicate that the model exhibits satisfactory factor loadings at the indicator level and that the predictor constructs explain a substantial proportion of variation in the reporting constructs. Nevertheless, a comprehensive assessment of the measurement and structural models requires simultaneous examination of reliability, convergent validity, discriminant validity, collinearity, statistical significance of path coefficients, effect sizes, and predictive capability.

Table 5. Reliability and Convergent Validity

Construct	Cronbach's Alpha	Composite Reliability (CR)	AVE	Status
Expectation manipulation	0.85	0.89	0.68	Satisfactory
Governance manipulation	0.86	0.90	0.69	Satisfactory
Capital resource financing	0.88	0.91	0.72	Satisfactory
Institutional resource financing	0.82	0.85	0.66	Satisfactory
Competitive reporting	0.87	0.91	0.71	Satisfactory
Justificatory reporting	0.81	0.84	0.67	Satisfactory
Conservative governance reporting	0.89	0.92	0.73	Satisfactory
Assertive governance reporting	0.91	0.94	0.75	Satisfactory

To assess the quality of the measurement model, the internal consistency reliability and convergent validity of the constructs were examined using Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE). The results presented in the table indicate that Cronbach's alpha coefficients for all research constructs ranged from 0.81 to 0.91 . Because Cronbach's alpha values above 0.70 indicate an acceptable level of internal consistency reliability, all constructs examined in the study can be considered to possess satisfactory internal consistency and stability.

The composite reliability (CR) values ranged from 0.84 to 0.94 . Given that values above 0.70 are generally regarded as indicating acceptable composite reliability, the findings indicate that the indicators associated with

each construct consistently and appropriately measure the intended concept. The highest composite reliability was observed for assertive governance reporting (0.94), whereas the lowest was observed for justificatory reporting (0.84); both values were within the satisfactory range.

Regarding convergent validity, AVE values ranged from 0.66 to 0.75. Because an AVE value equal to or greater than 0.50 indicates that a construct explains a substantial proportion of the variance in its indicators, all research constructs can be considered to exhibit satisfactory convergent validity. The highest AVE was observed for assertive governance reporting (0.75), whereas the lowest was observed for institutional resource financing (0.66), both of which were considerably above the recommended threshold. Overall, the results demonstrate that expectation manipulation, governance manipulation, capital resource financing, institutional resource financing, competitive reporting, justificatory reporting, conservative governance reporting, and assertive governance reporting exhibited satisfactory internal consistency reliability, composite reliability, and convergent validity. Therefore, the measurement model possessed adequate quality and stability to proceed to the structural model assessment stage, and the indicators demonstrated sufficient capability to measure the intended constructs. Nevertheless, complete confirmation of construct validity cannot be achieved solely through Cronbach's alpha, CR, and AVE. Accordingly, discriminant validity was subsequently examined using the Fornell–Larcker criterion to determine whether the research constructs exhibited sufficient conceptual and empirical distinctiveness.

Table 6. Discriminant Validity Based on the Fornell–Larcker Criterion

Construct	1	2	3	4	5	6	7	8
1. Expectation manipulation	0.82							
2. Governance manipulation	0.63	0.83						
3. Capital resource financing	0.59	0.66	0.85					
4. Institutional resource financing	0.61	0.64	0.68	0.80				
5. Competitive reporting	0.64	0.68	0.72	0.78	0.84			
6. Justificatory reporting	0.62	0.64	0.69	0.74	0.76	0.82		
7. Conservative governance reporting	0.57	0.61	0.65	0.70	0.73	0.71	0.85	
8. Assertive governance reporting	0.60	0.63	0.67	0.72	0.75	0.74	0.79	0.87

The Fornell–Larcker criterion was used to assess the discriminant validity of the research constructs. Under this criterion, the square root of the average variance extracted ($\sqrt{\text{AVE}}$) for each construct is placed along the main diagonal of the matrix and compared with the correlations between that construct and the other constructs. When the $\sqrt{\text{AVE}}$ of a construct exceeds all of its correlations with other constructs, the construct can be regarded as exhibiting adequate empirical distinctiveness.

As shown in the table, the diagonal values for “expectation manipulation,” “governance manipulation,” “capital resource financing,” “institutional resource financing,” “competitive reporting,” “justificatory reporting,” “conservative governance reporting,” and “assertive governance reporting” were 0.82, 0.83, 0.85, 0.80, 0.84, 0.82, 0.85, and 0.87, respectively. Comparison of these values with the interconstruct correlations indicates that, in all cases, the $\sqrt{\text{AVE}}$ of each construct was greater than its correlations with the other constructs. Therefore, based on the Fornell–Larcker criterion, the research constructs demonstrated satisfactory discriminant validity. In other words, each construct explained a greater proportion of variance in its own indicators than the variance it shared with the other constructs. Consequently, the model constructs exhibited acceptable conceptual and empirical distinctiveness, and no construct merely represented redundant information already captured by another construct.

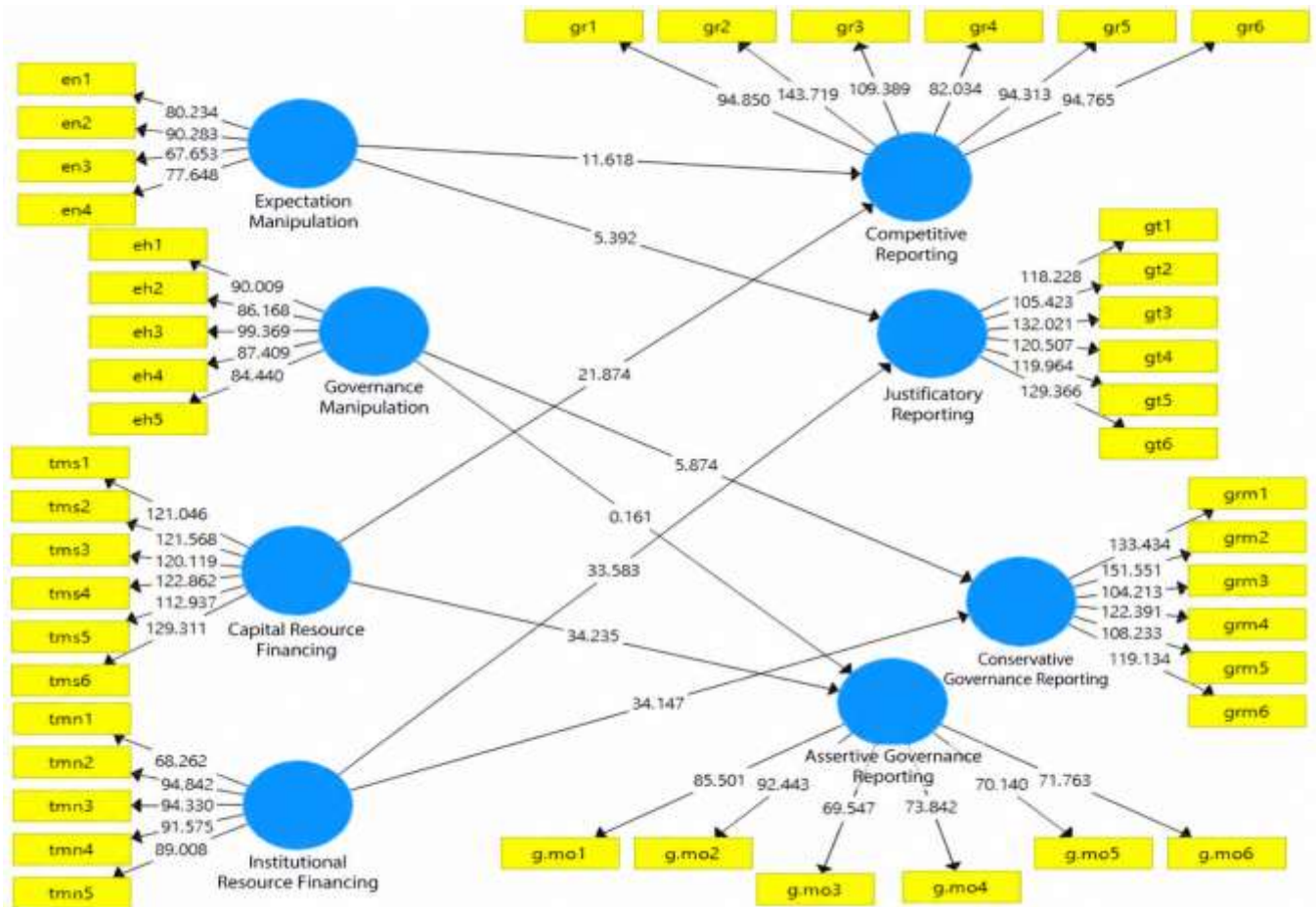


Figure 2. t-Statistics

According to the model output presented in Figure 2, bootstrapping and t-statistics within the PLS-SEM framework were used to assess the statistical significance of relationships among the research constructs. At the 95% confidence level, the critical value was set at 1.96; accordingly, whenever the absolute t-value for a path exceeded 1.96, the corresponding relationship was considered statistically significant.

The results presented in the figure indicate that the path from “expectation manipulation” to “competitive reporting” yielded a t-statistic of 11.618. Because this value substantially exceeds the critical value of 1.96, the relationship between the two constructs is statistically significant. Therefore, expectation manipulation plays a statistically significant role in explaining competitive reporting. The direction of this relationship, as indicated by the observed path coefficient, should also be considered in the final interpretation of the hypothesis.

Furthermore, the t-statistic for the path from “expectation manipulation” to “justificatory reporting” was 5.392. This value also exceeds the critical threshold of 1.96, indicating that the relationship is statistically significant. Accordingly, expectation manipulation is significantly associated with justificatory reporting, and the hypothesis corresponding to this path is supported in terms of statistical significance.

The findings related to “governance manipulation” further show that the t-statistic for its path to one reporting dimension was 5.874. As this value exceeds 1.96, the relationship is statistically significant. Accordingly, the relationship between governance manipulation and “conservative governance reporting” is significant, and the corresponding hypothesis is supported.

In contrast, the t-statistic for the path from “governance manipulation” to “assertive governance reporting” was 0.161. Because this value is below 1.96, the relationship is not statistically significant at the 95% confidence level.

Therefore, there is insufficient statistical evidence to support an effect of governance manipulation on assertive governance reporting, and the hypothesis associated with this relationship is rejected.

Moreover, “capital resource financing” demonstrated a highly significant relationship with “competitive reporting,” with a t-statistic of 21.874. This value is substantially greater than the critical threshold and indicates a strongly significant relationship. Therefore, the hypothesis concerning the effect of capital resource financing on competitive reporting is supported.

The t-statistic for the path from “capital resource financing” to “assertive governance reporting” was reported as 34.235. Given the substantial difference between this value and the critical threshold of 1.96, this relationship is highly statistically significant. Consequently, the hypothesis concerning the relationship between capital resource financing and assertive governance reporting is supported.

The results for “institutional resource financing” likewise indicate that the t-statistic for its path to “justificatory reporting” was 33.583, whereas the t-statistic for its path to “conservative governance reporting” was 34.147. Both values are substantially greater than 1.96. Therefore, both relationships are statistically significant, and the hypotheses concerning the effects of institutional resource financing on justificatory reporting and conservative governance reporting are supported.

Overall, seven of the eight structural relationships examined in the model were statistically significant. The only nonsignificant path was the relationship between “governance manipulation” and “assertive governance reporting,” for which the t-statistic was 0.161. Thus, the findings indicate that most predictor constructs in the model possess significant explanatory power with respect to the reporting configurations. However, the role of governance manipulation in the emergence of assertive governance reporting was not statistically supported in the present sample.

Table 7. Predictive Relevance and Effect Size Indices

Dependent Variable	Q ²	f ²	Explanatory Level
Competitive reporting	0.37	0.46	Strong
Justificatory reporting	0.41	0.52	Strong
Conservative governance reporting	0.39	0.48	Strong
Assertive governance reporting	0.43	0.55	Strong

To evaluate the predictive capability and effect sizes within the structural model, the Q² and f² indices were examined. The results indicate that Q² values for the four dependent variables—“competitive reporting,” “justificatory reporting,” “conservative governance reporting,” and “assertive governance reporting”—were 0.37, 0.41, 0.39, and 0.43, respectively. Because Q² values above 0.35 indicate strong predictive relevance, the structural model can be considered to possess satisfactory and strong predictive capability for all four reporting configurations.

The f² values for the four dependent variables were 0.46, 0.52, 0.48, and 0.55, respectively. Given that f² values above 0.35 indicate a large effect size, the results demonstrate that the predictor constructs exert substantial effects in explaining variation in the dependent variables. Overall, the Q² and f² findings indicate that the proposed model possesses not only strong predictive relevance but also large effect sizes. It can therefore be concluded that the structural model has an appropriate capacity to explain and predict the various financial reporting configurations of firms exhibiting zombie characteristics.

4. Discussion and Conclusion

The present study sought to develop and empirically test a causal model explaining financial reporting configurations in zombie firms through the interaction between resource-financing structures and stakeholder perception-management mechanisms. The findings provide empirical support for the proposed framework and show that financial reporting in firms exhibiting zombie characteristics is not merely a passive reflection of their underlying economic condition. Rather, reporting appears to be shaped by the interaction between the type of resources on which the firm depends and the mechanism through which it seeks to influence the perceptions of resource providers. The quantitative findings indicated that seven of the eight hypothesized relationships were statistically significant. Expectation manipulation was significantly associated with both competitive reporting and justificatory reporting; governance manipulation was significantly related to conservative governance reporting but not to assertive governance reporting; capital resource financing was significantly associated with competitive reporting and assertive governance reporting; and institutional resource financing was significantly associated with justificatory reporting and conservative governance reporting. Furthermore, the model explained 57.3% of the variance in competitive reporting, 78.6% in justificatory reporting, 79.0% in conservative governance reporting, and 77.4% in assertive governance reporting. The Q^2 values, ranging from 0.37 to 0.43, also indicated strong predictive relevance, while the reported f^2 values suggested large effects. Taken together, these findings support the proposition that zombie-firm reporting can be interpreted through identifiable configurations arising from distinct combinations of financing dependence and perception-management behavior.

The significant relationship between expectation manipulation and competitive reporting indicates that firms dependent on capital-market resources may use future-oriented information and favorable expectations as part of their reporting strategy. In the present model, competitive reporting was associated with disclosures concerning free-float growth, fair value of assets, tax advantages, financial statement restatements, pledged shares, and other information potentially relevant to investment attractiveness. This finding is theoretically consistent with the broader zombie-firm literature demonstrating that financially weak firms often remain dependent on continued external financing because internally generated resources are insufficient to sustain operations. The persistence of zombie firms has frequently been linked to financing conditions that allow economically weak firms to survive beyond what their underlying profitability would otherwise permit [1, 3]. More recent cross-country evidence similarly shows that access to financing and institutional conditions are central to the persistence of zombie firms across different economies [4]. Under such circumstances, shaping favorable expectations among investors becomes particularly important because continued market access depends not only on current financial performance but also on stakeholders' beliefs about future recovery and value creation.

This interpretation is also supported by research emphasizing information asymmetry in the identification and evaluation of zombie firms. Lin argues that zombie status becomes more difficult to identify accurately under information asymmetry because conventional accounting indicators may not fully represent the underlying economic viability of firms [12]. The significant relationship between expectation manipulation and competitive reporting identified in the present study can therefore be understood as a reporting response to precisely this informational setting. When economic weakness is accompanied by uncertainty about future viability, firms may have incentives to emphasize prospective growth, asset values, customer-related information, or other signals that sustain investor expectations. The evidence reported by Yu et al. further indicates that zombie firms can affect financial information transparency within the wider corporate environment, implying that zombification is

associated with changes not only in financing behavior but also in information dynamics [13]. The present findings extend this argument by suggesting that these information dynamics may take a distinct competitive form when capital resources are at stake.

The significant association between expectation manipulation and justificatory reporting represents a different use of expectations. Whereas competitive reporting is directed toward enhancing market attractiveness, justificatory reporting appears to operate within a context of institutional resource dependence. The qualitative findings showed that this reporting configuration emphasizes employment, production, rising costs, declining profitability, workforce retention, cost stickiness, operating expenses, and related factors that can be used to explain weak performance while simultaneously emphasizing the importance of continued organizational survival. This result is consistent with studies showing that zombie firms may persist because external parties continue to provide resources despite weak current performance. The early Japanese evidence demonstrated how distressed firms remained active through continuing financial support even when their economic fundamentals were weak [1, 2]. Similarly, the literature on zombie lending suggests that creditors may sometimes continue supporting weak firms because immediate liquidation or withdrawal of financing is not always the preferred economic outcome [7]. Justificatory reporting may therefore function as an informational mechanism through which firms frame continued support as economically, socially, or institutionally defensible.

The relationship between institutional resource financing and justificatory reporting was one of the strongest structural relationships in the model, with a path coefficient of 0.782 and a very high t-statistic. This finding reinforces the argument that dependence on institutional sources of resources substantially shapes the content and orientation of financial reporting. Firms that rely on government bodies, financial institutions, parent organizations, or other institutional actors may face incentives different from those faced by firms seeking resources primarily from equity investors. Under institutional dependence, maintaining legitimacy and explaining the necessity of continued support may become more important than signaling rapid market growth. This result corresponds with evidence that zombie firms differ considerably in their financing structures, survival pathways, and institutional environments [9, 10]. The recovery and exit literature similarly demonstrates that zombie firms do not follow a uniform trajectory; some recover, some remain in prolonged distress, and others eventually exit, with financing conditions and firm characteristics influencing these outcomes [8]. The present findings suggest that reporting itself may form part of this survival process by supporting the narrative through which institutional resources continue to be justified.

The significant relationship between institutional resource financing and conservative governance reporting provides further evidence that institutional resource providers are sensitive not only to economic justifications but also to governance signals. Conservative governance reporting in this study included themes related to board composition, political and institutional representation, internal control weaknesses, ownership concentration, board size, and the presence of non-executive directors. This result is consistent with the established literature linking governance mechanisms to financial reporting behavior and accounting conservatism. García Lara et al. found that stronger governance arrangements are associated with more conservative accounting practices, indicating that governance structures materially affect the way financial information is recognized and reported [15]. Evidence from India likewise confirms that corporate governance is significantly associated with accounting conservatism and reporting discipline [16]. In the present study, however, governance-related reporting appears to have an additional strategic role: it can be used to strengthen institutional confidence in firms whose financial sustainability may otherwise be questionable.

This interpretation is also consistent with evidence concerning governance and zombie-firm exit. Veganzones and Severin showed that corporate governance characteristics influence the time required for French zombie firms to exit zombie status, suggesting that governance arrangements are relevant to organizational persistence and restructuring [17]. The present findings add a reporting dimension to this relationship. If resource-providing institutions evaluate the governance capacity of financially weak firms when deciding whether to continue support, then firms have incentives to disclose governance arrangements in ways that reduce perceived uncertainty and communicate organizational control. The significance of governance manipulation for conservative governance reporting therefore suggests that governance information may operate not only as a monitoring device but also as a mechanism of stakeholder assurance.

The strongest path coefficient in the model was observed between capital resource financing and competitive reporting. This result indicates that capital dependence is a particularly powerful determinant of reporting directed toward investment attractiveness. Zombie firms seeking to attract or retain capital investors must compete for resources despite their weak underlying financial position. Under such conditions, reporting may emphasize information that supports valuation, marketability, or future recovery. This interpretation is consistent with the finding that zombie firms pursue distinctive corporate policies in response to financing constraints and survival pressures [10]. It is also compatible with evidence showing that zombification affects investment and innovation behavior. Ascani and Nair demonstrate that zombie status has significant implications for firms' innovative activities, illustrating that the consequences of zombification extend beyond solvency and into strategic resource allocation [11]. Competitive reporting can therefore be viewed as part of a broader strategic response through which financially constrained firms seek to preserve access to external capital.

Capital resource financing was also strongly associated with assertive governance reporting, with a path coefficient of 0.876. This finding indicates that firms seeking capital resources may use governance disclosures as an important component of investor-oriented reporting. The qualitative findings identified board meetings, related-party transactions, customer concentration, board compensation, legal proceedings, and managerial ownership as salient themes within this configuration. In this context, governance reporting may be used to project organizational competence, monitoring capacity, and managerial control to investors. This interpretation aligns with the broader literature showing that governance structures influence both reporting practices and perceptions of corporate quality [15, 16]. For zombie firms, where investors may be particularly concerned about agency problems and continued value destruction, governance disclosures can become strategically important signals intended to compensate for weak economic indicators.

An important finding of the study, however, was that governance manipulation did not have a statistically significant relationship with assertive governance reporting. This was the only unsupported path in the structural model. The nonsignificant result suggests that assertive governance reporting may be driven more directly by the firm's need for capital resources than by an independent attempt to manipulate perceptions through governance-related mechanisms. In other words, governance disclosures may become assertive primarily because capital-market financing creates a demand for them, rather than because governance-oriented perception management alone generates this reporting configuration. This interpretation is consistent with evidence showing that zombie-firm behavior is strongly conditioned by financing structures and resource dependence [3, 4]. It also corresponds with research emphasizing that governance affects the trajectory of zombie firms, but its effects are contingent on broader organizational and financial conditions [17]. Thus, the nonsignificant path does not imply that governance

is irrelevant; rather, it indicates that governance-related perception management may require the presence of a stronger financing incentive before it is translated into an assertive reporting style.

The predictive strength of the model further supports the usefulness of the configurational perspective developed in this study. The relatively high R^2 values for justificatory, conservative governance, and assertive governance reporting indicate that the proposed predictors explain a large proportion of variation in these reporting outcomes. The strong Q^2 values likewise suggest that the model has meaningful predictive relevance. These findings are important because existing zombie-firm research has generally concentrated on identification, prevalence, lending, productivity, innovation, recovery, and exit rather than on a systematic explanation of alternative reporting configurations. The systematic review of the zombie-firm literature emphasizes the multidimensional nature of the phenomenon and the need to integrate financial, governance, and strategic perspectives [5]. The present study responds to this need by demonstrating that resource-financing structures and perception-management mechanisms jointly provide substantial explanatory power for differences in reporting behavior.

The findings also have implications for auditing and the external evaluation of zombie firms. Munoz-Izquierdo et al. show that zombie status is relevant to disclosures in expanded audit reports, underscoring the importance of external assurance and audit communication in environments characterized by financial weakness and uncertainty [14]. The present results suggest that auditors and other external users should evaluate not only individual accounting figures but also the broader configuration of reporting. A firm that combines severe resource dependence with strongly positive expectation-oriented disclosures may warrant a different interpretation from a firm emphasizing governance arrangements and institutional continuity. This configurational approach is especially relevant because zombie status can be difficult to measure under asymmetric information [12]. Therefore, understanding the interaction among financing dependence, reporting emphasis, and stakeholder-targeted narratives may provide a more complete interpretation of the reporting environment surrounding financially vulnerable firms.

Overall, the findings extend prior research by showing that the financial reporting of zombie firms can be understood as an interaction between resource dependence and stakeholder perception management. Earlier studies established the economic costs associated with persistent zombie firms, including inefficient allocation of capital, reduced productivity, excess capacity, and distortion of competitive processes [1, 3, 6]. Other studies showed that zombie firms differ in corporate policies, innovation, recovery prospects, and exit trajectories [8, 9, 11]. The present study complements these findings by identifying financial reporting as another important behavioral dimension of zombification. Its principal contribution lies in demonstrating that reporting behavior can be classified into competitive, justificatory, conservative governance, and assertive governance configurations according to the interaction between the source of financing and the type of perception-management mechanism employed. This framework therefore provides a more nuanced understanding of financial reporting in firms whose continued existence depends on persuading external stakeholders to maintain economic support.

The present study is subject to several limitations. First, the quantitative phase was based on a sample of 200 accounting, auditing, finance, and reporting professionals from Tehran and Alborz Provinces, which may restrict the generalizability of the results to other geographic, institutional, and regulatory environments. Second, the measurement instrument was researcher-developed and derived from the qualitative phase, and although its reliability and validity were supported, the constructs introduced in this study require additional replication before they can be regarded as fully established measurement scales. Third, the study relied primarily on professional

perceptions rather than direct longitudinal observation of actual corporate reporting decisions by identified zombie firms. Fourth, the cross-sectional design limits the possibility of establishing temporal causality between resource-financing structures, perception-management mechanisms, and reporting configurations. Finally, the four configurations identified in the study simplify a potentially more complex continuum of reporting behavior, and individual firms may exhibit characteristics associated with more than one configuration simultaneously.

Future studies should replicate the proposed model in larger and more diverse samples and across different industries, countries, financial systems, and regulatory environments. Longitudinal research could examine whether firms move from one reporting configuration to another as financing conditions, governance structures, or financial distress change over time. Researchers could also combine questionnaire data with archival financial statements, annual reports, audit reports, corporate governance disclosures, and textual analysis to determine whether the proposed reporting configurations can be objectively identified in actual corporate documents. Future research may further investigate moderating variables such as ownership type, government affiliation, creditor concentration, audit quality, financial distress severity, institutional ownership, and capital-market development. Comparative studies between zombie and non-zombie firms could also determine whether the identified configurations are unique to zombification or represent broader patterns of strategic financial reporting under resource dependence.

Practitioners should evaluate the reporting of financially vulnerable firms as an integrated configuration rather than relying exclusively on isolated financial ratios or individual disclosure items. Auditors, investors, lenders, regulators, and institutional resource providers should pay particular attention to the alignment between a firm's financing dependence and the information it chooses to emphasize. Strongly optimistic future-oriented disclosures should be assessed alongside objective evidence regarding cash flows, debt-servicing capacity, and operational sustainability, while governance-related disclosures should be examined for their substantive effectiveness rather than their mere presence. Regulators and standard setters may also consider developing enhanced disclosure requirements for firms exhibiting persistent financial weakness, particularly regarding resource dependence, refinancing, going-concern uncertainty, government or institutional support, governance effectiveness, and the assumptions underlying forward-looking information. Such measures could improve transparency and reduce the possibility that reporting configurations obscure rather than clarify the economic condition of zombie firms.

Authors' Contributions

Authors equally contributed to this article.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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